PROBLEMS AND PROSPECTS OF AYURVEDIC MEDICINE MANUFACTURING UNITS IN THE NORTHERN REGION OF KERALA WITH SPECIAL REFERENCE TO MARKETING

Thesis
Submitted to the
University of Calicut
for the Award of the Degree of
Doctor of Philosophy in Commerce

by

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Under the Supervision of
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CERTIFICATE

Certified that the thesis entitled **'PROBLEMS AND PROSPECTS OF AYURVEDIC MEDICINE MANUFACTURING UNITS IN THE NORTHERN REGION OF KERALA WITH SPECIAL REFERENCE TO MARKETING'**, which is being submitted for the award of the Degree of Doctor of Philosophy in Commerce, is an authentic record of the work carried out by **Mr. ABDURAHIMAN. P.A.** under my supervision and guidance.

He is allowed to submit this thesis.

Calicut University.
Date: 19-04-2004

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V

DECLARATION

I hereby declare that the thesis entitled **'PROBLEMS AND PROSPECTS OF AYURVEDIC MEDICINE MANUFACTURING UNITS IN THE NORTHERN REGION OF KERALA WITH SPECIAL REFERENCE TO MARKETING'** is a bonafide record of research work done by me and that no part of this thesis has been presented before for the award of any degree, diploma or other similar titles.

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ABBREVIATIONS AND ACRONYMS

AAFP	:	American Academy of Family Physicians
ADMA	:	Ayurvedic Drug Manufacturers Association, Bangalore
APC	:	Ayurvedic Pharmacopoeia Committee
ASU	:	Ayurveda, Siddha and Unani
AVP	:	Arya Vaidya Pharmacy (Coimbatore) Limited, Coimbatore
AVS	:	Arya Vaidya Sala, Kottakkal, Malappuram
CAM	:	Complementary and Alternative Medicines
CCIM	:	Central Council of Indian Medicine
CCRAS	:	Central Council for Research in Ayurveda and Siddha
CGHS	:	Central Government Health Scheme
CIMH	:	Centre for Indian Medical Heritage
DSY	:	Deseeya Ayurvedic Pharmacy, Poonoor, Kozhikode
EMR	:	Exclusive Marketing Rights
GATT	:	General Agreement on Tariff and Trade
GMP	:	Good Manufacturing Practice
ICMR	:	Indian Council of Medical Research
IMCC	:	Indian Medicine Central Council
IMPCOPS	:	Indian Medical Practitioners Co-operative Pharmacy & Stores Limited, Chennai
IP	:	Intellectual Property
IPGTR	:	Institute of Post-Graduate Teaching and Research in Ayurveda
IPR	:	Intellectual Property Right
ISM	:	Indian Systems of Medicine / Indigenous Systems of Medicine
ISM & H	:	Indian Systems of Medicine and Homoeopathy
ITCOT	:	Industrial and Technical Consultancy Organisation of Tamil Nadu Limited, Chennai
JB	:	Jaya Bharatham Arya Vaidyasala, Punalur

KAC	:	Kerala Ayurvedic Co-operative Society Limited., Meenchanda, Kozhikode
KAPL	:	Kerala Ayurveda Pharmacy Limited, Aluva
KGD	:	Kasargode District
KKD	:	Kozhikode District
L	:	Large sized units
M	:	Medium sized units
MGL	:	Mangalodayam Vaidyasala, Changaramkulam, Malappuram
MNC	:	Multi-national Company
MPM	:	Malappuram District
NGO	:	Non-Government Organisation
NHC	:	Nagarjuna Herbal Concentrates Limited, Thodupuzha
NHDB	:	National Herbal Development Board
NIAM	:	National Institute of Ayurvedic Medicine, U.S.A.
OTC	:	Over The Counter
OUS	:	The Pharmaceutical Corporation (I.M.) Kerala Limited, Thrissur (Oushadhi)
P & P	:	Patent and Proprietary
PLIM	:	Pharmacopoeial Laboratory for Indian Medicine
R & D	:	Research and Development
RCH	:	Reproductive and Child Health Programme
S	:	Small sized units
SDP	:	S.D. Pharmacy, Alappuzha
SNA	:	S.N.A. Vaidyasala, Thrissur
STR	:	Sitaram Ayurveda Pharmacy Limited, Thrissur
TSM	:	Traditional Systems of Medicine
TSR	:	Thrissur District
VAD	:	Venkataramana Ayurvedic Dispensary, Chennai
VDR	:	Vaidyaratnam Oushadhasala, Ollur, Thrissur
VSK	:	Viswakeerthy Ayurvedic Pharmacy Private Limited, Kanhippura, Malappuram

CHAPTER I

INTRODUCTION

INTRODUCTION

Human health and knowledge of preserving it have come into being almost simultaneously. All known cultures of the past such as Egyptian, Babylonian, Jewish, Greek and Indus-valley had their own glorious and useful systems of medicine and health care. In India, the development of Ayurveda, one of the Indian systems of medicine, occurred with the evolution and growth of the Indian civilisation and culture.

The consistent spurt in enthusiasm towards Ayurveda in the past few decades has resulted in a new era of marketing. More and more people are turning to natural products due to various factors such as the limitations and side effects of modern synthetic medicines. The system of Ayurveda, which has proven its efficacy for thousands of years in India, has recently aroused the interest of the entire world as an alternative and holistic natural health care system. Ayurveda has its own special brand equity in Kerala since this body of knowledge is still preserved and practised with the highest purity in the State.

The rich flora and fauna of Kerala contributed to the development of Ayurveda and Ayurvedic medicine manufacturing units within the region. Apart from the Ayurvedic products sold by these units, the Ayurvedic treatment methods and procedures developed to suit the lifestyle practices of the people of this part of the country have good international health care market. For example, the *Panchakarma* therapy intended to remove the accumulated toxins from the human body had already gained international

attention. Further, many of the rejuvenative services provided by the hospitals attached to the manufacturing units are capable of slowing down the ageing process, thus giving better health and complexion to the body.

Ayurvedic treatment system in Kerala can effectively manage chronic diseases such as arthritis, psoriasis and paralysis. Many of the problems of old age can be successfully managed through Kerala Ayurveda. A good number of the Indian corporates have to a associate themselves with the experienced players of Ayurveda of Kerala for tapping the potentials of the medical system. Although the medical system in the State has its own identity, the Kerala Ayurvedic industry has to further develop its brand equity in the international market. Presently, preventive Ayurvedic medicines under the category 'food supplements' only are exported and the foreigners are to be attracted to the treatment sector. Some efforts are put by the treatment centres and tourist resorts associated with the Ayurvedic medicine manufacturing units to develop Ayurvedic rejuvenation for foreigners.

SIGNIFICANCE AND SCOPE OF THE STUDY

The term 'Indian Systems of Medicine and Homoeopathy' (ISM & H) is generally used to include Ayurveda, Unani, Siddha, Yoga, Naturopathy and Homoeopathy systems of medicine. They are often referred to as Complementary and Alternative Medicines (CAM) outside India and Traditional Systems of Medicine (TSM) in India. People of India continue to use ISM & H widely due to the side effects associated with modern synthetic medicines and probably because ISM & H are within the financial reach of most of the patients.

According to WHO, a significant percentage of the people in India are using TSM and expenditure on them is rising. The world market for herbal products including herbal medicines (Ayurveda is included under this category) has been estimated to have an annual growth rate between 5 per cent and 15 per cent. The positive features of ISM & H, especially Ayurveda, include their affordability to common man, low level of technological input required for the production of the medicines and growing economic value. Lower level of capital investment is required even in large sized Ayurvedic medicine manufacturing units where production is carried out mostly in mechanised manner and the level of employment in these units is higher compared to the units manufacturing modern medicines.

As per the Draft National Policy on ISM, 2001, there are 8533 licensed Ayurvedic medicine manufacturing units in India which is more than 85 per cent of the ISM & H medicine manufacturing units. The number of Ayurvedic medicine manufacturing units by the end of March, 2003 is estimated to be more than 9000. In Kerala, the corresponding figure is nearly 10 per cent of the total units in India, i.e., 900 units.

The Government of India has, in recent years, envisaged various plans for the growth of herbal drug manufacturing sector which included Ayurvedic medicine manufacturing industry. Accordingly, the Medicinal Plants Board was set up in November, 2000 and the Draft National Policy on Indian Systems of Medicine, 2001 was formulated to put an end to the long neglect of Indian systems of medicine. The policy aims at declaring ISM a priority industry and

to provide it with infrastructure facilities for equipments, drug consumables, information technology, access to markets including foreign markets, standardisation of products, quality control of raw materials as well as finished products, etc.

The rich medicinal plant wealth, better human resource base and unique medicines and treatment procedures are the assets of Kerala for the growth of Ayurvedic medicine manufacturing units. Ayurveda and green health traditions of Kerala have started gaining appreciation in the industrialised countries. Thus, the efficacy of Ayurvedic medicines and Ayurveda of Kerala as a holistic natural health care system have aroused the interests of not only the people of Kerala but the other masses of India and the entire world.

In spite of the better prospects of the Ayurvedic medicine manufacturing units of Kerala, a good number of general as well as marketing problems severely cripple the growth of the units. The present study attempts to cover the important problems of the units in the northern region of Kerala. Although a number of problems in relation to good manufacturing practice (GMP) existed in the beginning of the study, the intervention of various associations of the units and the positive response of the Government of India have minimised the effects of such problems and hence they are excluded under the scope of the study. This study is proposed since only a few of this type are learnt to have been conducted earlier which would be evident from the review of literature given below.

REVIEW OF LITERATURE

Survey of literature reveals that a few earlier studies were conducted in the following areas:

1. Development of Ayurveda
2. The system of Ayurveda
3. Aspects of medicinal plants
4. Marketing of Ayurvedic medicines

The studies grouped under the above heads are reviewed in the following paragraphs.

1. Development of Ayurveda

Madan Lal (1976) attempted to describe the impact made by Ayurveda on the Atharvanic tradition in his study titled "Ayurveda in Atharvanic Tradition."

In the study conducted by Nirmal Saxena (1979), the historical development of Ayurveda from A.D. 1400 to A.D. 1600 is examined.

Another study conducted by Vibha Devi (1980) analyses the growth of the science of Ayurveda for the six hundred years from A.D. 600 to A.D. 1200.

Viswanathan Nair. N. (1985) highlights the interrelationship between the habitat, health, medicine, society and culture of the tribal community of Kerala.

Mrs. Neeta Agrawal (1991), in her study, examines the development of Ayurveda in the third and fourth centuries and the impact it has made on the human civilisation.

2. The System of Ayurveda

In his study, Singh. D.N. (1975) attempts to recognize Ayurveda as a system of medicine and analyses its importance.

Some of the sciences of the East, especially the system of Ayurveda, are brought together with the scientific research of the West in the work of Ballentine (1978). The author tries to integrate the diverse nutrition data of the East and the West to bring in a complete vision of man and his diet.

The study conducted by Mishra. S.N. (1979) critically analyses the literature on personal hygiene in the principal Ayurvedic texts.

An appraisal of the Ayurvedic material contained in the *Upanishads* is made by Singh. A.N. (1983) to point out the relation of Ayurveda with the Hindu mythology.

Misra. K.K. (1984), in his study, highlights the present state and prospects of certain Ayurvedic preventive measures.

In the work done by Surendra Kumar Sharma (1986), an evaluation of various traditional systems of medicine prevailing in Himachal Pradesh is made through the Ayurvedic angle.

Patel. N.G. (1986) analyses the different aspects of Ayurveda as the traditional medicine of India with reference to the properties of medicinal plants and their economic values.

Commending on the system of Ayurveda in his study, Sharma. R.K. (1987) critically examines the controversial structures of *panchabhutas* described in Ayurvedic literature.

Another study conducted by Ramanarayanan. P.M. (1993) attempts to describe the concept of Ayurveda in Garudapuranam.

Raso. J. and Barrett. S. (1993), while establishing the relationship between Ayurvedic medicines and nutritional practices, recommend a number of nutritional programmes for assisting laypersons and health professionals in making sound decisions.

The study conducted by Denesan Pokirentavida (1995) points out to the significance of *dinacharya* in Ayurveda with special reference to *Ashtangahrudayam* of Vagbhata.

3. Aspects of Medicinal Plants

In the study conducted by Sivarjan. V.V. (1988), the author examines the drug plants and their medicinal properties in relation to Ayurvedic medicines.

Indira. P.A. (1990), in her Ph.D. thesis, highlights the need to identify genuine medicinal herbs, the main ingredients of Ayurvedic medicines in the light of depletion of the rare species.

In her study, the bio-chemical and pharmacological properties of medicinal plants are analysed by Beena Panicker (1991) and special reference is made to the properties of sandal.

Sensarma. P. (1991), through the study titled "Plants in Family Welfare: Textual and Tribal Sources", probes to identify easily available, but efficient, herbal materials for various aspects of family welfare or family planning from different sources.

4. Marketing of Ayurvedic Medicines

A study on the preservative techniques of Ayurvedic medicines conducted by Agnives. C.R. (1985) points out that addition of certain chemical preservatives badly affects the therapeutic efficacy of Ayurvedic medicines.

The Ph.D. thesis by Philip Thomas (1996) examines the forward linkages of tribal co-operatives with the Ayurvedic medicine manufacturers in marketing non-timber forest produces.

A study was conducted by Industrial and Technical Consultancy Organisation of Tamil Nadu Limited (2001) to probe into the marketability of Ayurvedic medicines. It attempts to classify the medicines and analyses the marketing data of major manufacturers of these medicines.

The survey of literature and research works indicates that most of the earlier studies relate to the development of Ayurveda, the relevance of Ayurveda in relation to other traditional systems of medicine and the analysis of properties of medicinal plants. Studies conducted in relation to marketing of Ayurvedic medicines are very few in number. They focus on preservation of Ayurvedic medicines, the supply of non-timber forest produces from tribal co-operatives to the Ayurvedic medicine manufacturing units and the marketability of the medicines of major players of India.

No study concentrating on the problems, particularly marketing problems, of the Ayurvedic medicine manufacturing units of Kerala, is learnt to have been conducted till now. Therefore, an attempt is made in this study to analyse these problems by focusing on the units of the northern region of the State.

STATEMENT OF THE PROBLEM

It is estimated that ISM industry in India is worth Rs. 4,200 crores of trade. In this, Ayurveda alone accounts for nearly Rs. 3,500 crores. But, a number of problems hamper the growth of Ayurvedic medicine manufacturing industry of India and the State of Kerala is not an exception.

In Kerala, the total value of production of Ayurvedic medicines has been remaining stagnant at Rs. 100 crores for the last few years. Out of this, 75 per cent is the contribution of the organised sector, i.e., trusts and private, public and government companies. Even in the organised sector, most of the manufacturers have an annual sales turnover of less than Rs. 10 crores.

The law regulating the Ayurvedic medicine manufacturing sector of the State are quite old and inadequate to support the industry. The powers vested in the hands of the State Drug Controller are very limited. Product standardisation and quality control efforts are almost absent.

Most of the Ayurvedic medicine manufacturing units in Kerala do not get the services of management experts. Important problems related to raw materials are scarcity, adulteration, transportation and delay in supply. Rampant deforestation, unseasonal and over harvesting, increasing

urbanisation, etc. contribute to scarcity and adulteration of medicinal plants which are the main ingredients of Ayurvedic medicines. A substantial portion of the units do not utilize the existing production capacity fully. A good number of units still operate with out-dated production technology. One of the important problems affecting business activities of the units is financial stringency. Although large units depend heavily on human resource, personnel problems are not uncommon. Marketing problems do exist in relation to market study, market segmentation, product, price, physical distribution and promotion.

OBJECTIVES OF THE STUDY

The study aims at achieving the following objectives:

1. To review the evolution, development and institutional framework of Ayurveda.
2. To provide an insight into the system of Ayurveda.
3. To examine the important aspects of Ayurvedic medicines and analyse their share in the product mix.
4. To overview the profile of the Ayurvedic medicine manufacturing units.
5. To analyse the problems of the units with special reference to marketing.
6. To suggest appropriate measures for the improvement in the working of the units.

METHODOLOGY

The study is designed as a descriptive one. It makes use of both primary and secondary data. Since only very few studies have been conducted on the problems of Ayurvedic medicine manufacturers, the scope of secondary data is limited.

Primary Data

The population for the study consists of Ayurvedic medicine manufacturing units, their agencies and consumers of Ayurvedic medicines of the seven districts in the northern region of Kerala.

Field survey was conducted for the collection of primary data with the help of carefully designed interview schedules by personal interview. The schedules were pre-tested by means of a pilot study in all the seven districts and were re-designed accordingly.

Census method of survey was not practical as the size of the population is large particularly the size of the population of agencies and consumers. Utmost care was taken to design the sample to be a representative one of the population.

Sample Design

The representative samples were drawn from the population by employing multi-stage random sampling and purposive sampling methods.

To design the sample, the three categories of manufacturing units of the seven districts of northern region of Kerala were identified by verifying the records of the Drug Controller of Kerala. The three categories were large, medium and small sized units. The criteria for inclusion of a unit under anyone of these categories are given under the sub-heading 'definitions of the terms used in the study' in the later paragraphs of this chapter.

At the first stage of sampling, it was proposed to select three districts representing the seven districts on purposive random sampling basis, i.e., one district with the highest number of units, the second one with the lowest number and the third having number of units in between these two districts. Thus, Thrissur was selected as the district having the highest number of units. The two districts Kasargode and Wayanad had the lowest number of units, the former having 8 units and the latter having 5 units, all belonging to the small sized category. As the number of units of Wayanad district being very low and their marketing activities and area of operations very limited, Kasargode district with the second lowest number of units was considered the second sample district.

The third district had to be selected from the remaining four districts of Palakkad, Malappuram, Kozhikode and Kannur. Instead of selecting one district, the two districts of Malappuram and Kozhikode had to be selected. Malappuram District with major units like Arya Vaidya Sala, Kottakkal had to be included in the sample. Kozhikode District, the only district having a unit on co-operative form, was also could not be neglected. Thus, the four districts from which sample manufacturing units were selected are Thrissur, Malappuram, Kozhikode and Kasargode.

Selection of the Manufacturing Units

At the second stage of sampling, the Ayurvedic medicine manufacturing units of the sample districts of Thrissur, Malappuram, Kozhikode and Kasargode were classified as large, medium and small sized units. From each of these categories of units, the required number of units to be included in the

sample of units were selected at random by lottery method, but purposive sampling method is also made use of to include all forms of business units like sole traders, partnership, etc. Thus, 66 units from the total number of 265 units (i.e., 24.91 per cent or approximately, 25 per cent) of the four sample districts were included in the sample of manufacturing units as shown in Table 1.1

Table 1.1

Distribution showing Sample of Manufacturing Units

Districts	Population				Sample (25%)			
Included in the Sample	**L***	**M***	**S***	**Row Total**	**L***	**M***	**S***	**Row Total**
1. Kasargode	Nil	Nil	8	8	Nil	Nil	2	2
2. Kozhikode	2	12	29	43	2	3	6	11
3. Malappuram	4	16	30	50	2	4	6	12
4. Thrissur	5	60	99	164	3	15	23	41
Column Total	11	88	166	265	7	22	37	66
Not Included in the Sample								
5. Kannur	3	19	22	44	-	-	-	-
6. Wayanad	Nil	0	5	5	-	-	-	-
7. Palakkad	2	13	27	42	-	-	-	-
Grand Total	16	120	220	356	-	-	-	-

Note:- L* = Large sized units
M* = Medium sized units
S* = Small sized units

In the effort to include units representing all forms of business, 7 large units out of the total of 11 units of the same category (i.e., 63.6 per cent) were to be considered for the sample. Similarly, 22 units out of the total of 88

medium sized units (25 per cent) were included in the sample. There were a large number of small sized units having the same form of business and hence only 37 units out of the total of 166 numbers of this category (i.e., 22.3 per cent) were considered for the sample.

Selection of Agencies

The sample of agencies were drawn from the total number of agencies of the sample manufacturing units. Only nine sample units had any agency which are shown in Table 1.2.

Table 1.2

Distribution Showing Sample of Agencies

Units	Number of Agencies	
	Population	Sample
VDR	200	20
STR	100	10
OUS	225	23
SNA	25	10
AVS	350	35
MGL	6	6
VSK	6	6
KAC	25	10
DSY	45	10
Total	982	130

The population of the agencies represents the approximate number of agencies of each of the nine units mentioned in Table 1.2 in the seven districts of northern region of Kerala. The sample consists of 10 per cent of the population of the agencies of each manufacturer selected at random by lottery method. Where 10 per cent of the population is less than 10, the sample size is taken as 10. Where the population does not exceed 10, all the agencies of the population were included in the sample. Thus, all the agencies of Mangalodayam Vaidyasala and Viswakeerthy Ayurvedic Pharmacy Private Limited were included in the sample.

Selection of Consumers

5 consumers of each of the sample agencies were selected at random using lottery method to constitute the sample of consumers. Thus, altogether, the sample of consumers consisted of 650 numbers (i.e., 130 x 5).

Secondary Data

Secondary data had been collected from the following sources:

1. Various publications of the Ministry of Industries, Government of India.
2. Publications of Ministry of Health and Family Welfare, Government of India.
3. Survey of Indian Industries published by The Hindu, Chennai.
4. Various publications of the State Planning Board, Government of Kerala.
5. Annual surveys and publications of Department of Economics and Statistics, Government of Kerala.

6. Records of Drug Controller of Kerala.
7. Records of District Industries Centres, Kerala.
8. Publications and records of various associations of Ayurvedic medicine manufacturers.
9. Newspapers, periodicals, journals and web sites on the internet.

ANALYSIS OF DATA

Three interview schedules were prepared for the collection of the primary data. The first schedule was intended to collect the data from the sample Ayurvedic medicine manufacturers, the second designed to collect information from the agencies of these sample manufacturers and the third was prepared to collect relevant data from the consumers.

Analysis of the Problems of the Manufacturing Units

The schedule to administer the interview with the Ayurvedic medicine manufacturing units of the study area was designed after adequate and appropriate consultations and interviews with the experts in the field of Ayurvedic medicine manufacturing. Problems of the manufacturing units were attempted to be analysed under the indicators managerial, raw material, production, finance, personnel and marketing. For getting category-wise picture of the problems faced by the units, the units were divided into large scale, medium scale and small scale units. The indicators and the problems analysed under each of them are given below:

Indicators	Problems Analysed
I. Managerial	1. Consultancy services 2. Service from government
II. Raw Material	1. Sources of medicinal plants 2. Credit for purchases 3. Methods of purchase 4. Adequacy and promptness of supply 5. Quality 6. Transportation 7. Storage facility 8. Purchase cost
III. Production	1. Mechanisation of processes 2. State of technology 3. Utilization of production capacity 4. Quality control
IV. Finance	1. Availing loans 2. Repayment of loans 3. Credit sale 4. Bad debts and provisions
V. Personnel	1. Rates of wages 2. Labour strikes 3. Closure of the units 4. Absenteeism 5. Labour turnover

VI. Marketing	1. Conducting market study 2. Assessing market share 3. Market segmentation 4. Competition 5. Branding 6. Packaging research 7. Standardisation of medicines 8. Demand 9. Pricing 10. Physical distribution 11. Promotion

Analysis of Profile of the Agencies and Consumers

Profile of the agencies and consumers of the Ayurvedic medicine manufacturing units were to be studied in relation to analysing the problems of the units to get a better picture of their problems. They were studied with reference to the following:

Indicators	**Variables Analysed**
I. Profile of Agencies	1. Number 2. Form of business 3. Visit by a qualified doctor 4. Service of the manufacturer's doctor
II. Profile of Consumers	1. Age 2. Locality 3. Category of earner 4. Annual income

Tools of Analysis

To analyse the data collected, statistical tools and techniques like percentages, averages and correlation analysis were made use of.

Correlation analysis is made to examine the stability of return on investment of the Ayurvedic medicine manufacturing units during the period of study. For this purpose, the average capital employed of the units for the years under study (from 1994-`95 to 2002-`03) are taken as X series and the average net income for the same years treated as Y series. Karl Pearson's coefficient of correlation was, then, calculated as follows:

$$r = \frac{N \sum dx\, dy - (\sum dx)(\sum dy)}{\sqrt{N \sum dx^2 - (\sum dx)^2}\ \sqrt{N \sum dy^2 - (\sum dy)^2}}$$

where

r = Karl Pearson's coefficient of correlation

N = Number of pairs of observations

dx = Deviations of X series from its assumed mean

dy = Deviations of Y series from its assumed mean

DEFINITIONS OF THE TERMS USED IN THE STUDY

1. ***Marketing*** is the process of planning and executing the conception, pricing, distribution, promotion and other activities of an Ayurvedic medicine manufacturing unit in relation to the medicines manufactured by it that aim at satisfying the needs of the unit and the individual consumers who use the medicines.

2. ***Ayurvedic medicine manufacturing unit*** means, any manufacturing unit which possesses the licence to manufacture and market Ayurvedic medicines.

3. ***Small sized units*** are those Ayurvedic medicine manufacturing units whose investment in plant and machinery after depreciation for the financial year 2002-`03 is less than one million rupees.

4. ***Medium sized units*** mean those Ayurvedic medicine manufacturing units whose investment in plant and machinery after depreciation for the financial year 2002-`03 is one million rupees or above but below five million rupees.

5. ***Large sized units*** are those Ayurvedic medicine manufacturing units whose investment in plant and machinery after depreciation for the financial year 2002-`03 is five million rupees or above.

6. ***Ayurvedic medicines or drugs*** include the medicines intended for internal or external use or in the diagnosis, treatment or prevention of disease in human beings.

7. ***Classical medicines*** are those Ayurvedic medicines mentioned in Schedule I of the Drugs and Cosmetics Act, 1940 and include the medicines specified in the classical texts of Ayurveda.

8. ***Patent and Proprietory (P & P) medicines*** mean, all Ayurvedic drugs except classical medicines mentioned above.

9. ***Medicinal herb or plant*** is a seed producing plant which is noted for its aromatic and medicinal qualities. It is used in its fresh forms, i.e., leaves, roots, seeds, etc. as well as processed forms for the preparation of medicines.

10. ***Herbal medicines*** are those medicines in which the main ingredients are medicinal herbs.

11. ***Consumers*** include the persons who consume any Ayurvedic medicine as a part of treatment for any disease or as a preventive measure before being attacked by a disease.

12. ***Agency*** is the agent of an Ayurvedic medicine manufacturing unit who is appointed by the unit to sell its medicines only. The agency gets its remuneration usually in the form of commission on the price of the medicines sold it.

13. ***Qualified doctor*** is any person who obtained either a degree or diploma in Ayurvedic medicine from an institution under a recognized university.

14. ***Paramparya vaidyan*** means, the traditional doctor in Ayurvedic medicine who has obtained informal education in Ayurvedic treatment hereditarily.

PERIOD OF THE STUDY

The period selected for the study was 1994-`95 to 2002-`03. However, a longer period was considered to study the growth and trend of the Ayurvedic medicine manufacturing units in the historical perspective.

LIMITATIONS OF THE STUDY

The inherent limitations of the researches of social sciences are applicable to this study also. The specific limitations of this study are:

1. The incomplete official records of certain government offices posed difficulty in locating the respondents and they were to be replaced by others.

2. Much of the relevant secondary data might have been lost due to the accessibility to the documents of various government offices was restricted.

3. Some of the sample manufacturing units and agencies did not maintain proper records. This prevented the researcher from obtaining accurate data.

4. Reluctance of the respondents to answer sensitive questions like those related to income might have affected the accuracy of the responses.

5. Agencies of the sample units outside the study area were not included in the sample of the agencies.

6. The problems of the distributors were analysed to a limited extent only.

7. The study relied heavily on sampling techniques. Hence, sampling errors are bound to occur.

However, all possible efforts are made to collect accurate data to draw meaningful inferences on the basis of impartial analysis.

SCHEME OF THE STUDY

The report of the study is presented in six chapters as given below:

Chapter I gives the introduction which includes the significance, scope, statement of the problem, objectives, methodology, sample design, chapterisation and limitations of the study.

Chapter II deals with the evolution and development of Ayurveda and analyses the health care facilities available to Ayurveda in India.

Section A of the third chapter discusses the salient features of the system of Ayurveda and its relevance in relation to other systems of medicine. An attempt is made in Section B to classify Ayurvedic medicines and to analyse the data related to them.

There are two sections in Chapter IV, the first of which offers a brief account of the major Ayurvedic medicine manufacturing units in India and the profile of the units in the study area. The second section describes the important Acts governing the units and issues faced by them.

Chapter V is also divided into two sections. Section A analyses the general problems of the units and Section B discusses their marketing problems.

The last chapter, viz., Chapter VI, summarises the findings of the study and suggests possible measures to tackle the problems faced by the units.

The appendices including interview schedules and bibliography are given at the end of the study.

Having given the introduction, an attempt is made in the coming chapter to explain the evolution and development of Ayurveda.

CHAPTER II

DEVELOPMENT OF AYURVEDA

DEVELOPMENT OF AYURVEDA

The history of Ayurveda began 5000 years ago in the great Himalayas when one of the greatest sages of India, Srila Vyasadeva, wrote the *Vedas*[*] for the first time. He included Ayurveda or the science of life as a part of the *Vedas.* Ayurveda, one of the systems of Indian medicine, which has been an integral part of the Indian culture, is considered to be the earliest medical science on positive health.

Apart from Vyasadeva's compilation of hundreds of herbal drugs in the *Vedas*, there were descriptions of Ayurvedic surgeries, later on, by other renowned sages like Susrutha, Charaka and Kasyapa in their *Samhithas.* The subjects covered included prosthetic surgery to replace limbs, cosmetic surgery, brain surgery and even caesarian section. Archaeological evidence proves that some of these operations were successfully performed 3000 to 5000 years ago.[1]

The science of 'Ayurveda' is closely related to Hindu mythology. It is learnt that medical science existed from time immemorial and Brahma transmitted the basic principles of this system of medicine to Prajapathi, one of the ten *rishis* created by him. One of the oldest and the most celebrated texts of Ayurveda, *Ashtangahrudayam,* written by Vagbhata states that Prajapathi

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[*] *Vedas* are the ancient books describing Indian culture and philosophy. The four *Vedas* are the *Rigveda,* the *Samaveda,* the *Yajurveda* and the *Adharvaveda.*

[1] Correspondent , "History of Ayurveda" in the supplement on International Congress, 'Ayurveda 2000'. *The Hindu,* January 28, 2000, p. AE-2.

communicated these ideas to other *rishis* such as Indran and Athra and they, in turn, transmitted them to the later generations.

Ayurveda is the sub-division of the *Adharvaveda.* Though medical treatment methods are mentioned in all the four *Vedas*, it can be seen that the methods laid down in the *Adharvaveda* are more beneficial to human beings than those mentioned in the *Rigveda,* the *Samaveda* or the *Yajurveda.* Charaka and Susrutha in their books on Ayurveda opined that all *Vedas* depend on Ayurveda and hence it is the fifth *Veda.*[2]

While subjects related to health are described in mythological stories of the *Rigveda,* the *Samaveda or* the *Yajurveda,* the methods of treatment, usage of medicines in frequently occurring diseases and the study of different parts of human body are explained in the *Adharvaveda.* This proves the close relationship of Ayurveda with the *Adharvaveda.*

Indus valley civilisation is older than the *Vedas.* Black balls escavated from Mohanjodaro and Harappa were identified as *kanmadam* after chemical tests. Horns of deers which were not available there, but brought from the Himalayas, are also indications of the fact that the science and practice of Ayurveda were in vogue during this period. The *yogamudras* discovered from the regions show that the practice of *yoga* and the mental and bodily exercise which are closely related to Ayurveda, was prevalent during those days.

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[2] Varier, Krishna, N.V. *Ayurveda Charithram* (Malayalam), Kottakkal: Arya Vaidya Sala, 1980, p. 10.

Ayurveda began to develop with the compiling and editing of the *Samhithas*. *Samhithas* are the sum total of the principles and practices of all the then known branches of medicines.[3]

There is a belief that Ayurveda existed even before Brahma or creation. Though such a thing cannot be acceptable to everyone, written history of Ayurveda can be traced from the very ancient times. For example, *Charaka Samhitha* is dated to fourth century B.C.[4] No history of earliest writers on medicine in India would be complete without a mention of Charaka and Susrutha, who were considered to be the highest authorities in all medical matters. Charaka is said to have been an incarnation of Shesha, the Serpent–God with a thousand heads. He was the son of the sage Vishudha. He had been the greatest physician of his day and his *Charaka Samhitha* is still held to be a standard work on medicine.

Susrutha, on the other hand, dilates more on surgery than on medicine. His work *Susrutha Samhitha* is held by native *Vaidyas* as an authority on surgery. The works of Charaka and Susrutha are compendiums of Ayurveda.[5]

The surgical instruments during the period of Susrutha were classified into blunt instruments and sharp instruments. Susrutha described 101 blunt instruments and twenty sharp instruments in his books. Vagbhata, who is believed to have spent a considerable portion of his life time in teaching Ayurveda in Kerala, had added six more instruments to the instruments described by Vagbhata to constitute twenty six sharp instruments. Susrutha

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[3] Ibid., p.29.
[4] Pradeep, T., Dr. "Ayurveda and Panchakarma", *Oushadham* (Malayalam), January, 2001, p. 2.
[5] Singh, Jee, Bhagvat. *A Short History of Aryan Medical Science,* London: Mac Millan & Company Ltd., pp.32-35.

defined eight types of surgeries. Vagbhata added five to them to constitute a total of thirteen surgeries. Excision, incision, scraping, punching, probing, extracting, draining, stitching, opening, pricking, drilling, catching and caterisation were those thirteen surgeries. These surgeries were grouped under three divisions, viz., pre-operative medication, main operation and post-operative measures.[6] Thus, it can be stated that from the very ancient time itself, Ayurveda has developed very much in terms of general medicine and surgery.[7] In surgery, Indians seem to have attained a special proficiency and the European surgeons, perhaps, even on the present day learn something from them.[8]

It was Dhanvantri who taught Susrutha that Ayurveda had been composed by Brahma as a sub-division of the *Adharvaveda.* It consisted of a hundred thousand *slokas* or verses, divided into thousand chapters. But, considering the short span of life and limitations of memory of human beings, he reduced the book into eight parts as follows:

1. *Shalya Tantra* or Surgery:- *Shalya Tantra* deals, among other things, with the description and uses of various surgical instruments.

2. *Shalakya Tantra* or Eye & ENT:- It describes the diseases of outer parts of human body such as eye, nose, mouth and ears and their treatment.

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[6] Sreedharan, N., Dr. "Surgery and Ayurveda", *Ayurveda Chandrika* (Malayalam), September, 1990, p.363.

[7] *Encyclopaedia Britannica*, Book 9, Volume 32, p. 672.

[8] Mukhopadhyay, Girindranath, and Bhisagacarya. *History of Indian Medicine,* Volume 1, New Delhi: Munshiram Manoharlal Publishers Pvt. Ltd., 1974, p.1.

3. *Kaya Chikitsa* or General medicine:- *Kaya Chikitsa* is the study of medicines intended for internal consumption and diseases of the human body such as fever, insanity, leprosy and urinary disorders.

4. *Bhuta Vidya* or Demonology:- It indicates the rules to be observed in performing the various religious procedures. It includes psychiatry and curing the influence of evil spirits.

5. *Kaumarabhrtya* or Paediatrics:- *Kaumarabhrtya* is related to the treatment of diseases of infants.

6. *Agada Tantra* or Toxicology:- The methods of diagnosis and treatment of poisonous bites of snakes, insects, spiders, mice, etc., are dealt with in this division.

7. *Rasayana* or the Science of Tonics:- Medicines for the preservation of youth and prolonged life, promoting intelligence and strength and giving power to resist diseases are described in *Rasayana.*

8. *Vajikarana Tantra* or the Science of Aphrodisiacs:- This division is related to the treatment of semen disorders.[9]

Around 1500 B.C., Ayurveda's fundamental and applied principles got organised and enunciated. The *Adharvaveda,* considered to be one of the four most ancient books of Indian wisdom and culture, contains 114 hymns or formulations for the treatment of diseases. Ayurveda is said to be originated and developed from these hymns. It has two major schools of thought, viz., the

[9] Ibid., pp.1-3.

school of physicians and the school of surgeons referred to in literature as *Atreya Sampradaya* and *Dhanvantri Sampradaya* respectively.[10]

Ayurveda had continuous development upto 500 B.C. It was in 1000 B.C. that Charaka and Susrutha comprehensively documented the knowledge of Ayurveda[11].

Nambiar pointed out that the system of Ayurveda is, probably, more than 4000 years old. *Charaka Samhitha* and *Susrutha Samhitha* dealing with pharmacopoeias were written around 900 B.C. and 500 B.C. respectively. It is estimated that as many as 3226 of 4752 communities in India (about 70 per cent of Indian population) are dependent on traditional plant based medicines.[12]

One of the important authorities on the Hindu medicine of Ayurveda is Vagbhata who flourished about the second century before Christ. In his work *Ashtangahrudayam,* he acknowledges the information borrowed from the writings of Charaka, Susrutha, Agnivesha, Bhela and others. He wrote another book with the title *Ashtangasangraham.* A popular couplet describes Vagbhata, Susrutha and Atreya as the three great medical authorities for the three *Yugas,* viz., *Kali, Dvapara* and *Kritha* respectively. Among the students of Ayurvedic medicine, the three are popularly known by the name *Vridha Trayi* or the "Old Traid".

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[10] *Indian Systems of Medicine and Homoeopathy in India*, New Delhi: Department of ISM and Homoeopathy, Ministry of Health and Family Welfare, Government of India, 1998, p.1.

[11] *Feasibility Report On Ayurvedic Medicines with Details of GMP*, Chennai: Industrial and Technical Consultancy Organisation of Tamil Nadu Ltd. (ITCOT), 2001, p.1

[12] Nambiar, Krishnan, V. P. "Improved Harvesting, Processing and Storage of Medicinal Plants and Raw Drugs-Their Role in Conservation and Quality of Plant–based Drugs", *Aryavaidyan,* November, 2001- January, 2002, p. 79.

Coming nearer to the modern period, the name of Madhavacharya who wrote several books on the branches of Hindu learning is noteworthy. In his works on Ayurveda, he dwells exclusively on the diagnosis of diseases. Bhava Mishra who lived in the sixteenth century was the first physician to make mention of certain medicinal drugs of countries other than India.

The work of Sharngadhara who lived after the period of Bhava Mishra is divided into twenty five chapters and is very popular in Western India. Smaller works like *Vaidyamrita* by Bhatta Moleshvar, *Vaidya Jeevana* by Lolinbraja, *Bopadeva Shataka* by Bopadeva, *Vaidya Vallabha* by Hasti, *Chikitsasangraham, Chakradatta* and *Chikitsanjana* by Vidyapati are frequently referred by the native practitioners.[13]

Though different books were written on Ayurveda, an authenticated record of this system of medicine cannot be traced out. It happened due to the fact that Ayurveda, at the time of its inception, had one lakh *slokas* or verses and thousand chapters. On the other hand, today's *Samhithas* contain 120 chapters only as human life span is considerably reduced today and all the thousand chapters cannot be studied by anyone. In the earliest times of civilisation, it is said that human beings lived up to 400 years.[14]

The masters of each *Samhitha* used to teach their disciples the principles of each branch of medicine which the disciples compiled into books of reference. The following are the important *Samhithas:*

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[13] p.6, Op. Cit., Singh, Jee, Bhagvat.
[14] p.9, Op. Cit., Varier, Krishna, N. V.

1. *Charaka Samhitha*

Atreya's advices collected by his disciple Agnivesha are brought to light in the well-known book *Charaka Samhitha.* The book is named as such since it was compiled and edited by Charaka after some years.

2. *Susrutha Samhitha*

It is believed that Susrutha, one of the disciples of Dhanvantri who was born in the family of the great king of Kasi, wrote *Susrutha Samhitha.*

3. *Kasyapa Samhitha*

The teaching of Maareechakasyapan is transformed into this *Samhitha* by his disciple Vrudhajeevakan.

4. *Bhela Samhitha*

Bhela, another disciple of Atreya, wrote this *Samhitha*

5. *Hareetha Samhitha*

Hareetha, who was another disciple of Atreya, compiled this old *Samhitha.*

6. Books of Vagbhata

Ashtangasangraham and *Ashtangahrudayam* are the famous books of Vagbhata. Some historians opined that *Ashtangahrudayam* was written by Vagbhata's son.

7. *Navaneethakam*

In 1890, Bover, a British military officer, discovered seven hand-written books from the remains of an old pillar in the Middle Asia. Three of them were related to medical science and *Navaneethakam* was the most important one among them. It is certified that this book was written during the Guptha Dynasty. The printed version of it is available today.[15]

GREEK CIVILISATION AND AYURVEDA

The origin of European civilisation is considered to be the Greek civilisation. It is said that Indian civilisation is older than Greek civilisation. But, Western historians always tried to place Indian civilisation at low esteem. The famous German critic Haas described our civilisation as having borrowed from the Greek. On the other hand, researchers like Dr. Hoernle took the courage to establish that the opposite was true. He found that though Ayurveda dates back to 5000 B.C., its steady growth began between the tenth and sixteenth centuries after the birth of Christ.

The French scholar Sylvianlevi had mentioned in his book the name Charaka as one of the Ayurvedic physicians who lived in the second century when Kanishka was the king. He opined that this physician is the author of *Charaka Samhitha*. It is learnt that *Susrutha Samhitha* is more systematic in presentation than *Charaka Samhitha*. These two books and *Ashtangahrudayam* (written by Vagbhata) had their base on the same treatment methods.*[16]

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[15] Ibid., pp. 32-33.

* *Ashtangahrudayam* contains the abstracts of *Charaka Samhitha* and *Susrutha Samhitha* and extracts from *Bhela Samhitha* and *Hareetha Samhitha*. Nothing new is added in this book.

[16] Ibid., p.139.

Scholars opine that *tridosha* principles of Ayurveda could be traced back to the period of the *Rigveda.* Literature during the Budha era makes it clear that diseases are the result of disequilibrium of *tridosha.* Historical records prove that *tridosha* principle and Ayurvedic treatment methods were in vogue even before the birth of Budha.

Emperor Alexander's invasion over our country marks the beginning of any possible influence of Greek civilisation in the change of Indian culture. The famous historian Arrian, who lived during this period, wrote about the development of the Indian system of medicine viz., Ayurveda in this era. There are ample proof of adoption of Indian medicines with plant base by the Greek.

OTHER COUNTRIES AND AYURVEDA

Adharvaveda is the oldest *Veda* for the treatment of diseases. Systems of medicine and treatment methods equivalent to *Adharvaveda* were prevalent in Babilonia. Berthlot observed that ancient Egyptians made use of treatment methods similar to *Adharvaveda.* Surendranath Das Gupta is of the opinion that medicated oils and *grithas* were the important medicines of those days. Garrison, in his book *History of Medicine,* has mentioned about borrowing of the principles of Ayurveda by the Chinese people.

In 479 B.C., the Indian army fought against the Greek army to assist the then Iranian king Darious-I. Ayurveda found its root in Iran from this relationship between India and Iran.[17]

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[17] Ibid., p.157.

Interest in Ayurveda in the United States of America began in the nineteen seventies which was largely due to the efforts by the Maharishi Mahesh Yogi Organisation of Transcendental Meditation. This interest continued as Indian physicians like Dr. Vasant Lad, Dr. Sunil Joshi and Dr. B.D. Triguna came to the United States in the nineteen eighties. In addition to this, several American pioneers have been influential in helping Ayurveda grow. They include Dr. David Frawley of the American Institute for *Vedic* studies and Dr. Robert Svoboda, a Westerner, who passed India's B.A.M.S. Degree. As interest and awareness grew, training programmes of various degrees on Ayurveda have emerged.

In 1995, the California College of Ayurveda opened its doors for education on Ayurveda in the United States. This College was the first government approved institution offering a recognized vocational programme in America, but an infrastructure has not yet been developed to regulate or set standards of Ayurvedic education. Some institutions are moving in the direction of offering Masters or Ph.D. programmes.

Currently in the United States, two independent associations are engaged in the development of Ayurveda. One is the California Association of Ayurvedic Medicine. The other is the National Association of Ayurvedic Medicine.[18]

The National Institute of Ayurvedic Medicine (NIAM) is recognized as the largest and the most authentic resource of information on Ayurveda in the

[18] Halpern, Mare, Dr. "Status and Development of Ayurveda in the United States", *Aptha* (Malayalam), March, 2000, pp.19-21.

United States. Established by Scott Gerson in 1982 and located in Brewster, New York on six and half acres, the facility is a seven thousand square foot spacious building designed to be both a residential *Panchakarma* retreat centre as well as a research and educational centre for seminars and workshops. Many medicinal plants are grown in the premises. It has a library with a good collection of Ayurvedic literature and research reports in English, Hindi, Sanskrit, Malayalam, Tamil and several other dialects.

The National Cancer Institute research projects are involved in the evaluation of a traditional Ayurvedic phytomedicine, *semicarpus anacardium* for anti-tumour effects. In the Central Council for Ayurveda and Siddha Medicine Research Project, a specific herbal–Yoga meditation treatment protocol for asthma is being evaluated. A four-year study evaluates the effects of *Panchakarma* therapies on the human immune system.

Major institutions abroad engaged in research, documentation, teaching and development of Ayurveda are given in Appendix IV.[19]

Today, demand for Ayurvedic medicines and treatments from abroad is increasing day by day. Therapeutic centres have already been functioning in countries like Switzerland, Italy and Germany.[20]

AYURVEDA IN INDIA-BEFORE INDEPENDENCE

Since ancient times, the Ayurvedic system has undergone many transformations. It was first started as a hereditary system (*paramparya*

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[19] Industrial and Technical Consultancy Organisation of Tamil Nadu Ltd. (ITCOT), Chennai, *Feasibility Report on Ayurvedic Medicines with Details of GMP*, 2001, pp. 66-67.

[20] Gopi, P.S.,Dr., "Importance and Need for the Cultivation of Medicinal Plants", *Ayur Digest* (Malayalam), July-November, 1997, p.6.

system) and community practice was the norm. Each community had a *Vaidya* (hereditary doctor), a spiritual leader or guide, who was aware of the health conditions of its people. If anyone outside the family of the *Vaidya* wanted to study Ayurveda, he was admitted to the *Gurukula*. The *gurus* (teachers) taught the *sishyas* (students or disciples) who in turn spread the knowledge to various parts of the country. From India, Ayurveda spread to neighbouring countries like Tibet, Sri Lanka, Malaysia and Singapore.[21]

The days of Charaka and Susrutha are one of the most celebrated periods in the history of Ayurveda. Upto the ages of Budha and Ashoka, Ayurveda in India developed very much especially in terms of surgery. Historians have recorded that all the parts of human body were subject to surgery in those days. Birch Berg, who is said to have lived on earth between 500 B.C. and 200 A.D., had rightly mentioned it in his book as follows: "The Indians knew practical indigenous operations which were unknown to the Greek and which Europe only learnt from them with surprise."[22]

The oldest medical system of Ayurveda had been the sole medical system of India until the Muslims introduced their medicine in the eleventh century A.D.[23]

It is said that the modern age of Ayurveda began from 1835-`36 when Madhusudanan, a Brahmin by birth operated a human dead body to study anatomy. In 1836, he printed and published *Susrutha Samhitha.* The losing of

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[21] Correspondent, "History of Ayurveda" in the Supplement on International Congress, 'Ayurveda, 2000', *The Hindu*, January 28, 2000, p. AE-2.
[22] Nair, Chandrasekharan, K.A., Dr. "Surgery and Ayurveda", *Ayurveda Chandrika* (Malayalam), Jauary, 1991, p. 106.
[23] p.7, Op. Cit., Singh, Jee, Bhagvat.

the war of Independence in 1857 aroused the Indian people to be self sufficient in all respects. But, the British people deprived them from getting access to all modern amenities such as modern education.

Before English education got established in India, teaching in all the bodies of knowledge including in Ayurveda was carried out through the *Gurukula* type of education. Alongwith other areas of studies like literature, Ayurveda was taught with fervour. One of the first contributions to Ayurveda in the modern age was *Jalpakalpatharu* written by Kaviraj Gangadharji of Murshidabad which is deemed to be an important version of *Charaka Samhitha.* Another veteran of this age was Kaviraj Harayana Chandra Chakravarthiji who created a new version of *Susrutha Samhitha.*[24]

Only the traditional systems of medicine (Ayurveda, Siddha, Unani, Naturopathy and Yoga) were in practice in India as late as the beginning of the nineteenth century. The practitioners of these systems spoke local language, lived among the people and were always available.[25]

Gananathaji Sen, the author of *Prathiakshasareeram* had been conversant with Ayurveda as well as Western medical systems. The book was a perfect blend of these systems and the knowledge imparted could be taught through the kind of educational institutions existing today. Such an institution started functioning in 1918 at Kangadi. Most of the books on Ayurveda, written in Sanskrit and were later translated to Hindi and available today, were written by students of this institution.

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[24] pp.324-326, Op. Cit., Varier Krishna, N.V.
[25] ITCOT, Chennai, *Feasibility Report on Ayurvedic Medicines with Details of GMP,* 2001, p.1.

The Government of India appointed the Drugs Manufacture Committee in 1918 whose primary functions were to investigate the possibilities of the cultivation of medicinal plants in India and the manufacture of drugs from them on large scale and on a commercial basis. Considerable progress had been made in this regard and several drugs which were imported before the First World War were thereafter being manufactured in India.[26]

The Nagpur Session of the Indian National Congress in 1920 adopted a resolution that earnest and definite efforts should be made by the people in India to popularise schools, colleges and hospitals for instruction and treatment in accordance with the Indian systems of medicine (ISM). Later Mahatma Gandhi inaugurated Ayurvedic and Unani Dawakhana in Delhi and Pandit Madan Mohan Malaviya started a college for Ayurveda in Benaras. Several State governments followed the lead, first by starting, teaching and training institutions followed by appointing committees to suggest ways of strengthening Ayurveda and Unani health services.

In 1943, the Government of India appointed the Health Survey and Development Committee, known as the Bhore Committee, for recommending future development of health services in British India. The conference of the health ministers, which followed this committee recommended rehabilitation of the ISM. The health ministers recommended that adequate measures should be taken by the Central and State governments.

i) for research in the application of scientific methods for the maintenance of health and prevention and cure of diseases by indigenous systems of medicine like Ayurveda and Unani;

[26] p.171, Op. Cit., Mokhopadhyay, Girinath, and Bhisagacarya.

ii) for starting educational institutions in indigenous systems of medicine; and

iii) for starting post-graduate courses in Indian medicine for graduates in Western medicine.

Several significant steps in this direction were taken. The States enacted laws for teaching and conducting of research in Ayurveda and other Indian systems. The States were to assume the responsibility of strengthening the educational set up, hospitals and pharmacies. Almost all States established Directorates of Indian medicine. Financial outlay for investment in the indigenous systems of medicine was considerably enhanced. At the Central Government level, the Central Council of Indian Medicine (CCIM) was established by an Act of Parliament regulating the teaching and practice of Ayurveda and other systems of Indian medicine. Provisions regulating these systems were incorporated in the Drugs and Cosmetics Act, 1940 as amended in 1966 and the Drugs and Cosmetics Rules, 1945 as amended in 1964 and 1970.[27]

AYURVEDA IN INDIA–AFTER INDEPENDENCE

In India, the development of Ayurveda and Unani systems of medicine gained considerable momentum after independence. The herbal cures began to be accepted as alternative therapies with minimal side effects.

The financial outlays show the Government's shift towards the recognition and support for the traditional systems of medicine (TSM). The total sums allocated for them were Rs. 4 million in the First Five Year Plan,

[27] Ibid., pp.127-128.

Rs. 160 million in the Fourth Plan, Rs. 257 million in the Fifth Plan and Rs. 1290.5 million in the Seventh Plan. The total health allocation for the Ninth Plan comes nearly Rs. 5000 million.[28]

After independence, institutional training gained priority over the *Gurukula* system of education and institutions teaching Ayurveda were affiliated to the Universities. The Central Council for Research in Ayurveda and Siddha (CCRAS) was formed and this body designed the syllaby and framework of the Ayurvedic courses. Now, there are standard syllaby followed by all the States. The Government of India also started the Central Council of Indian Medicine (CCIM) which functions in the same line of Indian Council of Medical Research (ICMR). The CCRAS is under the control of CCIM.

Ayurveda is now becoming popular with more and more people accepting its holistic approach to healing. There are around 170 Ayurveda colleges in India, with Karnataka and Maharashtra having the highest number. Post-graduate courses in Ayurveda started in the South at the Government Ayurveda College, Thiruvananthapuram.[29]

It was in 1959 that the Drugs and Cosmetics Act was amended to include drugs derived from traditional Indian medicine. The Ayurvedic Pharmacopoeia Committee was set up to prepare pharmacopoeia for Ayurvedic drugs. In 1993, an expert committee developed guidelines for the safety and efficacy of herbal medicines, which were incorporated in the Drugs and

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[28] Gopinathan, T., Dr. "People's Plan and Development of Ayurveda", *Aptha*_(Malayalam), April-May, 1998, p.41.

[29] Correspondent, "History of Ayurveda" in the supplement on International Congress 'Ayurveda, 2000', *The Hindu*, January 28, 2000, p. AE-2.

Cosmetics Act and Rules. A drug is treated as a classical preparation if prepared as per any of the classical texts of Ayurveda which are mentioned in Schedule 1 of the Drugs and Cosmetics Act, 1940 (see Appendix V). Schedule 1 is referred to in the GMP notification also in the context of labelling, packaging, limit of alcohol, maintenance of batch manufacturing records, etc.[30]

In course of time, Ayurveda, which started as a magico-religious practice, matured into a fully developed medical science with eight branches or specialities which have parallels in the modern Western system of medicine. The growth of these eight specialities gave Ayurveda another name of *Ashtanga Ayurveda.* In the last fifty years of development in the teaching and training, it has developed into the following sixteen specialities:

1. *Ayurveda Siddhantha* (Fundamental Principles of Ayurveda)
2. *Ayurveda Samhitha*
3. *Rachna Sarira* (Anatomy)
4. *Kriya Sarira* (Physiology)
5. *Dravya Guna Vigian* (Materia Medica & Pharmacology)
6. *Ras-Sastra*
7. *Bhaishajya Kalpana* (Pharmaceuticals)
8. *Kaumarabhrtya* (Paediatrics)
9. *Prasuti Tantra* (Obstetrics & Gynaecology)
10. *Swasth-Vritia* (Social & Preventive Medicine)

[30] ITCOT, Chennai, *Feasibility Report on Ayurvedic Medicines with Details of GMP*, 2001, pp.7-9.

11. *Kaya Chikitsa* (Internal Medicine)

12. *Rog Nidan* (Pathology)

13. *Shalya Tantra* (Surgery)

14. *Shalakya Tantra* (Eye & ENT)

15. *Mano Roga* (Psychiatry)

16. *Panchakarma*[31]

THE DEPARTMENT OF ISM & HOMOEOPATHY

The Department of Indian Systems of Medicine and Homoeopathy (ISM & H) was established under the Ministry of Health and Family Welfare in March, 1995 with the following objectives.

i) To upgrade the educational standards in the ISM & H colleges in the country.

ii) To strengthen the existing research institutions and ensure a time bound research programme on identified diseases for which these systems have an effective treatment.

iii) To draw up schemes for promotion, cultivation and regeneration of medicinal plants used in these systems.

iv) To evolve pharmacopoeial standards for ISM & H drugs.

Statutory bodies were set up under the Indian Medicine Central Council Act, 1970 and Homoeopathic Central Council Act 1973, namely, the Central

[31] Department of ISM & Homoeopathy, Ministry of Health & Family Welfare, New Delhi: Indian Systems of Medicine and Homoeopathy in India, 1998, p. 2.

Council of Indian Medicine (CCIM) and the Central Council for Homoeopathy with specific objectives. Similarly, apex research bodies, educational institutions, laboratories and pharmacopoeia committees were set up to fulfill the objectives in teaching, research standards etc. The Pharmacopoeial Laboratory for Indian Medicine (PLIM) located at Ghaziabad support the pharmacopoeia committees in their work. In order to make available quality Ayurvedic medicines to government dispensaries and ordinary citizens, a manufacturing unit has been established at Mohan in Uttar Pradesh. The following cells are working under the Department:

1. Drug Control Cell (ISM)

The Cell was set up in 1992 to assist the Drug Controller in matters pertaining to licensing and control of misbranded/adultered and spurious manufacturing of Ayurvedic drugs. The Cell deals with issues pertaining to quality control, import, export and classification of drugs under Drugs and Cosmetics Act, patent related issues and establishment of Traditional Knowledge Digital Library (TKDL). This Cell is also looking after the implementation of legislation relating to drugs of ISM & H.

2. Medicinal Plants Cell

The medicinal plants cell was set up to implement the central scheme for development and cultivation of medicinal plants and developing agro-techniques.

3. Patent Cell

Medicines in the systems of Ayurveda and Unani are based on descriptions in classical texts and cannot be patented because they are not new discoveries. However, there is the need to safeguard intellectual property rights (IPR) in plants for Ayurveda and Unani medicines on the one hand, and for acquiring patents for drugs and processes on the other hand which may be evolved henceforth. The Patent Cell was set up in 1997 with this objective and to take measures for effective Indian Intervention whenever claims relating to patents by other countries arise but that cannot or should not be granted.

INSTITUTIONAL FRAMEWORK

The institutional framework developed by the Department of ISM & H consists of the following statutory regulatory and apex research bodies for Ayurveda:

1. Central Council of Indian Medicine (CCIM)

This is a statutory body constituted under the Indian Medicine Central Council (IMCC) Act, 1970. Five members each for Ayurveda, Unani and Siddha from each State, who are practitioners of Ayurveda, Unani and Siddha respectively are elected as the members of the body. One member each for Ayurveda, Unani and Siddha from amongst the ISM faculty members are also elected as members of the body. The objectives of the Council are:

i) to prescribe minimum standards of education for courses in the ISM;

ii) to maintain the Central Register of the Indian Systems; and

iii) to regulate practice in the Indian medicines and prescribe standards of professional conduct, etiquette and code of ethics to be observed by the practitioners.

2. Central Council for Research in Ayurveda and Siddha (CCRAS)

CCRAS, an autonomous body under the Department of ISM & H was registered in 1978. This is the apex body for the formulation, co-ordination, development and promotion of research in Ayurveda, Siddha, Homoeopathy, Yoga and Naturopathy. Headquartered at New Delhi, the Council carries out its objectives through the network of 86 research institutes functioning under its direct control and located in universities and colleges of ISM & H in different parts of the country.

The health care research programmes carried out by the Council gathers data pertaining to the nature and frequency of prevalent diseases, food habits, standards and types of treatment methods available, etc. The drug research programmes consist of medical-botanical survey, cultivation of herbs and inter-disciplinary research programmes.

3. National Institute of Ayurveda

National Institute of Ayurveda was established in 1976 merging the existing State Ayurvedic College, Jaipur. The institute aims to become an apex institute for teaching and training in all specialities of Ayurveda. It is also engaged in research and gives guidance for Ph.D. in Ayurveda. The Institute has two hospitals with 180 beds, a pharmacy in which 116 varieties of medicines worth Rs. 10.37 lakhs were manufactured during 1999-2000.

4. Institute of Post-graduate Teaching and Research in Ayurveda (IPGTR)

Established in 1957 in the Gujarat Ayurveda University, Jamnagar, this institute is financed by Department of ISM & H. This is the first post-graduate teaching and research institute for Ayurveda in India. It imparts training to M.D. (Ayurveda) students in 13 specialities. It facilitates research work leading to Ph.D. and M.D. (Ayurveda) degrees as well as research by teachers and technical staff of the Institute.

5. Rashtriya Ayurveda Vidyapeeth, New Delhi

Rashtriya Ayurveda Vidyapeeth (The National Academy of Ayurveda) is an autonomous body set up under the Ministry of Health and Family Welfare in 1988 to transfer the knowledge of Ayurveda from eminent experts to younger generations. The existing teaching and training programmes in various colleges and universities in the country lack the core knowledge of ancient Ayurvedic texts like *Charaka Samhitha, Susrutha Samhitha* and books of Vagbhata and skills like *Nadi Vigyan, Netra Vigyan, Asthi Chikitsa,* etc. preserved in the family of *Vaidyas* hereditarily. The main objective of the academy is to fill this knowledge gap.

6. Ayurvedic Pharmacopoeia Committee

Pharmacopoeial standards are important under the Drugs and Cosmetics Act. Maintenance of such standards are essential to check the samples of drugs available in the market for their safety and efficacy. The Ministry of Health and Family Welfare had, therefore, taken up the task of developing pharmacopoeial standards through pharamacopoeial committees. Four

pharmacopoeial committees were set up for preparing official formularies/pharmacopoeias to evolve uniform standards in the preparation of Ayurvedic, Siddha, Unani and Homoeopathy medicines. Research institutions and laboratories including Universities are provided financial assistance for carrying out standardisation work of single as well as compound drugs of Ayurveda and other systems of Indian medicine. The Ayurvedic Pharmacopoeia Committee (APC) has carried out the following work during 1999-2000:

i) Preparation of Ayurvedic Formulary of India, Part I and Part II (English Version) covering 636 compound formulations.

ii) Preparation of three volumes of Ayurvedic Pharmacopoeia of India, Part III and Part IV.

7. Pharmacopoeial Laboratory for Indian Medicine (PLIM)

PLIM located at Ghaziabad was established in 1970 as a standard-setting cum drug-testing laboratory for Indian medicines including Ayurveda, Unani and Siddha at national level. The worked out standards in the form of monographs are published by the Ministry of Health and Family Welfare in the form of Ayurvedic, Siddha and Unani Pharmacopoeia of India. The first volume of Ayurvedic Pharmacopoeia of India (Part I) containing 80 monographs on single drugs has already been published.

8. Indian Medicines Pharmaceutical Corporation Limited

The company is a public sector undertaking established by the Department of ISM & H located at Mohan, Uttar Pradesh. The primary

objective of the company is to manufacture and supply quality Ayurvedic and Unani medicines for use in Central Government hospitals, dispensaries and research councils in the field of ISM.

Major Development Schemes of the Department of ISM & H

In the field of education and training, the Department of ISM & H offers the following schemes:

1. **Grant-in-aid Scheme for Improving and Strengthening the Existing Under-graduate Colleges of ISM & H**

Assistance is given to the ISM & H institutions, both government and private, for infrastructure development to the following extent:

i) Equipment for laboratories, hospitals and teaching faculties and books and furniture for library upto Rs. 10 lakh.

ii) Hospital building, college building and hostel building up to Rs. 20 lakh.

2. **Scheme for Upgradation of Post-graduate Departments of ISM & H**

The Scheme was formulated during 1990-`91 as a centrally sponsored scheme for providing financial assistance to ISM & H colleges for upgradation of departments for post-graduate training and research. The two schemes for post-graduate ISM and post-graduate Homoeopathy colleges have been clubbed together since 1998-`99.

3. **Central Scheme for Re-orientation Training Programme of ISM & H Personnel**

This scheme was introduced in the Eighth Plan as part of continuing education to upgrade the knowledge of ISM & H personnel like the

government doctors, practitioners, research workers and inspectors with respect to the latest developments in their field.

4. Increasing the Availability of Raw Materials

The Department of ISM & H has been concerned with the development of medicinal plants as they are the important raw material required for the preparation of medicines. A number of steps have been initiated to promote and conserve medicinal plants through other departments like agriculture, forest and science and technology. The Department has introduced a central scheme for development and cultivation of medicinal plants to augment the production of raw herbs. As per the present pattern of the scheme, assistance is provided to government and semi-government organisations and autonomous and statutory bodies for setting up / expansion of herbal gardens for growing identified plants.

5. Setting up of Vanaspati Vans

The availability of medicinal plants from forests has decreased considerably over the past few years due to over exploitation and several species have become endangered. The Department of Family Welfare has implemented a scheme to set up *Vanaspati Vans* with the objective to increase availability of medicinal plants for reproductive and child health programmes. *Vanaspati Vans* are proposed to be set up by taking up plantation of medicinal plants over wastelands or denude forest land of 3000 to 5000 hectares. The scheme is implemented in Haryana and Himachal Pradesh. The proposal from Madhya Pradesh, Andra Pradesh, Rajasthan, Kerala and Utter Pradesh are under consideration.

The WHO–Role and Policy

The WHO established the Traditional Medicine Programme in 1977. It stresses the need for the government to give adequate support to traditional medical practitioners. The WHO is aware that many elements of traditional medicines are beneficial, but others are not. In this respect, it encourages and supports countries to identify and provide safe and effective remedies and practices for use in the public and private health services.

Several countries have requested the collaboration of WHO in organising and conducting workshops to elaborate national policies on traditional medicines. They have also requested for the promulgation of legislation that defines and standardise basic elements of traditional practices and remedies. The WHO will assist those developing countries, where most people depend on traditional medicines, to incorporate traditional practices into national health systems. The programme will assist national programme for development on rational use of local resources for primary health care. A draft document entitled *Legislation on Traditional and Alternative Medicines: A Comparative Review* has been prepared. There are twenty five WHO collaborating centres for traditional medicines of which eighteen conduct research on medicinal plants and seven on acupuncture.

A review on the principles of regulation and legislation of herbal medicines will be prepared and exchange of information on country experience will be strengthened. In order to facilitate proper use of traditional medicines, a number of technical documents and guidelines will be developed. The documents include model monographs of widely used medicinal plants, list of

herbal medicines and guidelines for clinical research methodology on traditional and alternative medicines.[32]

HEALTH CARE FACILITIES AND EDUCATIONAL INSTITUTIONS IN INDIA

It is very encouraging to note that the plan allocation for ISM & H has been increasing till the Ninth Plan period. The following table (Table 2.1) explains the plan-wise allocation in this regard.

Table 2.1

Plan-wise Allocation for
Indian Systems of Medicine and Homoeopathy

Sl. No.	Plan	Allocation (Rs. in Crores)
1	First Plan	0.40
2	Second Plan	4.00
3	Third Plan	9.80
4	Fourth Plan	15.83
5	Fifth Plan	25.07
6	Sixth Plan	29.00
7	Seventh Plan	43.25
8	1990-`91	12.33
9	1991-`92	13.91
10	Eighth Plan	104.43
11	Ninth Plan	266.35
12	1997-`98	35.30
13	1998-`99	50.00
14	1999-2000	59.13

Source: Ministry of Health and Family Welfare, Government of India

[32] ITCOT, Chennai, *Feasibility Report on Ayurvedic Medicines with Details of GMP*, 2001, p.138.

Compared to the allocation in the First Five Year Plan period, the amount allocated for the Ninth period had been increased to 666 times. In the Second Plan itself the increase is by 9 times. The allocations in the years 1998-'99 and 1999-2000 are more than the total figure for the Seventh Plan period and around 50 per cent of the allocation for the Eighth period.

Appendix VI gives the picture of medical care facilities in India under the ISM & H and their management status as on 1st April, 1998. Majority of the medical care facilities is available with Ayurveda which is very much more than the figures related to other ISM & H. The number of hospitals and dispensaries under the control of the various State Governments and administrations of Union Territories is far above the figures of local bodies and others.

In terms of the number of registered medical practitioners and educational facilities also, Ayurveda is far above the figures related to other components of ISM & H. Homoeopathy stands second and Unani system of medicine occupies the third place. In the case of *Yoga*, no information is available as on 1st April, 1998. The only figure available for Naturopathy is the number of registered medical practitioners which is 402. These are shown in Table 2.2.

Table 2.2

Summary of Medical Man Power and Medical Educational Facilities under ISM & H as on 1-4-1998

Sl. No.	Faculties	Ayurveda	Unani	Siddha	Yoga	Naturopathy	Homoeopathy	Total
1	2	3	4	5	6	7	8	9
1	Registered practitioners	366812	40748	12911	-	402	188527	609400
2	Under-graduate college	154	31	2	-	-	118	305
3	Admission capacity	6300	1252	150	-	-	5357 + 100$ + (1045)	13059 + 1005 + (1045)
4	Post-graduate college	33	3	1	-	-	10	47
5	Admission capacity	437	55	24	-	-	99	615

Note: - = Nil information

$ = Admission capacity for graded degree course

Source: *Ministry of Health and Family Welfare, Government of India*

The number of registered medical practitioners under Ayurveda as on 1st January, 1999 is 366812 which is nearly double the number of registered practitioners for Homoeopathy. The number of under-graduate and post-graduate colleges taken together for Ayurveda as on 1st April, 1998 is 187 which is nearly 50 per cent more than those related to Homoeopathy. The figure for Homoeopathy is 128. The admission capacity for under-graduate Homoeopathy courses is 6357. The corresponding figure for Ayurveda is 6300 but, it is lower than the figure related to Homoeopathy. The figure of admission capacity of post-graduate courses of Homoeopathy is 99. The related figure of Ayurveda is 437 which is four and half times the figure for Homoeopathy. This analysis indicates that the prospects for Ayurveda is brighter than other systems of Indian medicine.

Appendix VII gives a picture of the growth of establishment of Ayurvedic hospitals in India since 1980. Compared to the figure for 1980, the number of government Ayurvedic hospitals has increased to 9 times (i.e., 1986 numbers as on 1st April, 1998). Though there is no considerable growth of hospitals owned by local bodies, the number has increased to 82 from zero during these 18 years. From 1980 to 1996, there is not much change in the growth of other Ayurvedic hospitals owned by government. But, their number has recorded a steep increase between the two years 1996 and 1998 (from 94 to 121). The total number of all the government owned Ayurvedic hospitals has increased to nearly 9 times during the years from 1980 to 1998.

The year-wise progress of Ayurvedic dispensaries under the ownership of government, local bodies and others is given in Appendix VIII. The number

of dispensaries under the local bodies recorded decline till 1998. The rate is more than 2 times. The total number of dispensaries has increased from 11631 to 14252. (i.e., an increase of 23 per cent) which is a highly unfavourable trend when compared to the growth of the hospitals (i.e., 870 per cent-See Appendix VII also).

AYURVEDA IN KERALA

Kerala, a small State with 38863 square kilometers of area, is tucked in the South Western corner of India. It represents only 1.18 per cent of the total area of India, but around 3.5 per cent of the total population of the country. The State may be divided into three geographical regions, viz., the Highlands, the Midlands and the Lowlands. The Highlands slope down from the Western Ghats, the mountains situated in the eastern border, rises to an average height of 900 metres. This is the area of major plantations like tea, coffee, rubber, cardamom and a large number of medicinal pants.

The Midlands, lying between the Highlands and the Lowlands, is made up of undulating hills and valleys. This is an area of massive cultivation. Cashew, coconut, arecanut, topioca, banana, rice, ginger, pepper, sugar-cane and vegetables of different varieties are grown in this area. Medicinal plants are grown in some gardens, most of them owned and managed by large scale manufacturers of Ayurvedic medicines.

The Lowlands or the coastal area, which is made up of river deltas, backwaters and shore of the Arabian Sea, is essentially a land of coconuts and rice. Fisheries and coir industry are the major industries of this area.

Kerala, a densely populated State with a population of over 3 crores, is generally renowned as the land of healthy people and health care practices. Unlike the other States of India, the intrusion of different communities like Jews, Budhists, Brahmins, Muslims and Christians to the State had been notable. The development of better health care systems had been the result of the social habits of the people of the land and their living practices.

There are a number of tribal groups in Kerala. Most of them flourished in the Western ghat region. Each tribe follows its own hereditary medical system. Generally their medicines are for common illnesses. Most of them were hesitant to share their knowledge with the outsiders. Due to the constant efforts of researchers and government agencies, some tribal physicians were brought to limelight and have started visiting villages and towns. They come to these places with herbal medicines. Knowledge of medicinal plants has converted some of these tribes as herb collectors.

As in other parts of the world, treatment through folk medicines was followed in Kerala and still prevalent in various parts of the State. These medicines are combinations of locally available herbs. Some families prepared their own traditional medicines for serious diseases and never visited physicians for medical treatment. There are some lower caste groups like *Mannan, Velan, Kaniyan* and *Ezhava* who were famous physicians. *Mannan* and *Velan* treated the patients alongwith black magic. The women of *Mannan* caste (*Mannathis*) were specialised in labour room service. Until the days of the European invasion, she acted as the village gynaecologist and mid-wife. The physicians from the *Ezhava* caste were very famous as palace physicians.

One of such physicians by name Itti Achuthan helped the Dutch administrator Van Rheede in the compilation of the famous twelve-volume work of *Hortus Malabaricus.*

Kalarippayattu, evolved as a physical cum martial art of Kerala during the early centuries of the Christian era, had been enlarged in the later years with the addition of physiotherapy, bone-setting and *marma chikitsa* systems. Institutions practising *Kalarippayattu* developed into treatment centres for *marma* disorders and rheumatic ailments. Medicated oils were widely being used for *Kalari* exercise. Massage or *uzhichil* was considered to be one of the essential parts of this exercise to attain flexibility for different parts of human body. It could be learnt that the *Kalari* masters have been influenced by the knowledge assimilated from the folk medical systems and Ayurveda. The exercise and therapy attached to *Kalarippayattu* have paved the foundation for the health of the people of the State through centuries.[33]

Ayurveda is closely related to Sanskrit because traditionally Ayurvedic knowledge was imparted through *gurukula* system, the curriculum of which commenced with an in-depth study of Sanskrit. There was not even a single text on Ayurveda at that time as the method of teaching had been imparting the knowledge by the *guru* to his pupils.

The ancient system of medicine was named 'Ayurveda' only after the *Samhithas* by Charaka and Susrutha were written in Sanskrit. Ayurveda became popular in Kerala with the influence of Sanskrit in Kerala culture.

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[33] Kurup, K.K.N., Prof., and K. Vijaya Kumar. "Indigenous Health Tradition of Kerala", *Aryavaidyan,* pp.165-169.

But, the medicines and treatment methods in vogue in the State reveal that the medical practices pursued in this part of the country had some additional features. The Kerala *Vaidyas* (traditional Ayurvedic doctors of Kerala) might have borrowed some principles and medicines from the tribal people, folk culture and *Kalarippayattu.* There are a number of medicines in *Keraleeyayoga* (Ayurveda of Kerala) which one cannot trace in the books of Charaka, Sasrutha or Vagbhata. For instance, *gulikas* (tablets) such as *Kasthooryadi, gorochanaadi, konpanchaadi, dhanwandaram, karutha gulika* and *marma gulika* and oils such as *kottanchukkadi, chemparuthyaadi* and *aaranya thulasyaadi* and eye drops like *ilaneer kuzhambu* did not find any place in the Sanskrit books. Similarly, there are certain treatment methods like *dhara, pizhichil, thalapothichil* and *thalam* which have their origin in Kerala.[34] *Sahasrayogam*, a celebrated book on Ayurvedic principles and practices followed in ancient Kerala will certify this fact. This book had been deemed to be the reference manual not only by the *Vaidyas* but also by most well-to-do families of those days.[35]

Kerala, being the land of *Kathakali* and *Kalarippayattu,* many types of *uzhichil* were practised to build flexibility for different parts of the human body. This later on led to the growth of another branch of treatment, viz., *Kalarichikitsa.*

Historians are doubtful as to when Sanskrit literature began to change the outlook of Keralites and the medical treatment practices in the State. Most

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[34] Ravikumaran, K., Dr. "Keraleeya Chikitsa-Keralathile Ayurveda Chikitsa-Keralathinte Sambhaavanakal" in *Ayurvedam-Arogyamaargam* (Malayalam) ed. Dr. C. Ramankutty, Dr. P.V. Vatsan and others, Kottakkal : Arya Vaidya Sala, p.48.

[35] p.339, Op. Cit., Varier, Krishna, N. V.

researchers agree that the upsurge of Sanskrit over the State of Kerala could have happened during the fifth, sixth and seventh centuries A.D. But, evidences prove that Sanskrit literature and *Arya* culture had influenced the culture of Keralites many years before the beginning of the fifth century.[36]

In Kerala, the job of *Vaidya* was not confined to a particular caste. The job of *Vaidya* was assumed by the forward castes of Hindu religion like the *Brahmins* and people of lower strata like the *Ezhavas* as well and some families of these castes came to be known as *Vaidyas.* Marcopolo who visited the State by the end of the thirteenth century A.D. wrote that Kerala was a land of famous *Vaidyas* and astrologers.

In ancient days, most of the *Vaidyas* of Kerala belonged to the *Namboodhiri (Bhrahmin)* caste. Being the people of forward caste, they were placed at high esteem by the kings and the lords. Prominent personalities among them were regarded the successors of Vagbhata and came to be known as *ashtavaidyas.* They were named as such as they had in-depth knowledge in *Ashtanga Ayurveda.* Though they belonged to the *Namboodiri* caste, they were popularly regarded as *Nambi* or *Mooss.* It is believed that in the beginning, eighteen such families existed. *Pulamanthole, Alathiyoor, Kuttanchery, Thrissur, Thaikkattu, Elayidathu, Chirattaman, Vayaskara* and *Vellottu* are the well-known families which exist today.

Apart from the branches of Ayurveda mentioned hitherto, there existed a system for treatment of plants and animals which included *Hastyayurveda* (Ayurveda for elephants) and *Vrukshayurveda* (Ayurveda for trees).

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[36] Ibid., p.338.

Due to the spread of colonial culture, Sanskrit study became unwanted. The few well-known masters of Ayurveda confined their activities either as court physicians of feudal families and were inaccessible to the common mass. On the other hand, due to their political and academic interests, a number of Europeans collected and codified details of Ayurvedic and folk medicines. The best example is the publication of *Horthus Malabaricus* written by the Dutch commandant Van Rheede. The book written on the medicinal plants of India by Garcia Da Orta, the famous Portuguese researcher, was one of the first of its kind on the subject.

Most Sanskrit scholars of Kerala had in-depth knowledge in Ayurveda as well. Indu, the author of *Sasirekha*, the Sanskrit version of *Ashtangahrudayam* and *Ashtangasangraham*, was a Keralite. *Bruhalpattyam* and *Kairali* are the other versions. The author of *Kairali* is one Pulmanthole Mooss and hence it is known as the '*Pulamanthole Version*'. *Chikitsamanjari* is another famous text on Ayurveda written by the same author. *Hrudayapriya* and *Sukhasadhakam* written by Paachumooth are the edited versions of *Ashtangahrudayam*. It is believed that the famous poet Thunchathezhuthachan had also published his own version of *Ashtangahrudayam*, but another renowned poet of Kerala, Ulloor had denied it.[37] There had been a number of other publications from Kerala including those written in Sanskrit related to various medicines and practices prevailed in the State.

The development of Western education and the resultant establishment of a chain of schools and colleges had slowed down the importance of the study

[37] Ibid., p.346.

of Sanskrit and allied branches of traditional knowledge. In course of time, Keralites restored the pace which led to the emergence of colleges for Ayurvedic studies in the last decades of the nineteenth century and the early phase of the twentieth century. This was the beginning of the modern period of Kerala Ayurveda.

The first educational institution teaching Ayurveda was established in 1886 by Paachu Moothattun, who had been a famous Ayurvedic physician of Divan Sankarasubbayya. The king Sreemoolam Thirunal took the necessary steps for the take-over of the institution by the government as per the recommendations of the Divan. In 1918, the institution was upgraded to the status of a college and a new syllabus introduced in the year 1943-`44. It was in 1957 that D.A.M. course was introduced by the then Health Minister Dr.A.R. Menon.

A registered association, with the name 'Aryavaidyasamajam', comprising the renowned Ayurvedic physicians of the erstwhile Malabar and neighbouring regions of Kerala, formed in 1902, was later on taken over by *Vaidyaratnam* P.S. Varier, the founder of Arya Vaidya Sala, Kottakkal to convert it into a full fledged educational institution in 1917. 'Aryavaidyan' had been the first diploma course in Ayurveda conducted in the institution. The curriculum included the study of anatomy also. After the formation of the State of Kerla, D.A.M and B.A.M.S. courses were introduced in the institution.

'Keraleeya Ayurvedasamajam' is another association constituted by the *Ashtavaidya* formed in line with 'Aryavaidyasamajam'. The association, which had been transformed into a college in 1946, now conduct D.A.M. course.

During the period of national awakening, a number of centres for Ayurvedic studies like Pattambi Samskrita Padasala, Madhava Memorial Ayurveda College, Kannur, Madhava Ayurveda College, Ernakulam and Sanskrit study centre at Thripunithura were established. The famous Narayanan Mooss of *Elayitathu Thaikkattu* established Vaidyaratnam Ayurveda College in Thrissur District. The State now has a number of Ayurveda colleges under government or private management. The syllaby of the courses offered under these colleges are the syllaby prescribed by the Government of India. The prominent institutions among them are situated at Thiruvananthapuram, Thripunithura, Ollur, Kottakkal and Kannur. In addition to them, the following are the research institutes or units in Kerala which come under the control of the CCRAS:

i) Indian Institute of Panchakarma (Ayurveda), Cheruthuruthy, Thrissur District (with 50 bedded Research Hospital).

ii) Regional Research Institute (DR), Poojapura, Thriruvananthapuram. (with one research hospital in which the beds are maintained by the State Government).

iii) Clinical Research Unit (Ayurveda), Arya Vaidya Sala Hospital Complex, Kottakkal.

iv) Pharmacological Research Unit, Department of Pharmacology, Medical College, Thiruvananthapuram.

v) Research Scheme on Screening of Contraceptive Agents, Department of Obstetrics and Gynaecology, S.A.T. Hospital, Medical College, Thiruvananthapuram.

vi) Research Scheme on Screening of Contraceptive Agents, Department of Pharmacology, Medical College, Thiruvananthapuram.[38]

The state-wise distribution of Ayurvedic hospitals and beds thereof in India are given in Appendix IX. The highest number of Government hospitals as on 1-4-1998 is in Uttar Pradesh, i.e., 1594 followed by 107 numbers in Kerala; but, there is a wide difference of 1487 numbers between the two States. In terms of total number of beds in these hospitals, the number of Uttar Pradesh is three times (i.e., 9421) higher than that of Kerala (i.e., 2309).

But, looking into the figures as shown in Appendix X, it can be assessed that the number of dispensaries owned by government and others in Kerala is 759. The corresponding figure for Rajasthan is 3469 which is nearly 5 times the number for Kerala; the figure for Madhya Pradesh is 2093 which comes to 3 times the figure for Kerala.

The district-wise distribution of hospitals, beds and patients treated in the years 1958-`59 and 1997 in Kerala are given in Appendix XI.

The rapid growth of all modern sciences has helped the growth of modern medical science also. Today, modern medical science has so developed that treatment methods either to eradicate or to control diseases such as plague, small pox, cholera and malaria are being widely applied. Though a number of inventories related to complicated surgeries are there to the credit of human beings, much is yet to be done for the treatment of diseases like diabetes, cancer and mental diseases.

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[38] Department of ISM & Homoeopathy, Ministry of Health and Family Welfare, New Delhi: Indian Systems of Medicine and Homoeopathy in India, 1998, p.358.

As modern medical science takes into account the changes occurring in the internal and external constitution of human body only to diagnose diseases and prescribe medicines, Ayurveda makes it clear that it is not necessary for a disease to strike to make one sick. The circumstances that make germs enter the body also lead to illness. Alongwith the symptoms which cause the disease, the reasons for the imbalance between the constituents of the body, viz., *vata, pitta,* and *kapha* are studied. As part of the treatment, pieces of information regarding the past generations of the patient are collected. Ayurveda, thus, tries to analyse the social causes of the illness as human being is a social animal. I.P.Pavlov, the nobel laureate and head of the Physiologists of the world had recognized and inculcated this idea. People of different walks of life around the world are following suit and Ayurveda is going to be widely accepted like the acupuncture of China.

The History of Ayurveda reveals that Ayurveda is as old as the ancient *rishis.* As revealed by the *Vedas* and as per the belief of some people, it existed even before Brahma. Today, it makes use of most of the equipments and devices of modern medical science and is the last resort in curing some prolonged diseases. The evolution and development of Ayurveda is not complete without a discussion about the system of Ayurveda and Ayurvedic medicines which is dealt with in the next chapter.

CHAPTER III

AYURVEDIC SYSTEM AND MEDICINES

AYURVEDIC SYSTEM AND MEDICINES

The discussion on the evolution and development of Ayurveda in the last chapter threw light to the fact that Ayurveda has been an integral part of Indian culture. It seems imperative to analyse the features of Ayurveda and the data related to Ayurvedic medicines as a part of this study. These are being dealt with in this chapter. Section A of the chapter describes the features of Ayurveda as a system of medicine and Section B analyses the data related to Ayurvedic medicines.

SECTION–A

THE SYSTEM OF AYURVEDA

The word 'Ayurveda' is the combination of two Sanskrit words, *ayu* (meaning life) and *veda* (meaning science or knowledge) and hence Ayurveda is called the science of life. The concept of 'science of life' probably makes it the oldest medical science having a positive concept of health which is to be achieved through a blending of physical, mental, social, moral and spiritual welfare.

Ancient books lay down that health is a prerequisite for achieving the supreme ends of life consisting of righteousness, wealth, artistic values and spiritual freedom. *Dharma* (righteousness), *artha (*wealth), *kama* (worldly desires) and *moksha* (salvation) are known as *purusharthas* (aims of human life). Long and healthy life is necessary to attain this. Ayurveda specifies the measures to be adopted to attain such a life. According to Ayurveda, life is the combination of *sarira* (body), *indriya* (sense of organs), *satva* (mind) and *atma* (soul): *sarirendriya satvatma samyogo dhari jeevitham.*

The oldest medical science of the world describes elaborately the measures of healthy living during the entire span of human life. Besides prescribing the principles to be followed to maintain health, Ayurveda developed a range of measures to combat illness. These include principles of positive health and therapeutic measures related to physical, mental, social and spiritual welfare of human beings. Thus, this medical system deals with both the preventive and curative aspects of life in the most comprehensive way. It deals extensively with the conditions and circumstances conducive to happiness or otherwise responsible for misery during the entire span of life.[1] As the honourary physician in Bombay Hospital, Mumbai, Padmashree Vaidya Suresh Chaturvedi puts it, Ayurveda is not merely a health science, it is a philosophy of life. It provides us with a definite outline of life itself. To stop a disease, we need something more than symptomatic relief. We need to cure it at its origin.[2]

There is even reference to the present day surgery in the traditional Ayurvedic texts. These texts start with *Swasthavritta,* which means, the routine to be followed by one who has to be healthy in life. While modern medicines emphasise efficacy of modern techniques and medicines, Ayurveda takes into account medicine, diet, patient's behaviour (way of life), living atmosphere, climate, habits of past generations, etc. to cure the disease. This is a holistic approach.

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[1] Department of ISM & Homoeopathy, Ministry of Health and Family Welfare, New Delhi: Indian Systems of Medicine and Homoeopathy in India, 1998, pp.2-3.

[2] Harachand, S. "Ayurveda Is A Prescription for Living Life the Full", *Holistic Healing,* August, 2000, p.16.

One has to have a sense of his organs and mind if he has to be perfectly healthy. Ayurveda specifies several ways to keep oneself healthy. They include defining one's own *jivitoddesa* (goal of life), *jivitacharya* (regulated mode of life), *hitahitiyam* (do's and don'ts in life), *aharavivechana* (good and bad aspects of food articles) and *rogaprativiodhopaya* (methods of prevention of diseases).[3]

From the very beginning itself, Ayurveda gives greater importance to righteousness than health matters because an immoral person may not expect perfect health throughout his life.[4]

The medical system developed by the ancient sages of India lays more emphasis on the promotion of positive health and prevention of diseases rather than curing the diseases after their occurrence. It aims at strengthening immunity power of the human body. Even the strongest bacteria or germ will not be able to produce a disease in the body if it has enough immunity power to prevent their growth.[5]

According to Dr. Franklin, who established the Panchakarma Research Centre at Kovalam, Kerala, all celebrated texts on Ayurveda consider this medical system as having the nature of prevention of disease rather than as a curative system.[6]

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[3] Sivarajan,V.V., and Indira Balachandran. *Ayurvedic Drugs and Their Plant Sources*, New Delhi: Oxford and IBH Publishing Co.Pvt. Ltd., p.3.

[4] Nambiar, M.C.B. "Ayurvedavum Chila Dharmachinthakalum", *Oushadham (*Malayalam), February, 2002, p.6.

[5] Rajagopalan,K., Dr. "Ayurveda in Modern Context", *Holistic Healing,* December, 1999, p.26.

[6] "Authentic Ayurveda – A Hard Task" (Interview with Dr.Franklin), *The Hindu – Business Line*, June 12, 2002.

In Ayurveda, man is conceived as a microcosm. Man himself is a small universe. If his way of life violates the rules of nature creating internal imbalance, diseases will creep into his body. The aim of treatment of the disease is to restore the internal balance. Medical treatment, therefore, starts with the instructions to follow correct ways of life.

Rather than merely treating a symptom, Ayurveda treats the root cause of illness. The physician tries to restore the balance within the body-mind-soul axis in the patient. Thus, the practitioner starts with the 'roots of the disease' and not with cutting down the 'leaves of the symptoms'.[7]

It is advised not to pollute human body and mind with sins to be healthy. Consuming of food articles according to instincts is described as sinful in the Ayurvedic texts. Environmental protection is also an important aspect of health protection. Various pollutants accumulated in the body are to be removed as a part of the treatment in Ayurveda. This is done through *Panchakarma.*[8]

As protection of environment is important for preserving human health, it is said that human body cannot be separated from its surroundings. This integral relation applies to medicines too. Kerala is blessed with a number of medicinal plants though their availability is considerably reduced over the past few years. Hence, the purity of Ayurvedic medicines is still maintained in the medicines manufactured in the State to a large extent.

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[7] Ranade, J.P., Dr. "Fountain of Wellness", *Holistic Healing,* August, 2000, p.9.
[8] Pradeep, T., Dr. "Ayurveda and Panchakarma", *Oushadham* ((Malayalam), January, 2001, p.2.

An analysis of the *Vedas* reveals that they are replete with reference to the ancient medical system of Ayurveda. Many miraculous developments took place in this Indian medical system as mentioned in the *Vedas.* The fundamental principles of *tridosha* concept, *sapthadhatu* concept, concept of digestion and metabolism, anatomical descriptions and descriptions of various diseases are described in detail in the *Vedas.* Various medicinal plants and their qualities are also explained in the *Vedas. Adharvaveda* has got more materials about Ayurveda than the other *Vedas* and Ayurveda is generally regarded as the *upaveda of Adharvaveda.*

Ayurvedic drugs are manufactured from raw materials available in nature. As a result of this, intake of Ayurvedic drugs cause neither side effects nor physical and psychological handicaps. This is why Ayurvedic treatment is termed *Sudhachikitsa* meaning 'genuine treatment'.[9]

Like any other system of medicine, Ayurveda, if not practised properly, would have negative effect. If a patient deviates from the strict diet regimen, it can cause side effects.

There is a general feeling that anything herbal is Ayurveda. Ayurveda is not herbs alone, but contains minerals, metals, oils, ghee, etc. Before using the medicine, the body constitution of the individual has to be thoroughly studied to attain the best results.[10]

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[9] Interview with Dr. C.V. Raman, Former Director, Department of Ayurveda, Kerala on 21-2-2002 saved from "Kerala Ayurveda" in www.ayurveda.2.com on 28th August, 2002, pp.1-2.

[10] Ruzbeh, Nari, Bharucha. "The Arya Vaidya Sala: The Haven of Hope", *Holistic Healing*, July, 1999, p.18.

The terms "drug" and "medicine" are interchangeably used in relation to almost all medical sciences. The term "drug" is derived from the French word "drogue" which means, "a dry herb". The Ayurvedic equivalent of drug is *bhesaja* or *ausadha* that which overcomes *bhesam* or *osa* (meaning diseases or fear of diseases) and includes anything having material form or not. Food, fasting, sleep, sunlight, faith in physicians, etc. are prescribed in Ayurvedic therapeutics for recuperation from ill-health. Diseases will be aggrevated by the climate not suitable for the constitution of the body and mind of the patient.[11]

Pathya is the term to denote diet regimen that forms an integral part of most Ayurvedic treatments. For the proper assimilation of drug and food, the patient is to be advised to follow a new dietary routine. A diet that might cause an opposite effect of the drug consumed is to be controlled, if not avoided, and that which increases the potency of the medicine is to be followed. Since the drug-diet interaction is considered a significant factor, the physician decides on a *pathya* suitable for the nature of illness, constitution of the patient's body, his tolerance to various regimens and so on.[12]

THE TRIDOSHA THEORY

Everything in the universe is made up of *panchabhutas,* viz., five elements. The five elements are *akash* (space), *vayu* (air), *agni* or *tejas* (fire), *jala* or *apa* (water) and *prithvi* (earth). These five elements are to be understood in the material sense as well as in the subtle sense. By *prithvi,* we

[11] p.6, Op. Cit., Sivarajan,V.V., and Indira Balachandran.
[12] p.2, Op. Cit., Interview with Dr. C.V. Raman.

mean steadfastness of mind, moral strength and perseverance. *Jala* or *apa* implies the cohesive aspects of reality which holds things together. *Agni* or *tejas* is the universal force in nature that produces light and radiates heat. It is our passion to overcome obstacles. *Vayu* is that transparent force which sets the universe in motion. *Akash* is the subtlest of all the elements of *panchabhutas*.[13]

Due to the initiation of the three inherent characters (*trigunas*) of *prakrit* (nature), activities of the *panchabhutas* started leading to the creation of the universe. The *trigunas* (*satva, rajas* and *tamas)* have their own qualities and actions. *Satvic* qualities imply purity and clarity of perception which lead to goodness and happiness. *Rajas* is responsible for all movements and activities. It leads to pleasure and pain and effort and restlessness. *Tamas* is darkness and results in inertia. The relative predominance of either *satva, rajas* or *tamas* is responsible for an individual's psychological constitution.

Akash has a predominance of *satvaguna, vayu* of *rajoguna, agni* of *satva* and *rajo gunas, jala* of *satva* and *tamo gunas.* By forming different combinations of the five *bhutas,* a number of objects are created.

The ancient sages propounded the theory of *tridosha* based on the dominant role of the three *bhutas,* viz., *vayu, agni* and *jala* among all the five *bhutas.* As *akash* is all pervasive, nothing can remain apart from it. *Prithvi* forms the base of every object. So *akash* and *prithvi* have no active role in the *tridosha* theory.[14]

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[13] ITCOT, Chennai. *Feasibility Report on Ayurvedic Medicines with Details of GMP*, 2001, p.4-5.
[14] Jayasree,A., Dr. "Ayurveda: History and Principles", *Science India,* November, 2002, p.11.

Various combinations of the elements of *panchabhutas* are represented in the form of *tridosha* such as *vata* (*akash* and *vayu), pitta* (*agni*) and *kapha* (*jala* and *prithvi).* These three *doshas* are the physiological entities in living beings. Ayurveda considers human beings as the combination of the three *doshas* (*tridosha*), seven body tissues (*sapthadhatu),* five senses (*panchaindriyas),* mind *(manas),* intellect (*budhi)* and soul *(atman).* The doctrine of Ayurveda aims to keep these structural and functional entities in a state of equilibrium, which is the sign of good health. Any imbalance in the system due to internal and external factors results in disease and restoring the equilibrium through various techniques, procedures, regimens and medicine is the treatment.[15]

There is a view that *doshas* are *saririka* (bodily) or *manasika* (psychological). The *saririka doshas* are *vata, pitta* and *kapha.* The *manasika doshas* are *satva, rajas* and *tamas* referred to as *trigunas,* the three qualities of mind. According to Charaka, derangement in *tridoshas* or *trigunas* is followed by changes in the other. Generally, greater importance is attributed to *tridoshas* as the primary causes of disease. For every individual, each *dosha* has a quantity, quality and action in the physiology of the patient. When this balance is disturbed through indulgence in food articles and habits which are similar in nature to a specific *dosha,* that *dosha* gets aggravated; food articles and habits dissimilar in nature to that *dosha* may weaken it likewise.

Tridoshas are also called *tridhatus* or three humours. Among the three *doshas, vata* is also referred to as *vayu, pitta* as *mayu* and *kapha* as *valasam*[16]. The proportion of the three humours vary from person to person. Disease is the

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[15] p.1., Op. Cit., ITCOT, Chennai.
[16] Varier, P.S. *Chikitsasangraham* (Malayalam), Kottakkal: Arya Vaidya Sala, 1902, p.3.

result of imbalance in them. There may also be a qualitative change-excitement or vitiation.[17]

The three *doshas* are called as such because they are often *dushyate* or vitiated. No disease can ever arise which is not brought about by the vitiation of these *doshas* or faults.[18]

In a healthy person, the *tridoshas* are in perfect balance. When the balance gets disturbed, either physical or mental disorder follows. The balance can be restored by correcting the *tridoshas* by Ayurvedic formulations, regulated diet and by using the power of positive thinking.[19]

Tridoshas are the functional units of the body. *Vata* governs movement and can be seen as the force which directs nerve impulses, blood circulation, and respiration[20]. It, sometimes translated as wind, is the most influential of all the three *doshas* and is responsible for somatic activities and sensations. It is the intelligence which channels perceptions of temperature, pressure, sweetness, lightening, violin music, etc. through the appropriate sensory organs which convert them into internal psychological events and then orchestrates the appropriate response via the organs of action.

Pitta governs our ability to digest ideas and impressions. It stimulates the intellect and creates enthusiasm and determination. *Charaka Samhitha* describes *pitta* functions in the digestion of food, heat production, providing

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[17] Singhal, G.D., and T.J.S. Patterson. *Synopsis of Ayurveda,* Delhi: Oxford University Press, 1993, p.4.
[18] Kaviraj, Nagendranath, and Sengupta. *The Ayurvedic System of Medicine,* Thiruvananthapuram: CBH Publications, 1995, p.45.
[19] Palit,N.G. "Medicine for New Era", *Holistic Healing,* April-May 2001, p.14.
[20] p.11, Op. Cit., Jayasree, A.,Dr.

colour to the blood, vision and skin lustre. *Kapha* holds things together and gives strength and stability both physically and psychologically. It promotes human emotions such as love, empathy, understanding, forgiveness, loyalty and patience. Another important function of *kapha dosha* is to govern immunity and resistance of the human body.[21]

Among the three *doshas, vata* is invisible since it is a combination of *aksah and vayu.* The other two *doshas* are visible. The presence of *vata* can be felt through its functions or activities. *Pitta,* sometimes, loses its material form. The position of *vata* is at the bottom part of the stomach, that of *pitta* between the heart and the stomach and *kapha* is deemed to be situated above the heart of the human body.[22]

In Ayurveda, there are seven types of body: monotype (*vata, pitta* or *kapha* predominant), dual type (*vata-pitta, pitta-kapha* or *kapha-vata)* and equal type (*vata, pitta* and *kapha* in equal proportions).

Apart from the three *doshas,* Ayurveda recognizes seven *dhatus* and three *malas. The* seven *dhatus* or tissues are *rakta dhatu* (blood cells), *rasa dhatu* (plasma), *mamsa dhatu* (muscle tissues), *medha dhatu* (fatty tissues), *asthi dhatu* (bone), *majja dhatu* (bone marrow and nervous tissues) and *sukra dhatu* (reproductive tissues). The three *malas* or wastes are wastes from food *(ahara mala),* urine and sweat (*dhatu mala* or wastes from tissues).[23] Disease is due to disharmony in any of the elements of *tridosha,* seven *dhatus* and three *malas.* The root cause of disease is the aggravation of *doshas.*

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[21] pp.5-6, Op. Cit., ITCOT, Chennai.
[22] Krishnan, T.P., Dr. "Tridosha Siddhantham: Chila Chinthakal Koodi", *Oushadham* (Malayalam), January, 2002, p.7.
[23] p.6.Op. Cit., ITCOT, Chennai.

In Ayurveda, the principles of health come under two sections, viz., *dinacharya* (measures to be adopted in the day to day life) and *rithcharya* (steps to be observed in different seasons). A disease is diagnosed in five different ways. The first way is *darsana pareeksha* which is carried out by inspection and observation of the patient. The second is *sparsana pareeksha* which is done by palpation and percussion. The third method, viz., *prasna pareeksha* involves interrogation of the patient. *Dasavidha pareeksha,* the fourth way of diagnosis, consists of the examination related to the following ten aspects of the patient:

1. *Dooshyam* (poisonous substance)
2. *Desam* (geographical location of the patient)
3. *Balam* (physical strength)
4. *Kalam* (Season)
5. *Analam* (Agni)
6. *Prakriti* (body constitution)
7. *Vayas* (age)
8. *Satwam* (mental strength)
9. *Satmyam* (wholesomeness)
10. *Aharam* (food)

The fifth way of diagnosis is *ashtasthana pareeksha* which requires the eight fold examination involving the following organs, functions, wastes or aspects of the human body:

1. *Nadi* (nerve)
2. *Muthram* (urine)
3. *Malam* (wastes)
4. *Gihva* (tongue)
5. *Shabda* (voice)
6. *Sparsham* (touch)
7. *Drikk* (vision)
8. *Akriti* (shape)

Ayurveda has treatments for all sort of diseases. By resorting to two treatment methods, viz., *shamana chikitsa* and *shodhana chikitsa,* the imbalance in *tridoshas* can be rectified. *Shamana chikitsa* manages the symptoms of a disease whereas *shodhana chikitsa* eliminates its causes. The former gradually reduces the negative influences of the *doshas* by the consumption of medicines. *Shodhana chikitsa* removes *ama* (toxins) and *mala* from the body and restores the natural balance of the *tridoshas*.

Panchakarma is one of the most important methods for the expulsion of *ama* and *mala.* It constitutes *pancha* (five) *karmas* (actions) for purifying the human body, mind and consciousness. *Panchakarma* is preceded by a set of *purvakarmas* which prepare the body to remove the toxins. *Panchakarma* ensures that through rejuvenation of the individual patient, health is achieved.

The five procedures involved in *panchakarma* are *vamana, virechana, vasti, nasya* and *raktamoksha. Vamana* is therapeutic vomiting. *Virechana* is a purgation theraphy with herbal laxatives. *Vasti refers* to the therapeutic enema. *Nasya* is the cleaning procedure through nose using Ayurvedic preparations. Removal of *doshas* from blood through blood-letting is done through *raktamoksha.* The kind of *Panchakarma* advised depends on the physiological condition of the patient. All the five procedures of the *Panchakarma* treatment may not be recommended to remove the toxins.

Panchakarma starts with selected *purvakarmas* which include *snehana* and *swedana.* In *snehana,* oil massages are done to nourish the nervous system. *Swedana* is the therapeutic application of steam to cause sweating. It loosens the toxins and the process is further accelerated by the addition of herbal preparations to the steam. After three to seven days of *purvakarma,* the *doshas* are ready to be flushed out of the human body by *Panchakarma.*

The past discussion highlighted that health is a pre-requisite for achieving the supreme ends of life and Ayurveda specifies the measures to attain such a life. This science of life aims at strengthening the immunity power of human body rather than curing a disease.

The relevance of Ayurvedic medicines over other medicines is briefly explained in the second section of the chapter, viz., Section B. In this section, an attempt is made to analyse data relating to various product lines of Ayurvedic medicine manufacturers, their demand, sales, exports and profit margins also.

SECTION-B

AYURVEDIC MEDICINES

Ayurveda envisages a range of preventive and curative methods which are inseparable from nature. According to Ayurveda, all the creatures of the universe are *panchabhautic* and nothing other than medicines are available from nature. A life without adversely affecting the environmental system of the earth is advocated by Ayurveda.

In the eye of modern medical science, diseases are mostly caused by germs. Other causes are hereditary. Today, antibiotics have been and being developed and invented to fight the germs and thereby controlling and curing diseases. At the same time, germs take new shapes and overcome the effect of antibiotics on them. As this phenomenon progresses indiscriminately without even a pause, it leads to the imbalance in the physical as well as psychological systems of the patient resulting in further deterioration of the immunity power of the individual.

Alongwith the third generation antibiotics, various types of vaccines are being widely used in the modern medical system, popularly known as the Allopathy system, to restore the immunity power of the human body. But, the modern system rarely suggests control over the intake of food articles except for diseases such as diabetes, blood pressure and heart attack and suggests very little about the way of life to be followed by the patient.[24]

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[24] Balagopalan, E.R. "Ayurveda Chikitsa – Adhunika Kalagattathile Sadhyathakalum Parimithikalum", *Ayurvedam – Arogyamargam* (Malayalam), ed. Dr. C. Ramankutty, Dr. P.V. Sreevalsan, and others, Kottakkal: Arya Vaidya Sala, 2000, p.156.

In Ayurveda, the patient is evaluated on the basis of the *tridosha* and seven dhatus of the body, and then medication and treatments are prescribed. When the *tridosha* are balanced, one enjoys good health. Therefore, Ayurveda is considered more specific and person-oriented.[25]

Allopathy, sometimes, causes side effects. For instance, aspirin, one of the most frequently used drugs in Allopathy, could prove fatal especially to children. It causes problems like liver and kidney failure and gastric bleeding in the opinion of some Allopathy doctors.

Alternative systems like Ayurveda, Homoeopathy and *Yoga* could cure many common diseases at lesser costs. Allopathy is meant for emergencies like heart attack and not for common cold. The advantage of Ayurvada, when compared to Allopathy system, is that the former focuses on the man who suffers from the disease rather than on the disease that a man is suffering from.[26]

In modern medical system, prevention of disease is done in two ways. One is the active way and the other is called the passive way. The first method, that is, the active way involves helping antibodies to grow within the human body. Examples are vaccines for small pox and B.C.G. The passive way is to pass the antibodies to the patient's body. In Ayurveda, *ojus* is the energy within the body which prevents a disease. The medicines of Allopathy system are artificially activating *ojus* to provide immunisation.[27]

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[25] Mirajgaonker, S.G. "The Herbal Rage", *Holistic Healing,* August, 2000, p.18.
[26] Anton, Sir. "Allopathy is for Emergencies", *Aptha* (Malayalam), March, 2000, p.29.
[27] Namboodiri, Raman,K.R., Dr. "Rogaprathirodham Ayurvedathil", *Ayurveda Chandrika,* May, 1991, p.241.

Prakriti (constitution), *Vyadhikshamatva* (defence mechanisms), *agni* (enzymatic processes), *aharam* (diet and habits), *dooshya* (tissue factor), *satmya* (wholesomeness), etc. are some of the factors which get varied in different persons with the same illness. Hence, the mode of pathogenesis requires a non-linear equation in treatment using drugs making the disease not a static entity in an individual. Accordingly, the concept 'one drug for one disease' is quite insensitive in Ayurveda.[28]

The four stages in the treatment by adopting Ayurvedic principles are the *vaidya,* the *dravya*, the servant and the patient. *Vaidya* (physician) is the most important element in Ayurvedic treatment. *Dravya*, which occupies second place in importance, is the substance used for the manufacture of medicines. Servant means, the nursing assistant.

Classification of Medicines

According to Charaka, Ayurvedic medicines are made up of three kinds of substances, viz., minerals and metals, vegetables and animals.

1. Minerals and Metals

These include diamond, emerald and other gems, gold, silver, iron, lead and other metals and chemicals such as sulpher, mercury and salt.

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[28] Sasidharn, K., Dr. "Ayurveda: The Medicine in Wholesome", *Holistic Healing*, November, 2000, p.18.

2. Vegetables

Vegetables consist of the following:

i) *Vanaspati*: Vegetables producing fruits without developing flowers.

ii) *Vanaspatya*: Those which produce both flowers and fruits.

iii) *Virudh*: Vegetables which creep as they grow. They are called *pratanavati* and *valli.*

iv) *Oshadhi*: Those which perish after the ripening of their fruits. All deciduous herbs and plants fall under this category.

3. Animals

Animals are divided into the following categories:

i) *Jarayuja* : All mammals.

ii) *Andaja* : All egg born ones.

iii) *Swedaja* : Worms and insects born from filth, animal excretions or rotten substances.

iv) *Udbhijja* : Insects born of vegetable substances or which take their birth underground and spring upward after birth.

Susrutha has classified medicines into two principal groups, viz., *Sansodhana* and *Sansamana. Sansodhana* expels everything that should be expelled from the human body for restoring health. *Sansamana* reduces the excitement of *vata, pitta* and *kapha* and restores their equilibrium.[29]

[29] p.14, Op. Cit., ITCOT, Chennai.

Forms of Medicines

Ayurvedic medicines are made in the following important forms:

1. *Arishtasavas*

These are medicated spirituous liquors. They are prepared with honey, treacle and medicinal substances. The ingredients are kept in earthen vessels and allowed to ferment. When decoctions are used, the fermented product is called *arishta.* When raw vegetables are used, the resulting liquid will be in the form of fermented wine and is called *asava.* Charaka has mentioned eighty four kinds of *asavas*; six are prepared from paddy, twenty six from fruits, eleven from roots, twenty from piths, ten from flowers, two from leaves, four from stems, four from barks and one from sugar.

Since *arishtasavas* are in purified form and strong in content, children and elder patients are required to add equal quantity of water before any intake of the medicine. In some cases, the water added shall be four or eight times the quantity of the medicine.

2. *Kashayas*

Kashayas, also called *kwathas* are decoctions of materials having medical properties. The materials are first cut into small pieces, or pounded if necessary and boiled over slow fire. Decoctions are administered by adding to them salt, honey, sugar, treacle, alkaline, ashes, ghee, oil or medicinal powders as the case may be.

Kashayas, if prepared carefully, won't lose their quality even if stored for a long period of time. They are considered the most important category of traditional medicines.

3. *Lehas*

Also called *lehyas* or *avalehas, lehas* mean extracts. The medicines are formed when decoctions are boiled down to a thick paste. If properly boiled, they will not readily dissolve in water. *Lehas* are administered with the addition of honey, sugar, powders and decoctions. The manufacturing process is similar to that of *tailas.*

Lehas are deemed to be the medicines of good taste. Prolonged diseases are first controlled by *kashayas* or other categories of medicines and afterwards by *lehas. Lehas* are included in the most important category of medicines in Ayurveda.

4. *Grithas*

Grithas, also called as *neyyu*, are medicated clarified butter. The preparation process involves adding turmeric juice to the clarified butter for its purification. The paste of drugs, water, milk or decoctions may be added to the purified butter which is done by heating. The residue is strained through a piece of new cloth. It is administered with honey, sugar or both, if necessary. Sometimes the juice of *citrus medica* or that of pomgranates is added. The vessel used for boiling should be of earth, copper or iron. Hard-boiled *grithas* are generally used for external administration in the patient; others are used for internal administration.

The essential ingredient of *grithas* is ghee. Intake of most *grithas* are made before breakfast. *Grithas* meant to develop healthy body are consumed after food and those intended for eye-care usually taken after supper.

5. *Gulikas*

Gulikas, also called *gutikas* or *gurikas,* are large pills, the small ones being called *batika* or *vati.* These are prepared by first making a decoction of medicinal substances and then boiling it down to a thick substance by adding powders of some drugs or sugar. In this study, *batikas* and *modakas* are included under the head '*gulikas*'.*

Gulikas are tablets prepared from costly ingredients and after days of grinding and processing. Contamination is possible if they are stored in wet places. Though consumption by swallowing does not reduce their efficacy considerably, intake after dissolving them in some liquid medicines is being recommended by most of the physicians.

6. *Choornas*

Choorna is the powder prepared by pounding dry medicinal substances with a pestle and mortar. It is also made by pulverizer.

Choornas are meant for internal consumption by the patients preferably after mixing with honey, hot water, etc. They can be used upto three months without losing quality if preserved properly.

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* *Modaka* is a larger pill than *gulika* which is not manufactured by boiling process, but by adding old syrup of sugar, water and decoction of some drugs to the powder of medical substances.

7. *Bhasmasindhooras*

The preparation of *bhasmasindhooras* by the manufacturers of Kerala is different from the manufacturers of other Sates of India. One of the essential ingredients of this Ayurvedic medicine is metal like gold, silver and copper. It can be consumed internally alongwith *kashayas, grithas* or *lehas.*

8. *Rasakriyas*

This category of medicines is applied in eyes. Unlike eye-drops and ointments in Allopathy system of medicines, various restrictions are there for the usage of *rasakriyas.* They cannot be applied when the patient suffers from fever, head ache, vomiting tendency and sleeplessness. They cannot be applied and used immediately after having food and bathing and when the body is exposed to sunlight.

9. *Tailas*

Taila or medicated oil is manufactured by steeping powdered medicinal substances, water, vegetable drugs in paste form and fragrant-producing materials such as cardamon, saffron, sandalwood, camphor, etc. Water is added several times after its evaporation until the ingredients are reduced to thick oil. The oil used as ingredient is oil such as castor oil and mustard oil.

Medicated oils are intended for application on the head, nose, body or as *vasti.* They are generally not meant for internal use.[30]

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[30] pp.1-9, Op. Cit., Varier, P.S.

10. Patent and Proprietary (P & P) Medicines

These medicines find no place in the classical texts, but are developed through research by individual firms. The exclusive right to manufacture them is protected by the firms through acquisition of patent rights.

In addition to the above important forms of Ayurvedic medicines, there are the categories given in Appendix XII also.

Storing the Medicines

The following general guidelines are being followed to store and preserve the quality of Ayurvedic medicines in the manufacturing units:

i) Adequate air circulation is to be assured in the rooms where the medicines are stored.

ii) Medicines should not be kept on the floor.

iii) If possible, they should be kept in air-tight glass containers.

iv) During rainy and winter seasons, it should be ensured that adequate facility for the circulation of hot air within the rooms has been arranged. As direct sunlight deteriorates the quality of the medicines, the store-keeper should see that sunlight does not enter the room.

v) *Arishtas* should be kept in strong containers as chance of breaking the containers due to strong pressure from inside cannot be cast aside.

vi) *Grithas* and *tailas* need to be kept in vessels made up of mud or clay for the preservation of quality.

vii) *Once in a week, gulikas* should be kept exposed to direct sunlight to preserve their quality for a pretty long period.

viii) *Choornas* also are required to be kept in direct contact with sunlight once in a week, but alongwith the closed containers.

ix) Care should be taken when the medicines are stored in metal containers as the quality of the medicines may not be preserved always in metal vessels.

x) The surroundings of the building in which the medicines are kept must be neat and clear from all impurities.[31]

At present, there are no pharmacopoeia standard for Ayurvedic medicines for standardisation and quality control. The quality of the medicines depends on the quality of the raw materials consumed, the nature and standards of processes involved, the quality and qualifications of the supervising physicians of the processes, etc. However, the manufacturers can have contact with the Pharmacopoeia Laboratory in Indian Medicine, Ghaziabad for information about the standards to be expected in normal cases.[32]

Product Items of Important Manufacturers

Table 3.1 shows the number of product items under each product line of important manufacturers of Ayurvedic medicines in South India which had the highest sales turnover during the last ten years.

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[31] Ibid., pp.10-12.
[32] p.20, Op. Cit., ITCOT, Chennai.

Table 3.1

***Comparative Product Lines of Ayurvedic Medicine Manufacturers in South India**

MEDICINES	AVS	AVP	VDR	IMPCOPS	VAD	NHC	SDP	JB	KAPL	OUS
Arishtasavas	42	31	54	27	44	40	44	40	38	38
Kashayas	60	31	54	21	11***	42	36	19	43	113***
Lehas	42	17	40	19	28	34	60	35	25	33
Grithas	59	24	66	15	11	28	33	19	14	36
Gulikas	55	29	39	8	28	23	38	23	23	60
Choornas	45	68	86	58	30	16	19	16	18	85
Bhasmasindhooras	37	14	4	32	22	--	14	8	--	16
Rasakriyas	5	3	3	10	1	4	12	12**	4	4
Tailas	145	93	216	39	58	54	94	54	80	95
Total	490	310	562	229	233	241	350	226	245	480

* This table does not give data related to P & P medicines and therapeutic and rejuvenative services

** Includes others and specialities

*** Includes *kashaya choornas*

Source: *ITCOT*

Arya Vaidya Sala, Vaidyaratnam Oushadhasala, S.D. Pharmacy and Oushadhi in Kerala and Aryavaidya Pharmacy in Tamil Nadu have more than 300 product items. Except for Oushadhi and Indian Medical Practitioners Co-operative Pharmacy & Stores Limited, *tailas* constitute the single largest product line with the maximum number of product items. For Oushadhi, the largest product line is *kashayas* which is the second largest for Arya Vaidya Sala, Nagarjuna Herbal Concentrates Limited and Kerala Ayurveda Pharmacy Limited. This shows that most of the prominent manufacturers of Ayurvedic medicines in Kerala have *tailas* and *kashayas* as their most important product lines. The table shows that the smallest product line in terms of number of product items is *rasakriyas.*

Table 3.2 shows that *tailas* have been the product line consisting of the largest number of product items for the large sized units in the study area for the year 2002-`03. The number of product items is 167 (i.e., 25 per cent of the total items for large units). The biggest category for the medium sized and small sized units is *kashayas*, the respective number of product items being 35 (i.e., 22 per cent of the total items for medium sized units) and 36 (i.e., 23 per cent of the total items of small sized units). *Kashayas* are the second largest product line for the large sized ones, but it constitutes 13 per cent of the total number of product items for these units only. The smallest category of product line for the large sized units is *rasakriyas* (i.e., 2 numbers); it is therapeutic services for medium sized units and *rasakriyas and* rejuvenative services for small sized ones.

Table 3.2

Average Number of Product Items Sold for the Year 2002-`03 (Percentage in Bracket)

Product Line	Product Items Sold		
	L	M	S
Arishtasavas	81(12)	30(19)	32(20)
Kashayas	88(13)	35(22)	36(23)
Lehas	54(8)	17(10)	18(11)
Grithas	62(9)	10(6)	11(7)
Gulikas	66(10)	18(11)	23(15)
Choornas	77(12)	12(7)	10(6)
Bhasmasindhooras	13(2)	3(2)	2(1)
Rasakriyas	2(1)	1(1)	0(0)
Tailas	167(25)	25(15)	19(12)
P & P medicines	13(2)	9(6)	6(4)
Therapeutic services	26(4)	0(0)	2(1)
Rejuvenative services	12(2)	1(1)	0(0)
Total	661(100)	161(100)	159(100)

Source: Survey data

On verifying Table 3.1, it can be seen that except for Oushadhi, for all the major units of South India, *tailas* constitute the largest product line in terms of number of product items. For Oushadi, the largest product line is *kashayas* (i.e., 113 product items). It is the largest product line for the medium and small sized units of the study area as per Table 3.2.

Demand for Ayurvedic Medicines

There are more than 700 Ayurvedic medicines which are marketed in India. Of these, the fastest moving 52 medicines are given in Appendix XIII.

These medicines are the ones used for diseases for which Ayurvedic remedies are frequently used. They are, therefore, suggested for inclusion in the product mix of the units.

Many big manufacturers including Arya Vaidya Sala, Vaidyaratnam Oushadhasala, Nagarjuna Herbal Concentrates Limited, Pankajakashthuri Herbals, S.D. Pharmacy, Ashoka Pharmaceuticals, Zandu, Dabur, Himalaya Drug Company and Shree Baidyanath Ayurveda Bhavan Limited have been developing and marketing a number of P & P medicines during the last few years. Most of them are now focussing their research activities to invent medicines for Alzheimer's disease, Parkinson's disease, arthritis, Hepatitis B, ulcer, heart diseases, lung cancer, skin diseases and ENT problems.

A feasibility study conducted by ITCOT in 2001 reveals the share of demand as depicted by Table 3.3 for the different product lines of Ayurvedic medicines in India.

Table 3.3

Share of Demand for Ayurvedic Medicines in India

Product Line	Share (In Percentage)
Arishtasavas	30
Kashayas	10
Lehas	20
Grithas	10
Tailas	20
Others	10
Total	100

Source: ITCOT

The share of demand for the product lines of the manufacturing units in the northern region of Kerala in terms of average amount of sales turnover is given in Table 3.4. As most of the units are unable to asses the real demand for their products, the sales turnover effected by them is taken as the indicator of demand which may go wrong.

Table 3. 4

Average Amount of Sales Turnover for the Year 2002-`03 (In Percentage)

Product Line	Average Amount of Sales Turnover		
	L	M	S
Arishtasavas	18	22	20
Kashayas	17	20	24
Lehas	11	11	10
Grithas	7	4	3
Gulikas	8	4	4
Choornas	6	4	3
Bhasmasindhooras	2	2	1
Rasakriyas	2	0	0
Tailas	17	11	12
Medicines	9	22	22
Therapeutic services	2	0	1
Rejuvenative services	1	0	0
Total	100	100	100

Source: Survey data

While the figures for *arishtasavas* in all India level is 30 per cent, it is around 20 per cent on an average in the study area as is given in Table 3.4. In all India level, the product lines *arishtasavas*, *lehas* and *tailas* together occupied the biggest share of 70 per cent. The data related to the study area show that the biggest share is for *arishtasavas*, *kashayas* and *tailas* (i.e., 52 per cent) for large sized units. In the case of medium and small sized units, the biggest share is from *arishtasavas, kashayas* and P & P medicines. The figures are 64 per cent and 66 per cent respectively. For these units, the share of P & P medicines is nearly three times the share of large units. This indicates that large units are not so inclined to manufacturing and marketing P & P medicines as in the case of other units.

According to a study on Indian pharmaceutical industry conducted by Boston Consulting Group in 1999, 70 per cent of the population prefers to consume traditional medicines. The Allopathic medicine manufacturing companies in India have noticed this trend and several companies have started Ayurvedic divisions while others have tied up with Ayurvedic medicine manufactures.[33]

Today in India, there are nearly 9000 Ayurvedic medicine manufacturing units. The number five years ago was only 3000.

With the new entrants like Hindustan Lever Ltd. (HLL) and Ranbaxy, the coming years are going to see a shift from 'supplier-driven' market to that of 'consumer-driven' or market-oriented one. Even with the presence of big

[33] p.100, Op. Cit., ITCOT, Chennai.

players, there has been much confusion regarding quality of the products because the present players are hardly able to create awareness among the consumers. With the new players entering the market with 'creating awareness' as key advertising strategy, the market is all set to grow rapidly.[34]

The success of manufacturers like Arya Vaidya Sala, Vaidyaratnam Oushadhasala, Oushadhi and Kerala Ayurveda Pharmacy Limited in Kerala and Dabur, Zandu, Himalaya Drugs Company and Arya Vaidya Pharmacy (Coimbatore) Limited in other States bear testimony to the growing demand for Ayurvedic medicines. Table 3.5 shows the estimated demand in India for the years from 2000 to 2005.

Table 3.5
Estimated Demand for Ayurvedic Medicines in India (Rs. In Crores)

Year	Estimated Demand
2000	3,600
2001	4,300
2002	5,200
2003	6,200
2004	7,500
2005	9,000

Source: ITCOT

The demand for Ayurvedic medicines is expected to increase from Rs.3,600 Crores in 2000 to Rs.9,000 crores in 2005, i.e., it will become nearly

[34] Neti, Ramakrishna. "Herbal Health Care Sprouting Again", *Chartered Financial Analysist*, September, 2002, pp. 54-55.

three times within a short span of six years. The major part of the demand is expected to come from classical formulations.

The data related to the extent to which demand is met is given in Table 3.6. Nearly 53 per cent of the units could meet the demand to the extent of 76 per cent and above, but below 100 per cent. There is no single unit coming under the class 26 per cent to 50 per cent of the demand. More than 95 per cent of the

Table 3.6

Extent to which Demand for Medicines is Met

Extent	Number of Units (In Percentage)			
	L	M	S	Row Total
Upto 25%	0	0	100	2
26%-50%	0	0	0	0
51%-75%	0	0	100	2
76% and above but below 100%	12	34	54	53
100%	10	35	55	43
Grand Total				100

Source: Survey data

units belong to the last two classes given in the table. This means that majority of the units are successful in meeting the demand for their products to a great extent.

Sales

The global sales turnover of herbal medicines in 2000 was as huge as Rs.55,000 crores (i.e., 12 billion dollars).[35]

[35] Palit,N.G. "Medicine for New Era", *Holistic Healing,* April-May, 2001, p.14.

The sales turnover recorded by major Ayurvedic medicine manufacturers in India which have the highest sales turnover for the last ten years is given in Table 3.7. The table shows that except for Zandu Pharmaceuticals, all the units recorded considerable growth in terms

Table 3.7

Sales Turnover by Major Units in India

Units	Rs. in Crores		
	1993-`94	1998-`99	1999-2000
Dabur India Ltd.	795.7	895.5	1034.5
Cholayil Group	NA*	NA*	200
Ajanta Pharma Ltd.	119.9	138.0	157.5
Emami Ltd.	60.7	105.7	144.7
Zandu Pharmaceuticals	93.4	108.7	102.4
Himalaya Drug Co.	31	140	NA*
Baidyanath Ayurved Bhawan	-	136	NA*
Kottakkal Arya Vaidya Sala	40	57	NA*
Amrutanjan Ltd.	48.6	56.3	59.4
Nagarjuna Herbal Concentrates	NA*	12	NA*
Kerala Ayurveda Pharmacy Ltd.	NA*	6.38	9
IMPCOPS (including Siddha/Unani)	4.60	5.60	NA*
S.D. Pharmacy	NA*	4.0	NA*

*NA = Not Available

Source: Annual Reports, Press Reports, etc.

of sales turnover in the year 1999-2000. All the manufacturers of Kerala, viz., Arya Vaidya Sala, Nagarjuna Herbal Concentrates, Kerala Ayurveda Pharmacy

Limited and S.D. Pharmacy recorded considerable growth. Among them, Arya Vaidya Sala is at the top. Dabur India Limited occupies the first rank in terms of the sales turnover of Rs.1034.5 crores in 1999-2000.

The sales turnover of Ayurvedic medicine manufacturing units of Kerala for the period 2000-`01 was around Rs. 200 crores.[36] The distribution of average sales turnover by the units in the study area for the year 2002-`03 is depicted in Table 3.8.

Table 3.8

Average Amount of Sales Turnover (Category-wise) for the Year 2002 -`03

Area of Sales	Number of Units (In Percentage)		
	L	M	S
Home district	46	58	80
Other districts of Kerala	43	31	15
Other States of India	8	6	3
Other countries	3	5	2
Total	100	100	100

Source: Survey data

The table reveals that all the units have majority of sales turnover in their home district with the small sized units having the highest of 80 per cent and the large units with the lowest of 46 per cent. The share of average sales turnover of the large units in other districts (i.e., 43 per cent) is very near to the sales turnover in their home district. In the case of small sized units, there is a wide difference of 65 per cent between the sales turnover in the home district

[36] Interview with the Marketing Manager, Vaidyaratnam Oushadhasala, Thaikkattusery.

and other districts of the State. All the categories of units have a share below 10 per cent only in other States of the country. The share of export has been the highest for medium sized units (i.e., 5 per cent) and the lowest for small sized units (i.e., 2 per cent).

The figurers of sales turnover in the four districts selected for the study are given in Table 3.9.

Table 3.9

Average Amount of Sales Turnover (District-wise) for the Year 2002 - `03

Area of Sales	Number of Units (In Percentage)			
	TSR	MPM	KKD	KGD
Home district	66	76	80	20
Other districts of Kerala	25	15	17	77
Other States of India	5	7	2	3
Other countries	4	2	1	0
Total	100	100	100	100

Source : Survey data

District-wise distribution as given in Table 3.9 shows that on an average, all the units in Kozhikode District have effected 80 per cent of their sales turnover in the home district. The corresponding figure is the lowest for the units of Kasargode District, the northern most district of the Sate. These units have effected a large amount of sales (i.e., 77 per cent) in other districts of the State.* The units of all the districts have recorded a sales turnover of 7 per cent

* In the case of these units, the major portion of sales turnover (i.e., 80 per cent) is from P & P medicines. This means that the consumers of other districts prefer these medicines to the consumers of Kasargode District.

or less than 7 per cent in other Sates of India. The average share of export has been the highest (i.e., 4 per cent) for the manufacturing units of Thrissur District whereas there is no export made by the firms of Kasargode District.

Exports

The trend of exports of Ayurvedic medicines from India from the year 1998-`99 to the year 2000-`01 is given in Table 3.10. The exports for 2000-`01 is available upto December, 2000 only, which is Rs.392.1 crores. The figure can be estimated to be at Rs.522.79 crores (i.e., 133.33 per cent of Rs.392.1 crores) by the end of March, 2001. This figure is nearly double the amount of exports for the year 1999-2000, i.e., Rs.281.02 crores. Though the amount of exports

Table 3.10

Exports from India (Rs. in Crores)

Year	Crude Drugs	Medicines	Total
1998-`99	279.36	133.61	412.97
1999-`00	128.89	152.13	281.02
2000-`01*	220.60	171.50	392.10

Note: * = Available upto December, 2000 only

Source: Basic chemicals, Pharmaceuticals & Cosmetics Export Promotion Council (Chemexcil), Govt. of India

was reduced from Rs.412.97 crores in 1998-`99 to Rs.281.02 crores in 1999-2000, the doubling of the amount in 2000-`01 is an encouraging trend in exports.

In the year 1999-2000, Ayurvedic medicines were exported to about ninety countries. The major countries among them were the U.S.A., the U.K.,

U.A.E., Malaysia, Russia, Sri Lanka, Nepal, the Netherlands, Australia, Austria, Belgium, Canada, Hong Kong, Japan, Germany, China and New Zealand. The major exporters were Dabur India Limited, Zandu Pharmaceuticals and Himalaya Drug Company.

The units in the study area recorded the product line-wise exports as given in Table 3.11.

Table 3.11

Average Amount of Sales Turnover through Exports for the Year 2002 -`03 (In Percentage)

Product Line	Amount of Sales Turnover		
	L	M	S
Arishtasavas	5	0	0
Kashayas	3	0	0
Lehas	2	0	0
Grithas	0	0	0
Gulikas	1	0	0
Choornas	1	0	0
Bhasmasindhooras	0	0	0
Rasakriyas	0	0	0
Tailas	52	7	5
P&P Medicines	22	93	95
Therapeutic services	7	0	0
Rejuvenative services	7	0	0
Total	100	100	100

Source: Survey data

It can be observed from the table that the large sized units export almost all product lines. The medium and small sized units export *tailas* and P & P medicines only in which 93 per cent and more of the shares is controlled by P & P medicines. *Tailas* occupy the biggest share in the case of large sized units, the second place being occupied by P & P medicines.

The number of units of the study area which exported their medicines during 2002-`03 is shown in Table 3.12.

Table 3.12

Units Having Exports for the Year 2002 -`03
(Percentage in Bracket)

District	Number of Units							
	L		M		S		Row Total	
	A*	B*	A*	B*	A*	B*	A*	B*
TSR	3	0	4	11	2	21	9(22)	32(78)
MPM	2	0	0	4	2	4	4(33)	8(67)
KKD	1	1	0	3	0	6	1(9)	10(91)
KGD	0	0	0	0	0	2	0(0)	2(100)
Column Total	6(86)	1(14)	4(18)	18(82)	4(11)	33(89)	14(21)	52(79)

A* = Units which export
B* = Units which do not export
Source : Survey data

Table 3.12 reveals that, of the large sized units, 86 per cent has exports during the year 2002-`03, but, out of the small units, only 11 per cent has exports. With regard to the medium sized units also, the case is not different.

Only 18 per cent of them has exports. Of all the units under study, only 21 per cent has exports during the year.

Profit Margin

Data contained in the sales records of the manufacturing units in the study area indicate that most of the product items enabled the manufacturers to earn a profit margin ranging between 15 per cent and 20 per cent on the selling price. The percentages of the number of product items under this category are 67,24 and 21 respectively for large, medium and small sized units (Table 3.13).

Table 3.13

Product Items Under Different Profit Margins (Percentage in Bracket)

Percentage of Profit Margin on Selling Price	Average Number f Product Items		
	L	M	S
Upto 5	10(1)	5(3)	13(8)
5-10	33(5)	12(8)	20(13)
10-15	88(13)	24(15)	32(20)
15-20	441(67)	39(24)	33(21)
20-25	46(7)	36(22)	34(21)
25-30	13(2)	26(16)	27(17)
30-40	30(5)	16(10)	0(0)
40-50	0(0)	3(2)	0(0)
50 and above	0(0)	0(0)	0(0)
Total	661(100)	161(100)	159(100)

Source: Survey data

The maximum profit margin for any product item manufactured by a small sized unit is 30 per cent. It is 40 per cent for a large sized unit and 50 per cent for a medium sized unit. The percentages of the product items whose profit margin is upto 5 per cent is only 1 per cent, 3 per cent and 8 per cent respectively for large, medium and small sized units.

Loss-making Units

Table 3.14 shows the number of units in the study area which sustained net loss during the years under study.

Table 3.14
Loss-making Units

Year	Number of Units
1994-`95	3
1996-`97	3
1998-`99	2
2000-`01	3
2002-`03	9

Source : Survey data

The number of loss-making units is the highest for the year 2002-`03. The manufacturers of the study area opined the main reason for this phenomenon as the general decline in demand for Ayurvedic medicines as a result of more and more people turning towards Allopathy medicines as they work speedily on human body. A general decline in demand for almost all consumer products during the period is another reason pointed out.

Only two units recorded loss during the period 1998-`99. Some units attributed the developments to the ban on arrack sale by the State Government and the consequent increased demand for *arishtas* as a substitute for arrack.

Section B of this chapter explained the primacy occupied by Ayurvedic medicines over the medicines of other medical systems especially Allopathy system. The Section analysed the demand, sales turnover, exports etc. in relation to Ayurvedic medicines also.

Having given a brief account of the system of Ayurveda and various aspects of Ayurvedic medicines in this chapter, an attempt is made in the coming chapter to analyse the profile of the Ayurvedic medicine manufacturing units, important Acts governing them and issues faced by them.

CHAPTER IV

PROFILE OF THE AYURVEDIC MEDICINE MANUFACTURING UNITS

PROFILE OF THE AYURVEDIC MEDICINE MANUFACTURING UNITS

A brief discussion on the system of Ayurveda and an analysis of Ayurvedic medicines have been made in Chapter III. This chapter deals with the profile of the Ayurvedic medicine manufacturing units, the Acts governing them in India and the problems which hinder their business activities. The chapter is divided into two sections. Section A gives the profile of the units and Section B analyses the important provisions of various Acts and the problems faced by the units.

SECTION-A

PROFILE OF THE UNITS

In the following pages, a brief description of Ayurvedic medicine manufacturing industry of India is given with special reference to the units of the State of Kerala. Under the first part of this section, an overview of the Ayurvedic medicine manufacturing units of India is given with reference to the major units. The second part of this section deals with the profile of the units in the study area.

MAJOR MANUFACTURING UNITS

In the following paragraphs, a brief discussion is attempted on the major manufacturing units of India, especially Kerala.

Arya Vaidya Sala

Arya Vaidya Sala, situated at Kottakkal in Malappuram District of Kerala State, is the world-renowned institution for Ayurvedic treatment. It is one of the pioneers in uplifting Ayurveda from decay consequent on the alien domination of India. The institution is founded by the late Vaidyaratnam P.S. Varier in the year 1902. P.S. Varier, an outstanding physician and a man of vision, devoted his life for the cause of alleviating human misery. In recognition of his services, the distinguished title of 'Vaidyaratnam' was conferred upon him by His Excellency the Viceroy and the Governor General of India in 1933.

Within a period of three decades of starting of Ayra Vaidya Sala, P.S.Varier established a full-fledged manufacturing unit with branches in two major cities of Kerala. Being a great philanthropist, he also established a charitable hospital at Kottakkal to provide both Ayurvedic and Allopathic treatments free of cost to the poor. He started an Ayurveda college in the same town to provide better Ayurvedic education to students. As per his will, Arya Vaidya Sala was elevated to a charitable trust after his death in 1944. Mechanisation was carried out in the institution in the year 1950 and it now has two manufacturing units one at Kottakkal and the other at Kanjikode in Palakkad District of Kerala State. The units are fully equipped with modern machinery and modern methods of packaging and packing and utilise modern technical know-how for facilitating large scale production of Ayurvedic medicines for maintaining their superior quality. The institution maintains large herbal gardens of their own at different places to meet shortage of raw

materials needed for production. The Arya Vaidya Sala complex houses an eight acre plot of herbal garden where 600 identified species and an equal number of unidentified species of herbs are grown. The medicinal plants grown here are used for research purpose as well.

Quality is the hallmark in the production of over 500 items of medicines by Arya Vaidya Sala which consist of *arishtasavas, kashayas, gulikas, tailas, grithas, choornas, bhasmas, rasakriyas, lehas, etc.* The products are sold through nearly 1000 agencies. Arya Vaidya Sala has got over 15 branches. The medicines manufactured and marketed are highly popular not only in India but also abroad especially in places like the Middle East, the U.K., the U.S.A., Germany, Malaysia and Singapore. The institution has agencies in the countries like Malaysia and Singapore.

Initially, patients came from the neighbouring States of Tamil Nadu, Andhra Pradesh and Karnataka. Since 1920, patients began to come from other States also. The facilities at Kottakkal include a dispensary, charitable hospital, nursing home, sales depot, an Ayurveda college and an R & D wing. Arya Vaidya Sala relies more on word of mouth publicity rather than modern commercial promotional tools.

In the Ayurvedic hospital and research centre, almost all diseases that come under the purview of *Kayachikitsa* are treated. Problems related to rheumatoid arthritis, paralysis, nervous disorder, backache, liver and digestive complaints, etc. are treated at Kottakkal. Some of the special treatments offered at Arya Vaidya Sala are *Dhara, Pizhichil , Nawarakkizhi, Sirovasty, Sirolepa, Kashayavasty, Snehavasty, Snehalepanam, Nasyam,* etc.

Panchakarma treatments are also offered especially to patients who come from all parts of the world seeking expert medical advice and treatment in Ayurveda.

Dabur India Limited

Founded in 1884, Dabur India Limited has obtained ISO 9002 certification. It manufactures health care products, personal care products and Ayurvedic and veterinary specialities. The company has manufacturing units in the States of Uttar Pradesh, West Bengal, Bihar, Himachal Pradesh, Rajasthan and Madhya Pradhesh besides units in Nepal and Egypt.

The total sales turnover of Dabur exceeds Rs.1,000 Crores. The company is well-known for its product, *Dabur Chwanprash.* Personal care products include hair oil *(Dabur Amla Kesh Thail, Vatika Hair Oil), Dabur Lal Dant Manjan* and *Dabur Honey.* Pharmaceutical products of the company include *Livfit, Honitus, Ulgel*, etc. The Company also manufatures some food items such as *Real Juices* and *Hommade Cooking Pastes*. The exports of the company is nearly Rs. 20 crores.

Zandu Pharmaceutical Works Limited

Located at Mumbai, Zandu Pharmaceutical Works Limited has been perceived as an Over The Counter (OTC) products company, the products of which can be sold even through provision stores. It markets its products through its sales depots and more than five lakhs retail sales outlets. It claims that it is the first company in the world to offer Ayurvedic treatments for Parkinson's disease. The company is well-known for its *Chyawanprash* and balm. Though the company manufactures and markets 190 products, 80 per cent of the sales turnover is generated by 30 products.

The Arya Vaidya Pharmacy (Coimbatore) Limited

Popularly known as AVP, the Arya Vaidya Pharmacy (Coimbatore) Limited has its head office at Coimbatore in the State of Tamil Nadu. It was established in the year 1943 for the production and marketing of around 450 traditional Ayurvedic medicines.

The Ayurvedic trust under the institution, known as its arm, manages a hundred bedded hospital in which special treatment is given for arthritis, spondylosis, paralysis, urological problems, migraine, gynaecological problems, skin diseases, etc. The trust in collaboration with WHO and ICMR had conducted a research programme from the year 1977 to the year 1984 to establish the efficacy of Ayurvedic medicines and treatments on problems related to rheumatoid arthritis.

HEAL, an associate company of AVP was founded to market 15 OTC products through select outlets all over India. AVP Marketing and Exports Limited, subsidiary company of AVP was set up to market OTC Ayurvedic products all over the world. It markets select Ayurvedic products of other companies also.

Himalaya Drug Company

Located at Bangalore, Himalaya Drug Company is one of the few companies in India which undertakes extensive research programmes for the development of P & P medicines in Ayurveda. This manufacturer has over forty qualified scientists and doctors who are constantly engaged in the research work of new P & P medicines.

Himalaya Drug Company manufactures around 25 products and 13 related products. The best selling product *Liv. 52,* accounted for 37.5 per cent of the total sales turnover in the year 1998-`99. It had a market share of 48 per cent in the hepatic (liver) protective segment. *Bonisan,* the second largest selling brand, had a 50 per cent market share in its segment in 1998-`99. The other famous products of the manufacturer are *Cystone,* a urinary tract infection drug and *Gasex*, the digestive corrective for adults.[1]

Shree Baidyanath Ayurved Bhawan Limited

Located at Calcutta, Shree Bhaidyanath Ayurved Bhawan Limited is popularly known as Baidhyanath. The company manufactures around 700 products at 10 manufacturing units. The products are marketed through 3500 exclusive showrooms managed by qualified medical practitioners and 1000 distributors. Baidhyanath has a market share of 20 per cent of the *Chwanprash* market. It manages Ayurvedic hospitals and two schools and publishes a monthly magazine *Sachitra Ayurved.*

Indian Medical Practitioners Co-Operative Pharmacy & Stores Limited (IMCOPS)

IMCOPS was established in 1944 at Chennai. It is engaged in the manufacturing of Ayurvedic, Siddha and Unani medicines. It has a manufacturing unit in Guntur and 14 sales depots all over the Southern region of India.

[1] ITCOT. *Feasibility Report on Ayurvedic Medicines with Details of GMP*, 2001, p.54.

Vaidyaratnam Oushadhasala

The Eledath Thaikkatt family of Thaikkattussery in Thrissur District of Kerala State has a reputation as the most brilliant among the handful of *Ashtavaidya* families in Kerala. It was Neelakandan Mooss of the family who founded the Vaidyaratnam Oushadhasala in 1941. The Ayurvedic medicines were manufactured in the pharmacy of the *oushadhasala* under his close supervision. He planned of how the principles or Allopathy and Ayurveda could complement each other to reap a better advantage.

It was his son E.T. Narayanan Mooss who paved the way for the modernisation of the unit in 1954. Under his leadership, the organisation grew on to become one of the largest manufactures of Ayurvedic medicines in Kerala. The institution soon became famous for quality medicines. In 1995, the manufacturing process was modernised partly. To meet the growing demand for medicines, the second unit had already begun its production in 1990 at Chuvannakunnu in the district. The *oushadhasala* now has almost 15 branches in important cities in India and nearly 500 agencies to market the medicines including one at Dubai. An R & D lab functions as an integral part of the *oushadhasala* which assures quality medicines to the public.

The 27 bedded nursing home opened in the premises of the manufacturer attracts patients even from far-flung places in India and from abroad. An Ayurveda college started in 1976 contributes 30 qualified doctors every year.

Kerala Ayurveda Pharmacy Limited

Popularly known as KAPL, Kerala Ayurveda Pharmacy Limited was established at Aluva in Kerala in 1945. KAPL is one of the first Ayurvedic medicine manufacturers in India to obtain GMP certification. Founded by the late K.G.K. Panicker, the company manufactures more than two hundred classical medicines and nearly a dozen P & P medicines for treating chronic diseases. It has a hi-tech R & D department approved by the Department of Science and Technology of Government of India.

The company operates a number of Ayurclinics and Ayurclinic hospitals and several franchise clinics. The Ayurclinics provide expert treatments for osteoarthritis, ulcer, sinusitis, skin diseases, etc. and services like *Panchakarma, Pizhichil* and rejuvenation therapy. KAPL is a major exporter of Ayurvedic medicines. It publishes a journal viz., *KAPL News*.

Oushadhi

Oushadhi, originally founded as a co-operative society in 1939, was converted as a Government of Kerala undertaking in 1975. It is the popular name given for The Pharmaceutical Corporation (Indian Medicines) Kerala Limited. Located at Thrissur in the State of Kerala, the company was in a position to commission its modern plant in the year 1991. Being a government company, its products have great demand. Most of the products are manufactured on the basis of classical texts of Ayurveda. Oushadhi has one branch at Thiruvananthapuram, the capital city of Kerala and nearly 250 branches in and outside the State.

Nagarjuna Herbal Concentrates Limited

Started in 1989 as a small scale industrial unit near Thodupuzha in Idukki District of Kerala State, Nagarjuna Herbal Concentrates Limited became a widely accepted name for Ayurvedic medicines. The goodwill of the company could be enhanced of within a short period due to the special marketing techniques applied by the institution. Nagarjuna's product range includes over 250 medicines. It has a hospital located at Thodupuzha where special treatments are carried out. It established Ayurvedic hospitals and clinics in other parts of the State as well.

The company conducts continuous research in its modern R & D and laboratory. It makes every possible attempt to propagate the cultivation of medicinal plants. At present, it has more than 750 agencies and over 500 stockists in the States of Kerala, Tamil Nadu, Karnataka, Andhra Pradesh, Gujarat and Maharashtra.

Sitaram Ayurveda Pharmacy Limited

Started as a sole trader form of organisation in the name Sitaram Anglo Ayurvedic Pharmacy in the year 1921, Sitaram Ayurveda Pharmacy Limited is a company located at Thrissur in Kerala and run by a group of eminent doctors. The unit commenced its operations under the instruction of His Highness Ramavarma Thampuran of erstwhile Cochin State. The promoters of the company claim that the manufacturing process is carried out within the factory by following the guidelines stipulated by the WHO to produce quality herbal medicines. The factory is equipped with a modern laboratory having two

sections, viz., the quality control section and the R & D section. Raw materials approved by the quality control section only are permitted to be used in the production of Ayurvedic medicines. The R & D section is continuously functioning with a view to improving processing of medicines and developing new products. With a distribution network of 150 agencies, the company manufactures and markets around 500 medicines including P & P medicines.

Pankaja Kasthuri Herbals India Limited

Originally established as Dhanwantari Ayurvedics in 1988, the company accepted the present name when it was converted to a public company in the year 1996 and the development of a new product viz., *Pankaja Kasthuri.* Located at Poovachal in Thiruvananthapuram District of Kerala State, the company bagged a number of awards for the quality of the products manufactured by it. It is learnt that the company became famous due to the marketing strategy applied for *Pankaja Kasthuri.* It received the Best Rural Entrepreneurial Award from the National Integration Society of India, best herbal medicine award for *Pankaja Kasthuri* from Kerala State Consumer Protection Centre, best herbal soap in Kerala from Kerala Upabhokthru Vedi for *Kasthuri Herbal Soap* and Jeevan Raskha Award from Human Aids and Cancer Control Society of India.

Asoka Pharmaceuticals

Asoka Pharmaceuticals is one of the leading and biggest manufacturers of Ayurvedic medicines in the northern region of Kerala. Established in the year 1915 by the late M.K. Kunhiraman Vaidyar at Kannur, the organisation

now manufactures 400 generic products and over 40 P & P medicines. The size of the manufacturer was increased to a considerable extent with the establishment of a modern unit in the year 1988.

Deseeya Ayurvedic Pharmacy

Founded in 1946 and located at Poonoor in Kozhikode District of the State of Kerala, Deseeya Ayurvedic Pharmacy manufactures more than 400 traditional medicines and nearly 20 P & P products. It is one of the leading manufacturers of Ayurvedic medicines with two branches and 300 agencies in different parts of Kerala and neighbouring States. A well-equipped R & D wing of the institution ensures the quality of raw material used for production and the standards of different stages of the manufacturing process. The treatment centre of the institution offers authentic Ayurvedic treatments like *Abhyangam, Pizhichil, Sirodhara, Patra Potala Sweda, Sirovasthy* and *Pinda Sweda.* It also provides *Panchakarma* treatment comprising five special therapies.

Jaya Bharatham Arya Vaidya Sala

Jaya Bharatham Arya Vaidya Sala is founded by the late Thomas Vaidyan fifty years ago at Punalur in Kerala. The unit manufactures around 300 medicines which are distributed through five branches and nearly 250 agencies all over India. The *vaidya sala* also manufactures a number of P & P medicines.

S.D. Pharmacy

Vaidyakalanidhi P.S. Kesavan Vaidyan founded this Ayurvedic medicine manufacturing unit at Alappuzha in Kerala in the year 1939. The unit today makes use of some sophisticated and modern equipments for the manufacturing process such as electrical heating systems. It s the pioneer in the introduction of tableted version of some medicines. Most of the products relate to the classical category. The distribution network of the manufacturer consists of nearly 25 branches, 200 agencies and 1000 stockists.

Rajah Healthy Acres

Spread over a vast land of 148 acres, Rajah Healthy Acres is an Ayurvedic Hospital and rejuvenation centre situated at Koottanad in Palakkad District of Kerala. Founded by Mr. Abdurahiman, the centre has 100 bedded hospital and 15 cottages with treatment rooms. The centre provides treatments for ailments and rejuvenation therapies. Diseases usually treated are rheumatism, arthritis, anxiety, allergic asthma, skin disease, back pain, gynaecological problems, diabetes, migraine, eye diseases, piles, disorders of digestion and chronic cough.

General treatments of Rajah Healthy Acres include *Mannupothichil* (mud scan) and *Manal Nirakkal* (sand filling) alongwith usual methods such as

Uzhichil, Pizhichil, etc. Mannupothichil involves a special method of diagnosis of diseases. The patient's body is covered with the paste of a special mud and herbal extracts and made to sit in the sunlight for one hour. Then, a mineral bath is given. By observing the colour changes on the skin, it is capable of diagnosing the disease. In *Manal Nirakkal,* the patient is kept in a box filled with pure sand. Water is poured into the box to make it tight. This procedure helps to increase the breathing capacity of the patient which, in turn, reduces obesity.

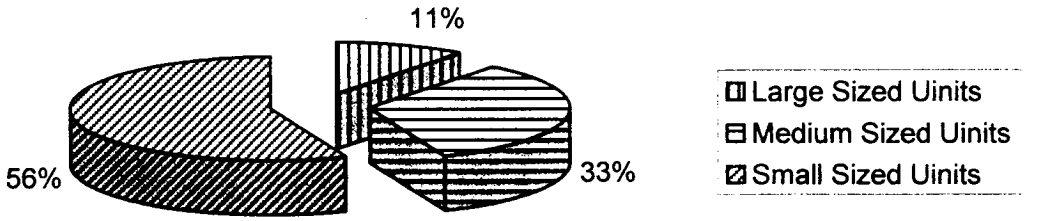
Having given a brief account of the major units in India, the profile of the units of the study area is discussed in the coming paragraphs.

PROFILE OF THE UNITS IN THE STUDY AREA

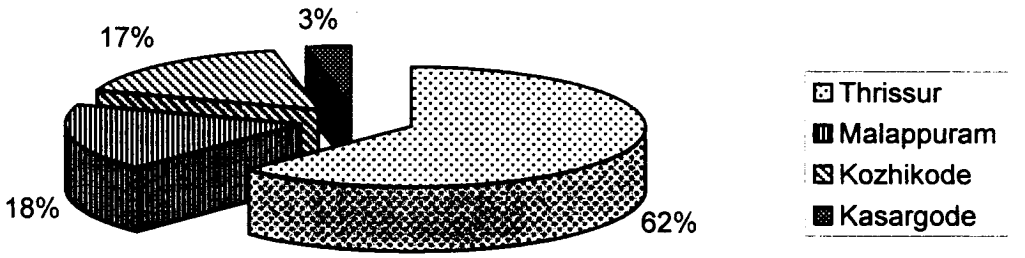
The sample selected from the study area consists of 66 Ayurvedic medicine manufacturing units. In these units, 7 units (i.e., 11 per cent) belong to the large scale category, 22 units (i.e., 33 per cent) are medium sized units and 37 units (i.e. 56 per cent) relate to the small sized category. District-wise classification shows that 41 units (i.e., 62 per cent) are from Thrissur District, 12 units (i.e., 18 per cent) from Malappuram District, 11 units (i.e., 17 per cent) from Kozhikode district and 2 units (i.e., 3 per cent) from Kasargode District. Figure 4.1 will explain the classification of the units.

Figure 4.1
Distribution of Sample Units

Size-wise Distribution of Sample Units



District-wise Distribution of Sample Units



130 agencies are included in the sample. These belong to 9 manufacturing units which only have agencies out of the 66 sample units. The 9 manufacturing units are Vaidyaratnam Oushadhasala, Thaikkattussery (VDR), Sitaram Ayurveda Pharmacy Limited, Thrissur (STR), The Pharmaceutical Corporation (IM) Kerala Limited, Thrissur (OUS), S.N.A. Vaidyasala, Thrissur (SNA), Arya Vaidya Sala, Kottakkal (AVS), Mangalodayam Vaidyasala, Changaramkulam (MGL), Viswakeerthy Ayurvedic Pharmacy Private Limited, Kanhippura (VSK), Kerala Ayurvedic Co-operative Society Limited, Meenchanda (KAC) and Deseeya Ayurvedic Pharmacy, Poonoor (DSY). The number of consumers taken as sample is 650.

In the following paragraphs, profile of the 66 units, 130 agencies and 650 consumers are analysed to throw light into the general information related to them.

GENERAL INFORMATION ABOUT THE UNITS

Year of Commencement of Business

Year of commencement of business of the Ayurvedic medicine manufacturing units would reveal the growth of the industry in terms of number of units. Table 4.1 indicates that the least number of units started their business between 1901 and 1920. The percentage of the units which started their business during this period is 3. The percentage of the number of units

Table 4.1

Year of Commencement of Business

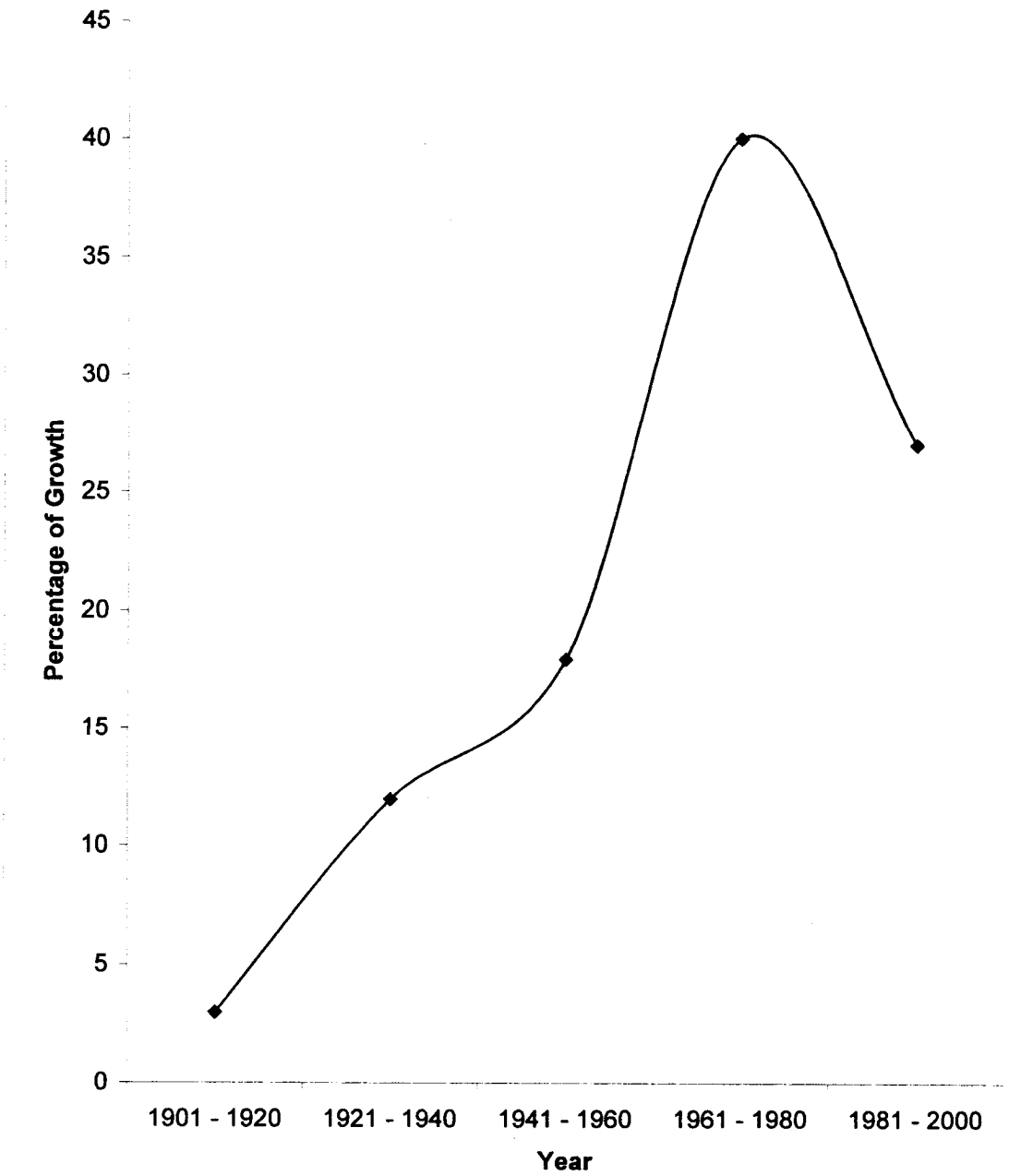
Year	Number of Units (In Percentage)
1901-1920	3
1921-1940	12
1941-1960	18
1961-1980	40
1981-2000	27
Total	100

Source: Survey data

which commenced operations during the periods 1921-1940, 1941-1960, 1961-1980 and 1981-2000 are 12, 18, 40 and 27 respectively. During the period 1961-1980, the largest number of units (i.e., 40 per cent) started their operations. It is more than double the number of units started during the period 1941-1960. The number of units is reduced to nearly two-third during 1981-2000 when compared to the next previous period.

The year of commencement of business when plotted on a graph would give a clear picture of the growth of the units in terms of units started. The graph is displayed as Figure 4.2

Figure 4.2
Growth in Terms of Number of Units Started (1901-2000)



Locality

In selecting the locality of a business, a promoter who is conscious of the importance of market study will certainly give weightage to various factors such as availability of raw materials, cheap and quality labour, transporation and marketability of finished products.

Table 4.2 shows that in all the four districts of Thrissur, Malappuram, Kozhikode and Kasargode, 50 to 68 per cent of the promoters set up business in panchayats. There is significant difference between the districts in the

Table 4.2
Distribution Showing Locality

District	Number of Units (In Percentage)				
	Panchayat	Municipality	Township	Corporation	Row Total
TSR	68	7	3	22	100
MPM	67	33	0	0	100
KKD	55	18	0	27	100
KGD	50	50	0	0	100
Column Total	65	15	2	18	100

Source: Survey data

option of business place in a municipality (It ranged between 7 and 50 per cent). Each of the districts of Thrissur and Kozhikode has one corporation. There is no considerable difference in the percentage of number of units in the corporations. The percentages of numbers are 22 and 27 for Thrissur and Kozhikode Districts respectively.

Form of Organisation on Commencement

Table 4.3 reveals that 64 to 68 per cent of the units in all the districts except Kasargode are sole proprietorship organisations on commencement of business. The reasons attributable to this phenomenon can be lower capital,

Table 4.3

Form of Organisation on Commencement of Business

District	Number of Units (In Percentage)						
	Sole Trader	**Partnership**	**Co-operative**	**Company**	**Public Enterprise**	**Charitable Trust**	**Row Total**
TSR	68	15	5	12	0	0	100
MPM	67	17	0	8	0	8	100
KKD	64	18	9	0	0	9	100
KGD	0	100	0	0	0	0	100
Column Total	65	18	5	9	0	3	100

Source: Survey data

less risk, easy management, less mechanisation, etc. involved in the case of sole proprietorship form of organisation. Except for the units for Kasargode District, 15 to 18 per cent of the units are partnership firms. The highest percentage of co-operative societies, i.e., 9 per cent is in Kozhikode District whereas the highest portion of company form of organisation, i.e., 12 per cent, is in Thrissur District. No unit started its business in the form of public enterprise. Malappuram and Kozhikode Districts only had units in the form of charitable trusts, the percentage of this form of business to the total units in these districts being 8 and 9 per cent respectively.

Present Form of Business

By comparing the form of business on commencement and the present form of business, it is attempted whether a business expansion or contraction would be pointed out at a glance. Table 4.4 depicts the picture of the present form of business.

Table 4.4

Present Form of Organisation

District	Number of Units (In Percentage)						
	Sole Trader	**Partnership**	**Co-operative**	**Company**	**Public Enterprise**	**Charitable Trust**	**Row Total**
TSR	41	36	3	17	3	0	100
MPM	42	33	0	17	0	8	100
KKD	36	46	9	0	0	9	100
KGD	50	0	0	50	0	0	100
Column Total	42	29	3	21	1	4	100

Source: Survey data

The present percentage of number of sole traders ranges from 36 to 50 per cent in the districts. On commencement of business, their numbers were between 64 and 68 per cent. 50 per cent of the units in Kasargode District are converted to sole proprietorship form from partnership form. The balance of 50 per cent which were partnership firms on commencement are converted to company forms of organisations. This can be the indication of business expansion and contraction at equal dimensions in the district. The percentage of number of partnership form of organisation increased from 15 per cent to 36 per cent in Thrissur District. It has increased from 17 per cent to 33 per cent in Malappuram District and 18 per cent to 46 per cent in Kozhikode District, i.e., increased to more than double in Thrissur and Kozhikode Districts and nearly double in Malappuram District. This can be a positive indication of business growth. The number of companies increased from 12 per cent to 17 per cent in Thrissur District. It increased from 8 per cent to 17 per cent in Malappuram District.

On commencement of business, no unit had begun its operations as a public enterprise. While looking into the present form, 3 per cent of all the units in Thrissur District are found to be public enterprises. The number of charitable trusts remained the same in all the districts.

It could be seen that 42 per cent of the units in all the districts are sole traders, 29 per cent partnership firms, 21 per cent company forms of organisations, 3 per cent co-operatives and the rest, i.e., 5 per cent public enterprises and charitable trusts. The present form of business of the units is picturised in Figure 4.3.

Figure 4.3
Present Form of Organisation of the Units

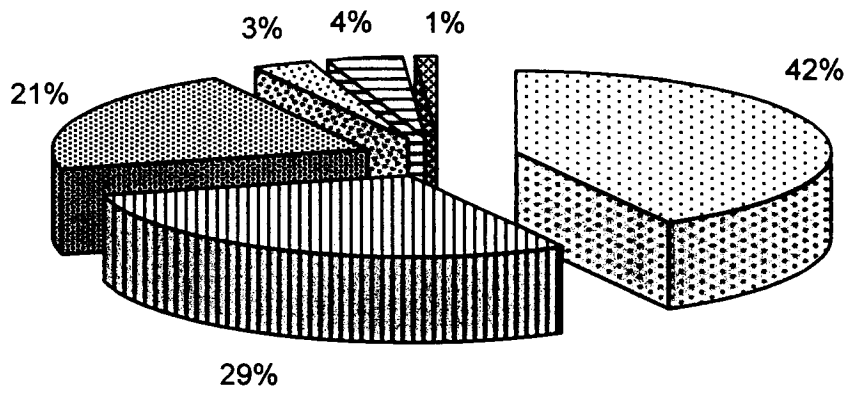


Table 4.5 reveals the reasons for change in the form of business of the units after the commencement of their operations. Out of the total units, 73 per cent recorded no change in the form. Only 9 per cent of the units changed

Table 4.5

Reasons for Change in the Form of Business

Sl. No.	Reasons	Number of Units (In Percentage)
1	Growth in business activities	1
2	Growth in business activities and seeking various benefits from government	3
3	Growth in business activities and for income-tax reduction to the owners	11
4	Growth in business activities, seeking various benefits from government and for income-tax reduction to the owners	3
5	Decline in business activities	9
6	Units with no change in the form	73
	Total	100

Source: Survey data

their form after commencement of their operations due to decline in business activities and dispute among the owners. The rest of the units, i.e., 18 per cent opined that they changed their form because of growth in business activities.

Branches

Data related to the number of branches will give details related to the distribution facility of the medicines arranged by the manufacturer. Branches

are owned and operated by the manufacturers themselves. Table 4.6 gives a simple picture of the branches.

Table 4.6

Units with Branches

Number of Branches	Number of Units (In Percentage)
0	86
1-5	8
6-10	0
11-15	5
16-20	1
21 and above	0
Total	100

Source: Survey data

In the sample, 86 per cent of the units do not have any branch, remaining 8 per cent has number of branches ranging between 1 and 5 and 5 per cent with branches between 11 and 15. No manufacture has more than 20 branches.

Distributors

The distributor network (distribution by wholesalers) in the study area is better than the branch network. Only big organisations maintain branches. All the others depended on independent distributors which are cheaper and involves less risk. As can be seen from Table 4.7, 38 per cent of the units

Table 4.7

Distributor Network

Number of Distributors	Number of Units (In Percentage)
0	38
1-5	27
6-10	14
11-15	9
16-20	6
21 and above	6
Total	100

Source: Survey data

does not have any independent distributor. Majority of the units i.e., 41 per cent has number of branches ranging between 1 and 10.

Agencies

Agency is the exclusive retail outlet owned and managed by an individual or a group of individuals under the direction of the principal, viz., the manufacturer of Ayurvedic drugs. The data related to agency network of the units reveal that 82 per cent of the units does not have any agency (Table 4.8). These units may be either having independent distributors or no distribution network at all. As low as 8 per cent of the units only have number of agencies exceeding 20.

Table 4.8

Agency Network

Number of Agencies	Number of Units (In Percentage)
0	82
1-5	3
6-10	3
11-15	2
16-20	2
21 and above	8
Total	100

Source: Survey data

Medical Representatives

Table 4.9 lists down the Ayurvedic medicine manufacturing units which employ medical representatives. Unlike most of the Allopathy medicine manufacturing units which have a wide network of medical representatives,

Table 4.9

Network of Medical Representatives

Number of Medical Representatives	Number of Units (In Percentage)
0	61
1-5	20
6-10	18
11-15	1
Total	100

Source: Survey data

61 per cent of the Ayurvedic medicines manufacturing units in the study area does not employ any medicinal representative and 38 per cent has maximum of 10 representatives only. This indicates that majority of the units is not interested to appoint them and the units, thus, do not get the opportunity to get a proper feedback of marketing information from the distributors and agencies. Unlike the medical representatives of the modern system of medicine (Allopathy system is widely accepted as the modern system), the representatives of the Ayurvedic medicines usually do not establish direct contact with the physicians, but with the distributors and agencies. Their duty is generally confined to order procurement and collection of dues.

Occupation of the Chief Promoter

If the chief promoter possesses relevant knowledge and skill in the theory and technical aspects of the medicines, that would be reflected in the quality of medicines manufactured. Table 4.10 reflects the position of the units in the study area in this regard.

Nearly half the number of the total units started their business with the chief promoter as *paramparya vaidyan.* Only 23 per cent of the units has their chief promoters with either a diploma or degree from a recognized Ayurveda college. A person who got a diploma or degree from an Ayurveda college is considered a qualified Ayurvedic doctor in modern times. A *paramparya vaidyan* is, sometimes, placed at a high esteem as he usually has in-depth knowledge in examining the quality of medicinal plants, the main raw material used in the production of Ayurvedic medicines. He exhibits greater skill in verifying the adequacy of the processing of medicines as well.

Table 4.10

Occupation of Chief Promoter

Occupation	Number of Units (In Percentage)			
	L	M	S	Row Total
Paramparya Vaidyan	70	41	46	47
Ayurvedic doctor	15	27	22	23
Others	15	32	32	30
Column Total	100	100	100	100

Note: Others include chief promoters with other occupations or with no specific occupation

Source: Survey data

Educational Background of the Chief Promoter

Educational backward of the chief promoter can be an important factor determining the quality of management of the enterprise. Table 4.11 depicts the educational qualification of the chief promoters.

Table 4.11

Educational Background of Chief Promoter

Size of the units	Number of Units (In Percentage)		
	*A	*B	*C
L	0	1	0
M	8	0	5
S	12	3	0
Column Total	20	4	5

*A = No formal education

*B = Diploma/Degree in any subject and *Paramparya Vaidyam*

*C = DAM/BAMS/MD in Ayurveda

Source : Survey data

Chief promoters of 20 per cent of the units, belonging to medium and small sized categories, has no formal education. Those with formal education of either *paramparya vaidyam* or Ayurvedic doctor are as low as 9 per cent of the total number of units.

Managerial Consultancy Services

Non-requirement of managerial consultancy services by an organisation is an indication of either satisfaction in the present state of management or a state of being not inclined to improvement in management. The units in the study area in such a state are 39 per cent, 58 per cent, 45 per cent and 50 per cent of the total number of units in the districts of Thrissur, Malappuram, Kozhikode and Kasargode respectively as is evident from Appendix XIV. Nearly 45 per cent of the units in all the districts does not require managerial consultancy services. Only 1 per cent is very satisfied with the consultancy services they obtain. There are 35 per cent of the total units who are satisfied with the services and 20 per cent dissatisfied with the consultancy services they obtain.

Services from Government

Table 4.12 shows that 50 per cent of the units in the study area faces some problems in getting any service from the government. Obtaining services

Table 4.12

Problems Faced in Getting Services from Government

Problem	Number of Units (In Percentage)			
	L	M	S	Row Total
Too many formalities	29	23	13	18
Insufficient services	0	9	3	5
Red tapism	0	9	11	9
Delay in service	29	27	11	18
No problem faced	42	32	62	50
Column Total	100	100	100	100

Source: Survey data

from the State and Central Governments are very important these days as these services are being reduced year after year. On analysing the table, it is evident that 68 per cent of the medium sized units and nearly 60 per cent of the large units face problems in getting the services. Nearly 30 per cent of all the large sized units face the problem of undergoing too many formalities in getting the services. The same percentage of large sized units face the problem of delay in getting the services. Taking together all the units, it could be seen that these problems are the most severe ones.

Category of Employees

The number of employees earning daily wages is higher for small units as is evident from Table 4.13. Only 21 per cent of the employees of small units is employed on salary basis. It is advantageous for a unit to employ more persons on wage basis as the employers have the liberty to remove them from

Table 4.13

Category-wise Average Number of Employees

Category of Employees	Average Number of Employees (In Percentage)			
	L	M	S	Row Total
Earning salary	67	40	21	43
Earning daily wages	33	60	79	57
Column Total	100	100	100	100

Source: Survey data

rolls easily as most of them are appointed temporarily. Large units have only 33 per cent of the total employees on wage basis and cannot enjoy this advantage considerably.

Basis of Payment of Wages

As is displayed in Table 4.14, 98 per cent of employees of the units, irrespective of their size, are paid wages on time rate system.

Table 4.14

Payment of Wages

System of Wage Payment	Average Number of Employees (In Percentage)			
	L	M	S	Row Total
Piece rate	2	2	2	2
Time rate	98	98	98	98
Column Total	100	100	100	100

Source : Survey data

The low proportion of application of piece rate system can be attributed to many reasons. One of the main reasons is the nature of production activities carried out in Ayurvedic drug manufacturing units. Until the final product is shaped, in the case of most of the medicines, segregation into components or parts is not possible and hence piece rate cannot be calculated accurately. Another reason is the availing of the services of the same employee for more than one job or process at the same time.

Units With Wage-earners under Time Rate System Only

The survey does not trace a manufacturing unit with wage-earners under piece rate system only. Table 4.15 indicates that more than 65 per cent of the units of any district appoints wage-earners under time rate system only.

Table 4.15
Units with Employees
under Time Rate System of Wage Only

District	Number of Units (In Percentage)
TSR	76
MLP	67
KKD	73
KGD	100
Total	74

Source: Survey data

This was due to the nature of production activities involved in the *vaidya salas.* All the units of Kasargode District, all the large units of Thrissur District and all the medium sized units of Malappuram District make appointments in this way.

GENERAL INFORMATION ABOUT THE AGENCIES

Agency of an Ayurvedic medicine manufacturer is the manufacturer's agent which is an independent business unit employed by the manufacturer to sell his medicines only. His remuneration is usually a certain percentage of commission on the price of the medicines sold by him. He is the connecting link between the manufacturer and the consumers.

General information about the agencies of the Ayurvedic medicine manufacturing units are examined in terms of form of business and frequency of visit by a qualified doctor.

Form of Business

The agencies are located in small and big towns and in crowded localities where people have easy accessibility to the shops. Table 4.16 exhibits the status of the ownership of the sample agencies. The agencies are

Table 4.16

Form of Business of Agencies

Form of Business	Number of Agencies (In Percentage)
Sole trader	82
Partnership firm	18
Total	100

Source : Survey data

either sole traders or partnership firms. Majority of them (i.e., 82 per cent) is having sole proprietorship form and the rest (i.e., 18 per cent) are partnership firms.

Visit by a Qualified Doctor

Two most important factors which influence the marketability of medicines through an agency are the availability and capability of a qualified doctor who visits the agency for providing his services to the patients and the frequency of his visit. Table 4.17 reveals the frequency of visit by a qualified Ayurvedic doctor or *Vaidyan* in the agencies. There are nearly 10 per cent of the total agencies which does not get the services of a qualified doctor in the study area.

Table 4.17

Agencies Getting the Services of a Qualified Doctor/Vaidyan

Number of Days' Visit in a Week by a Qualified Doctor/Vaidyan	Number of Agencies (In Percentage)
0	9
1-2	35
3-4	44
5-6	12
7	0
Total	100

Source : Survey data

There is no agency which is visited by an Ayurvedic doctor/Vaidyan on all the seven days of a week. Almost 45 per cent of the total agencies has 3 to 4 days' visit by him.

Services of the Manufacturer's Doctor

Some manufacturers make available the service of their doctors in the agencies on request by the latter. In the opinion of the agencies, the consumers (i.e., the patients) prefer to get the services of the manufacturer's doctor to a doctor appointed by the agencies. Most agencies also opine that availing the services of manufacturer's doctor is less expensive as his salary is paid most of the time by the manufacturer and he is to be paid the incidental expenses only by the agencies.

It is observed that only 41 per cent of the agencies gets the services of the manufacturer's doctor.

Remuneration of the Manufacturer's Doctor

Remuneration of the manufacturer's visiting doctor is not paid always by the manufacturer. Of the agencies which get the services of the manufacturer's doctor/Vaidyan, nearly 40 per cent gets his services free of cost, 15 per cent has to bear a part of the remuneration and the balance of 47 per cent has to pay the full remuneration from their pocket (Table 4.18).

Table 4.18

Remuneration of the Manufacturer's Doctor

Paid by	Number of Agencies (In Percentage)
Manufacturer	38
Agency	47
Partly by manufacturer and partly by the agency	15
Total	100

Source : Survey data

Most of the agencies which bear the expenses themselves are planning either to reduce the number of days' visit per week by the doctor or to carry on business without his services.

GENERAL INFORMATION ABOUT THE CONSUMERS

Most of the medicines manufactured under Ayurveda are strictly based on the procedures prescribed in the classical texts. It is described in most of the texts of Ayurvedic medicine that deviations from the principles and procedures prescribed in the authoritative texts, which are time-tested testimonials, would badly affect the efficacy of the medicines or the effectiveness of the services. Accordingly, the manufacturer or marketer of classical Ayurvedic products can aim at curing or preventing diseases only rather than satisfying other needs, wants, tastes, preferences, habits, etc. of the patients. It is possible to satisfy the needs, wants, etc. to some extent in the case of P & P medicines.

In the modern world, the marketer is capable of providing certain utilities to the patients such as place, time and possession utilities, but form utility cannot be provided fully. Although some marketers attempted to satisfy the 'convenient to consume' needs of the consumers, such as the introduction of *kashayas* and *arishtas* in tablet or capsule forms, the result has been negative in most cases as the patients doubt the efficacy of the medicines in the new form and most of them are reluctant to by them and prepared to switch over to other manufacturer's products, manufacturers of the study area opined.

The data related to the consumers of the study area have been analysed by considering these points and much of the desires, preferences and attitudes of the consumers are not taken account of. General information about them are verified through the variables age, religion, locality, category of earner and annual income.

Age

Consumers of the study area who are of the age group 60 years or above are found to be the biggest market segment constituting 42 per cent of the sample consumers as is evident in Table 4.19.

Table 4.19
Age of Consumers

Age (Years)	Number of Consumers (In Percentage)
Below 18	11
18-25	12
25-40	15
40-60	20
60 and above	42
Total	100

Source: Survey data

The table shows that the percentage of number of consumers decreases as their age decreases. The consumers between the age of 40 and 60 are 20 per

cent of their total number. It indicates that the Ayurvedic medicine manufacturing units have to concentrate on satisfying the needs of consumers of middle age and old age if they propose to select market segments for marketing their products. The segments constituting the middle aged and old aged consumers are found to be 62 per cent of all the consumers.

Religion

Table 4.20 shows that 22 per cent of the Hindu population, 34 per cent of the Muslim population and 24 per cent of the Christian population accept the products of Arya Vaidya Sala. Another 24 per cent of the Christian population accept the products of Vaidyaratnam Oushadhasala. These are the highest figures for the consumers of the three religions. The next highest percentage of Hindu and Muslim consumers are for the products of the Pharmaceutical Corporation (IM) Kerala Limited. The respective percentages are 18 and 21.

Table 4.20

Religion of Consumers

Religion	Number of Consumers (In Percentage)									
	VDR	STR	OUS	SNA	AVS	MGL	VSK	KAC	DSY	Total
Hindu	15	9	18	9	22	6	6	6	9	100
Islam	13	14	21	4	34	4	4	8	8	100
Christianity	24	13	13	13	24	0	0	13	0	100

Source : Survey data

Locality

The geographical distribution of the consumers in the study area is assessed by grouping them into areas as panchayat, municipality, township and corporation. There are two corporations, viz., Kozhikode and Thrissur and one township, viz., Guruvayoor within the study area. Table 4.21 displays the data related to the consumers of the agencies located in these geographical areas.

Table 4.21
Locality of Consumers

Locality	Number of Consumers (In Percentage)
Panchayat	66
Municipality	23
Township	3
Corporation	8
Total	100

Source: Survey data

It can be seen that 66 per cent of the consumers are located in Panchayats, 23 per cent in municipalities, 3 per cent in the township and the rest i.e., 8 per cent in the corporation areas.

Category of Earner

The categories of earners to which the consumers belong have been salary earner, wage earner, agriculturist, businessman, professional and non-resident Indian. The highest number of consumers, as is depicted by Table 4.22, has been from the market segment 'wage earner' constituting 29 per cent of the total consumers. The lowest segment is 'professional' with only 9 per cent of the total consumers.

Table 4.22

Category of Earners

Category of Salary Earner	Number of Consumers (In Percentage)									
	VDR	**STR**	**OUS**	**SNA**	**AVS**	**MGL**	**VSK**	**KAC**	**DSY**	**Row Total**
Salary earner	19	12	24	16	16	7	13	18	12	15
Wage earner	37	32	18	40	24	40	20	24	28	29
Agriculturist	12	38	13	18	19	20	37	22	24	23
Businessman	14	8	20	10	20	13	10	16	18	14
Professional	12	4	15	6	9	10	10	6	10	9
Non-resident Indian	6	6	10	10	12	10	10	14	8	10
Column Total	100	100	100	100	100	100	100	100	100	100

Source : Survey data

The highest number of 'wage earners' is for S.N.A. Vaidyasala and Mangalodayam Vaidyasala (40 per cent each) which are two of the smallest of all the nine manufacturers given in the table.

For all the manufacturers, the first four segments given in the table, viz., salary earner, wage earner, agriculturist and businessman constitute the maximum of 81 per cent of the total market. Hence, the manufacturers need only to satisfy the needs and wants of these consumers if they do not have the resources to focus on the needs and wants of the remaining category of consumers.

Annual Income

Table 4.23 exhibits the annual income of the consumers. The table shows that most of the consumers (i.e., 45 per cent) are in the income category Rs.10,000–Rs.50,000. The next highest percentage of consumers is 29 belonging to the income group Rs.50,000–Rs.1,00,000 and third place (i.e., 12 per cent) is occupied by the group Rs.1,00,000–Rs.5,00,000. This indicates that 95 per cent of the consumers belonging to the lower and middle income group, i.e., those earning between Rs.10,000 and Rs.5,00,000 can be the target segment for the Ayurvedic medicine manufacturers who have meagre resources.

Table 4.23

Annual Income of Consumers

Income Group	Annual Income ('000 Rupees)	Number of Consumers (In Percentage)									
		VDR	STR	OUS	SNA	AVS	MGL	VSK	KAC	DSY	Row Total
Lower Income	Below 10	2	2	3	10	6	17	17	12	13	9
Middle Income	10-50	42	48	39	44	21	63	63	38	42	45
	50-100	29	30	35	36	40	17	17	33	28	29
	100-500	19	14	15	10	19	3	3	14	10	12
Higher Income	500 and above	8	6	8	0	14	0	0	3	7	5
Column Total		100	100	100	100	100	100	100	100	100	100

Source : Survey data

In the case of the five manufacturers Vaidyaratnam Oushadhasala, Sitaram Ayurveda Pharmacy Limited, Oushadhi, S.N.A. Vaidyasala and Arya Vaidya Sala, consumers earning below Rs.10,000 are not more than 10 per cent; in the case of others, the percentage is not more than 17. There are no consumers in the income group Rs.5,00,000 and above in the case of S.N.A. Vaidyasala, Mangalodayam Vaidyasala and Viswakeerthy. In the case of all except Arya Vaidya Sala, the percentage of consumers in this income group does not exceed 8. Arya Vaidya Sala has 14 per cent of all its consumers coming under this category.

Section A of the present chapter dealt with a brief account of the major Ayurvedic medicine manufacturing units in India and the profile of the units in the study area. The second section, viz., Section B verifies the important Acts governing the units in India and the problems faced by them.

SECTION-B
IMPORTANT ACTS AND PROBLEMS

In the following pages, a brief account of the important Acts applicable to the manufacture of Ayurvedic medicines and the important problems faced by the Ayurvedic medicine manufacturing units in India are dealt with.

IMPORTANT ACTS

Following are the important Acts applicable to the manufacture of Ayurvedic medicines in India:

1. The Drugs and Cosmetics Act, 1940.
2. The Pharmacy Act, 1948.

3. The Drugs and Magic Remedies (Objectionable Advertisements) Act, 1954.

4. The Narcotic Drugs and Psychotropic Substances Rules Act, 1985.

5. The Poisons Act, 1919.

6. The Drugs (Price Control) Order, 1995.

7. The Trade Marks Act, 1999.

8. The Biological Bill.

1. The Drugs and Cosmetics Act, 1940

The Act, enacted in 1940 and amended in 1983 and 1995, prohibits manufacture for sale, distribution or stock or exhibition for sale of any drug or cosmetics, which is not of standard quality or is misbranded, adultered or spurious. It also prohibits the manufacture of a patent medicine which does not bear on the label of the medicine a list of ingredients. The Act prohibits the manufacture and sale of a cosmetic containing any ingredient making it unsafe for use and a drug the manufacture of which is prohibited under the Act. However, nothing related to this Section shall apply to *Vaidyas* and *Hakims* who manufacture Ayurvedic, Siddha or Unani drugs for the use of their own patients or manufacture drugs in small quantities for the purpose of test or analysis.

The Drugs and Cosmetics Act empowers the Government of India to prohibit the manufacture, sale and distribution of drugs which may involve risk to human beings or animals or those drugs which do not have the therapeutic

value claimed. The Government is also empowered to make rules for the establishment of laboratories, prescribe the qualifications required for the analysts, the methods of tests or analysis, the conditions to be observed in packing and colours which may be used for the medicines and so on.

2. The Pharmacy Act, 1948

Passed in 1948, the Pharmacy Act was amended two times, one in 1959 and the other in 1976. Under the provisions of this Act, the Government of India constituted the Pharmacy Council of India. The pharmacy courses conducted in the country are subject to the approval of the Council under each State Government. A State Pharmacy Council has to be constituted which has the responsibility to maintain a register of pharmacists of the concerned State. The Central Council will make regulations as to the standard of education required for qualification as a pharmacist and prescribe the nature and period of study to be undergone by the pharmacists.

3. The Drugs and Magic Remedies (Objectionable Advertisement) Act, 1954

This Act prohibits a person from advertising any drug which suggests that the drug can be used for the prevention of miscarriage or conception in women, the maintenance or improvement of the capacity of a person for sexual pleasure, the correction of menstrual disorder and the diagnosis, treatment or prevention of venereal diseases, etc. It also prohibits giving false information or claim regarding the true character of a drug.

4. The Narcotic Drugs and Psychotropic Substances Rules Act, 1985

This Act makes provisions for the control of operations relating to narcotic drugs and psychotropic substances. Psychotropic substance means, any substance, natural or synthetic or other material included in the list psychotropic substance under the Act. The Act provides for severe punishments for those who contravene its provisions.

5. The Poisons Act, 1919

The Poisons Act, 1919 restricts the importation, possession and sale of specified poisons mentioned under the Act. It provides for the collection of excise duty on medical and toilet preparations containing narcotics or narcotic drugs such as alcohol and opium. The list of Ayurvedic preparations which are capable of being consumed as alcohol beverages are specified in the Act.

6. The Drugs (Price Control) Order, 1995

The Drugs (Price Control) Order, 1995 replaces the earlier Order of 1987. It applies more to Allopathic medicines. The Government of India, under the Act, has the power to fix leader prices for the medicines. These leader prices shall operate as the ceiling sale prices for every manufacturer. The Government has the power to fix the manufacturer's price, retail price and trade commission of certain formulations. Those who are found violating the provisions of the Order are prosecuted under the Order and the provisions of the Essential Commodities Act, 1955.

7. The Trade Marks Act, 1999

Under this Act, brands of any distinctive character and are not capable of distinguishing some goods or services of a manufacturer from another shall not be registered. Similarly, a brand mark shall not be registered if it deceives or confuses the public, contains any matter that hurts the religious feelings of any section of citizens, contains obscene matter or if its use is prohibited under the Emblems and Names (Prevention of Improper Use) Act, 1950.

8. The Biological Bill

Foreign biotechnology companies trying to harness India's traditional medicinal systems must bear in mind the provisions of Biological Diversity Bill, 2000. The Bill stipulates that a country which wants to use the biological resources of another country should obtain the prior consent of the latter. It prohibits the transfer of Indian genetic material outside the country without the approval of Government of India. Biological resources include plants, animals, micro-organisms or parts thereof and their genetic material but do not include human genetic material.

Under The Biological Bill, a three-tier institutional mechanism operates, the first at the apex level, the second at the State levels and the third at local levels. The apex authority, viz., the National Bio-diversity Authority, should be contacted by all the foreign nationals, organisations or associations who are seeking to access any of India's biological resources. Similarly, Indian nationals will have to intimate the Authority before tapping India's biological

resources. Further, Indian nationals should obtain the prior permission of the Authority to transfer the results relating to research of any biological resource to foreigners. However, Indian *Vaidyas* and *Hakims* will be permitted free access to biological resources for use within the country.

The main objective behind the Biological Bill is to protect Indian herbal remedies from over-exploitation by Western countries. Instead of closing the doors on foreign bio-technology companies, the Government of India has come up with a profit-sharing mechanism to ensure that India benefits from the commercialisation of Indian herbal drugs.

Licensing Procedure of the Manufacturers

Ayurvedic medicine manufacturing units in India have to obtain prior licence to manufacture the medicines from the concerned State Drug Controlling Authority. All formulations, whether classical or P & P, have to be got cleared from the Authority before commencing commercial production. The application for the grant or renewal of a licence to manufacture for sale shall be made in Form 25-D of the Drugs and Cosmetics Act. A unit which intends to apply for a loan licence can do so in From 25-E to the authority. A loan licence is issued to a unit which does not have its own manufacturing facilities but intends to avail them from another unit which has these facilities.

Before any licence is granted under any of the above said occasions, the applicant shall comply with the following conditions:

i) The manufacture shall be carried out in such hygienic conditions as given in schedule T of Rule 157 under the Act.

ii) The manufacture shall be carried out under the direct supervision of technical staff containing at least one person who possesses (a) a degree or diploma in Ayurveda or Ayurvedic pharmacy conferred by a university or government or (b) a graduate in pharmacy, pharmaceutical chemistry, chemistry or botany of a university or government with experience of at least two years in the manufacture of Ayurvedic drugs or (c) a *Vaidya* registered in a State register of indigenous systems of medicine having an experience of at least four years in the manufacture of the drugs.

GMP Certification

As per the Gazette Notification No.GSR 561(E) dated 23rd June, 2000 of the Government of India, all the Ayurvedic, Siddha and Unani medicine manufacturers in India should obtain GMP certification within two years of the date of the Gazette. The certificate will be issued to those manufacturers who comply with the requirements of GMP as laid down in Schedule T of Rule 157 of the Drugs and Cosmetics Act, 1940. Those manufacturers, who have registered their names prior to the date of the Gazette, should obtain the certificate within two years from the date. *Vaidyas* of Ayurveda and Siddha and Hakims, who manufacture medicines for consumption by their patients only, are not required to take GMP certification. The certificate is issued for two years at a time in Form E-1 as per the provisions contained in Rule 157(b) of the Act.

The main objectives behind the requirements of GMP certification are the following:

i) To ensure the quality of raw materials used in production;

ii) to up-grade the standards and quality of production;

iii) to increase the acceptability of medicines manufactured; and

iv) to make it compulsory the documentation of all the procedures in different stages of production.

To obtain the certificate, the manufacturer, among other things, has to comply with the following requirements:

i) The development of appropriate infrastructure to control pollution;

ii) healthy atmosphere for production free from bacteria;

iii) provision of adequate space for carrying out production activities;

iv) availability of good and fresh drinking water for manufacturing the medicines;

v) availability of raw materials of good quality which are free from bacteria;

vi) printing of details related to batch/lot number, name of the medicine, date of its manufacture, ingredients contained in it, the name of the person who packed it, etc. on the container or wrapper of the medicines;

vii) ensuring quality of the medicines through the laboratory of the manufacturer and if necessary, seeking the assistance of government approved laboratories;

viii) facilities for testing the quality of the raw materials and the efficacy of the medicines manufactured;

ix) ensuring the standard of the laboratory;

x) research details related to P & P medicines;

xi) to see whether the medicines are properly packaged and labelled;

xii) appropriate atmosphere and adequate facilities for storing the manufactured medicines;

xiii) facilities to receive the medicines returned by the customers;

xiv) arrangements to record complaints of customers and the remedial measures to be taken;

xv) conditions for the employees of the organisation facilitating tension-free and satisfactory working;

xvi) provision of vaccination and health measures to keep the employees away from epidemics;

xvii) giving of first aid treatments in times of accidents and emergencies; and

xviii) keeping of research books such as Ayurvedic Pharmacopoeia of India (Part 1 & 2), Ayurvedic Formulary of India (Part 1 & 2) and Drugs and Cosmetics Act.

IMPORTANT PROBLEMS

Traditional Systems of Medicine (TSM) play an important role in the provision of health care in India. The experts in Ayurvedic Drug Manufacturers Association (ADMA) observed that only 30 per cent of the population in India is able to avail Allopathic medication; the rest rely on TSM.[2] Hence, it is improper to call TSM as alternative systems of medicine as is generally opined by Allopathic practitioners.

The rural people in India want to meet physicians who can guide them properly and require cheaper medicines. Ayurveda can address these issues properly.[3]

The awareness and popularity of Ayurveda are increasing enormously in countries other than India for the past one decade and half. The popularity is extensive because of the safe and special modalities of treatments adopted in *Panchakarma.* It is believed that there are about 3000 practitioners in Japan who are prescribing Ayurvedic medicines in their modern practice.[4]

Developed countries are increasingly depending on Ayurvedic preparations. In countries like Germany, France, Belgium and Netherlands, Ayurvedic health care products and home remedies are very popular. To boost exports, Government of India has initiated steps to achieve export figure of Rs.3,000 crores by the year 2005 and Rs.10,000 crores by 2010 for Ayurvedic medicines. It has promised 100 per cent tax exemption for Research and

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[2] Team of *Holistic Healing.* "TSM Practitioners Urge On-par Status with Modern Medicine," *Holistic Healing,* October 1998, p.12.

[3] Team of *Holistic Healing.* "ADMA's National Symposium '98-An Overview", *Holistic Healing,* October, 1998, p.2.

[4] Ballal, K.C., Dr. "Ayurveda and Japan", *Ayurwave* , November, 1999, p.12.

Development (R & D) in Ayurveda. More and more Indian Allopathy medicine manufacturers like Nicholas Piramal and Gufic are launching Ayurvedic products in their Ayurvedic divisions.[5]

In Europe, doctors widely prescribe government–approved natural medicines. But, the Americans are shortchanged by a lack of knowledge about natural remedies (which include Ayurveda) mainly because the medical establishment and Government rules discourage their use.[6]

Since the liberalisation of Indian economy, though most of the Ayurvedic products are exported from India in the label 'food supplements', it has been just a pretext of law in the foreign market and the so called 'food supplements' had convinced of the therapeutic potential of Ayurveda.[7]

More than a decade ago, the World Health Organisation (WHO) officially recognized the role of Indian Systems of Medicine (ISM) in health care delivery. This recognition has emerged out of the fact that the prevailing medical systems have their own limitations in solving health problems. India has nearly six and a half lakh practitioners in Ayurveda and other indigenous systems. The country has more than 140 colleges teaching these systems of medicine as well. But, these infrastructure facilities have miserably failed to produce what has been expected. The position is further worsened with only

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[5] Palit, N.G. "Medicine for New Era", *Holitic Healing,* April-May, 2001, p.14.

[6] Agency, San Francisco *(Holistic Healing),* "Fighting Dimentia with Nature's Healing Power",*Holistic Healing, October*, 1998, p.10.

[7] Iyer, Ananth. "Converting Ethical Preparations to OTC will Benefit These Products and Establish Their Brand Equity", *Holistic Healing,* October, 1998, p.16.

around 3 per cent of the allocation of total health budget by the Government of India for Ayurveda.[8]

The Indian Ayurvedic industry is steadily becoming more and more export oriented, thanks to the late realisation of the importance of the medicines manufactured by this industry abroad. Exports to the Far East, Latin America and Canada in the last few years have multiplied. In 1997 alone, the industry exported Rs.285 crore worth of herbal products to the United States, Canada and the Fast East. The growing demand for Indian products speaks of their quality.[9]

It is estimated that the ISM industry in India is worth Rs.4,200 crores of trade. In this, Ayurveda alone accounts for nearly Rs.3,500 crores. But, a number of problems hamper the growth of Ayurvedic medicine manufacturing industry of India. The important problems are briefly discussed in the ensuing paragraphs.

Raw Materials

Ayurveda depends a lot on nature for its raw materials. The main raw material used in Ayurvedic medicines is herbs or medicianal plants. India, identified as one of the eight important global centres for plant diversity is immensely rich in medicinal and aromatic plants found in diverse eco-systems.[10]

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[8] Dobriyal, R.M., Dr., and Dr. D.B.A. Narayana. "Taking Care of ISM," *Holistic Healing,* October, 1998, p.8.

[9] Puranik, Anand. "Domestic Consumption of Endangered Herbs is Higher than Exports", *Holistic Healing,* October, 1998, p.15.

[10] Excerpts of "Draft National Policy on Indian Systems of Medicine, 2001", *Arogyakalpam,* October-December, 2001, p.15.

Only less than 10 per cent of the medicinal plants traded in India are cultivated; 90 per cent are collected from the wild in a destructive and unsustainable manner.[11] As per the report of Exim Bank of India (March, 1997), the raw materials contribute to only about 10.5 per cent of the total turnover of Ayurvedic drug industry of Rs.23 billion in 1996-'97.[12] Though over 800 plants are used in various traditional medical systems, only 105 plants have been identified after in-depth discussion among researchers in the drug industry.[13]

An important factor affecting the quality of a medicinal herb is the time or season at which it is harvested. The leaves are usually gathered throughout the whole growing period. The top parts of the plants are collected with the flower-bearing stem just before or at the beginning of the flowering stage. Fruits and seeds are collected when they are mature. The harvested herbs have to be transported to the drying shed as quickly as possible. India ranks tenth among the plant rich nations of the world and fourth among the Asian countries.[14]

Medicinal herbs are to be dried for usage for a long period. They can be dried either in the shade or artificially. A large quantity of herbs is dried artificially to avoid hay-like taste, but, the temperature of artificial drying shall not exceed 40°c.

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[11] Nambiar, Krishnan, V.P. "Improved Harvesting, Processing and Storage of Medicinal Plants Raw Drugs-Their Role in Conservation and Quality of Plant-Based Products", *Aryavaidyan,* November, 2001-January, 2002, pp.76-77.
[12] Gupta, A.K. "Depleting Himalayan Herbs", *Holistic Healing,* April, 1999, p.35.
[13] Thirunarayanan, T., Dr. "Indian Herbal Pharmacopoeia", *Heritage Healing,* September, 2000, p.38.
[14] Nambiar, Krishnan, V.P., Loc. Cit.

To preserve the quality for a pretty long period, the dried herbs should be stored in air tight containers in a dry dark place at a temperature not exceeding 18°c.[15]

Ayurveda makes use of herbs as green herbs or in their processed form, viz., dried and powdered, decoction, juice, paste, extracts, tablet and capsule forms and so on. Herbs, if processed, lose their medicinal value to some extent only. Ideally, it would be proper to use the hebs fresh and whole.[16]

Herbal preparations like extracts are defined in the German and the European Pharmacopoeia as follows: "Extracts are concentrated preparations of liquid, solid or intermediate consistency, usually obtained from dried vegetable or animal matter..... After extraction, unwanted matter is removed, if necessary".

Blessed with numerous medicinal plant species, the Himalayas have been given high recognition in ISM. That is why the great Indian *Ayurvedacharya* Charaka has termed many Himalayan herbs as *'divya oushadhi'* meaning 'divine medicines'.[17]

Prof. M.S. Swaminathan, the celebrated author on agriculture, has stated that the region extending from Silent Valley to Wayanad District in the State of Kerala is rich with various medicinal plants.[18] In a year, medicinal plants worth around Rs.30 crores are used in the State for the manufacture of Ayurvedic medicines.[19]

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[15] Ibid., p.77.
[16] Rathod, Chetna. "Exploring Herbal World", *Holistic Healing,* May, 2000, p.17.
[17] Gupta, A.K. "Depleting Himalayan Herbs", *Holistic Healing,* April, 1999, p.35.
[18] News item appeared in the *Oushadham* (Malayalam), April, 2002, p.6.
[19] Excerpts from the speech delivered by Dr.Vasudeva Sharma in a meeting organised by Ayurvedic Medicine Manufacturers Association on 16th December, 1990 [See *Ayurveda Chandrika* (Malayalam), January, 1991.p.121].

Indiscriminate exploitation of medicinal plants for the manufacture of medicines is responsible for the scarcity of rare species. As a result, the manufacturers are forced to accept the types of herbs the plant collectors bring to them. To meet the excess demand from the manufacturers, some plant collectors and dealers resort to adulteration of the herbs and thereby undermining the quality of the drugs.[20]

One of the major problems facing the plant-based medicine manufacturers is the availability, accessibility and quality of the medicinal plants and other natural materials used as raw materials. Till recently, there have been no organised effort to cultivate medicinal plants in India. Further, adequate analytical methodology has not been developed to ensure that the raw materials meet the required standards. There are real problems in setting standards for hundreds of plants. Problems related to variations in the quality of plants harvested from different geographical areas, time of harvesting and primary processing (cleaning, drying, etc.) are also to be addressed.

Ensuring the quality of medicinal plants used in Ayurvedic medicines goes beyond simple experience, visual and feeling based validation. More credible and effective chemical-biological methods to ensure consistent quality and freedom from contamination from living and non-living matter, pesticides and microbial materials need to be developed.[21]

As the production of the Ayurvedic medicine manufacturing units increases, the availability of most of the raw materials go on decreasing. All

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[20] Sivarajan,V.V., and Indira Balachandran. *Ayurvedic Drugs and Their Plant Uses,* New Delhi: Oxford & IBH Publishing Co. Pvt. Ltd., 1993, pp.10-11.

[21] Nair, M.D., Dr. "Standardisation Imbroglio Affects Traditional Medicinal Products", *Heritage Healing,* September, 2000, p.18.

the medicinal plants which are to be consumed for the production of the medicine of the same *yoga** cannot be procured at the same time. The manufacturing units, in such cases, are compelled to use substitutes for the manufacture of the medicines. When production is carried out in small scale, the scarcity of the materials is not so severe. The non-availability of the medicinal plants often leads to the increased probability of adulteration as well.[22]

Unscientific procurement of medicinal plants and depleting forest resources will advesely affect the availability of raw materials to the Ayurvedic medicine manufacturing units in the coming years.

Over-harvesting, loss of habitat, increasing urbanisation and shrinking forest base have resulted in significant decline in the volume of medicinal plants required for the manufacture of Ayurvedic medicines. The existing systems of harvesting, processing and storage of medicinal plants are totally unscientific leading to total devastation of certain medicinal species.[23]

In recent years, many of the Himalayan herbs termed as *'divya oushadhi'* have been declared as endangered and threatened plants. Of the 56 plants banned from exporting by Government of India, a good number belongs to the State of Himachal Pradesh. So far the State Government scientists have not identified and estimated the natural plant wealth of the State.[24]

The non-availability of raw materials, particularly herbs, can pose a threat in the years to come due to unscientific felling of trees and plants and collection methods of herbs.

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* *Yoga* means, the healing prescriptions propounded by the *rishis* of ancient times.

[22] Varier,P.M., Dr. "Oushadhanirmanam-Prasnangal, Prathividhikal, Patenting", *Ayurvedam–Arogyamargam* (Malayalam), ed.Dr.C.Raman Kutty et.al., Kottakkal: Arya Vaidya Sala, pp.110-112.

[23] Nambiar, Krishnan, V.P., Loc. Cit.

[24] Gupta,A.K., Loc. Cit.

To meet the ever-growing demand for herbs, the manufacturers of Ayurvedic medicines often engage their collectors for unseasonal collection of herbs. The result is that drugs prepared from such plants are poor in quality and are unable to cure the diseases.[25]

In addition to adulteration and substitution of herbs, several herbs have found application in many Allopathic drugs used in the treatment of cancer, blood pressure, heart diseases, diabetes, etc.[26]

Today, most of the medicinal plants are cultivated by using fertilisers and pesticides for better yield and protection. Some of the residual toxins from these may be passed on to the Ayurvedic formulation.[27]

The post-liberalisation and post-WTO era has seen several cases of bio-piracy by way of patenting the Indian medicinal plants.[28] Western countries are fast-patenting the bio-wealth of India.[29]

It is learnt that patency has been taken as intellectual property right (IPR) in the names of around 60 medicinal plants cultivated in India by some developed nations. The U.S.A, Japan and France are the important nations among them. IPR's have been claimed on medicinal plants like *phillanthus niruri, zingiber officinale, ricinus communis, momordica charantia, aloebarbadensis, centela asiatica, piper nigrum* and *terminalia chebula.*[30]

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[25] Gupta,A.K., Loc. Cit.
[26] Excerpts of "Draft National Policy on Indian Systems of Medicines, 2001", *Arogya Kalpam*, October-December, 2001, p.15.
[27] Venkateswaralu, M., Dr. "Indian Systems of Medicine-Regulatory Concerns", *Heritage Healing*, September, 2000, p.15.
[28] Team of *Holistic Healing*, "ADMA's National Symposium, '98–An Overview", *Holistic Healing* , October, 1998, p.2.
[29] Gupta, A.K., Loc. Cit.
[30] Jyothilal, Dr. "Apakatam Kanathirikkaruthu", *The Deshabhimani* (Malayalam Daily), 7th January, 1999, p.4.

The Process Patency Bill was passed in the Indian Parliament in 1970 when Mrs. Indira Gandhi was the Prime Minister of the country. This provided legal protection to a manufacturer for a method of production of a product as its inventor, but, there was no legal bar for another person or manufacturer to use it by borrowing this technical know-how. By making India sign in the General Agreement for Tariff and Trade (GATT) on January 1, 1995 and its joining the World Trade Organisation (WTO), the developed nations, especially the Western countries, had been compelling the country to effect amendments in the Bill. Accordingly, the country was required to change this Bill so as to name it as Product Patency Bill. The Product Patency Bill makes provision for the inventor or manufacturer, who invented the new method, to use the right (IPR) as his own right only. In this way, some medicine manufacturers of developed nations like the U.S.A, Germany, France and Japan had already acquired the product patency for certain properties of some medicinal plants cultivated only in India. It is pointed out that these properties had already been explained in the classical texts of Ayurveda.[31]

Though herbs and herbal preparations in India were ranked with precious stones in the inventory of royal possessions, with the arrival of modern medicine, they have been facing the following problems:

i) Non-documentation of information on herbs in the proper manner;

ii) identification of correct species as described in vernacular names;

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[31] Jyothilal, Dr. "Paramparya Vaidyam Pidiyilothukkan Oru Padayorukkam", *The Mathrubhoomi* (Malayalam Daily), 8th January, 1999, p.4.

iii) confirmation about the effective part of the plant;

iv) non-publication of results of tests and research in reputed journals; and

v) successful practitioners who inherited valuable information from their fore-fathers are unwilling to make them public.[32]

With the objective of promoting mass cultivation of rare medicinal plants, the Coimbatore-based Centre for Indian Medical Heritage (CIMH), an NGO, had tied up with a few Ayurvedic medicine manufacturers in Kerala to buy back herbs cultivated in the households of the State. CIMH proposes to provide guidelines for cultivation and review of the growth of the herbs[33].

Other Problems

It is unviable to manufacture all the preparations mentioned in the classical Ayurvedic texts by the manufacturers. The manufacturers are generally able to manufacture and market at the maximum of 56 classical preparations which are widely consumed. All the others are neglected.[34]

The classical texts prescribe prolonged heating and stirring over low fire in the case of *tailas* and *grithas.* The efficacy of these Ayurvedic preparations is doubted when steam heating is resorted to for large scale production.[35]

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[32] Sairam, T.V. "Indian Herbalism–Problems and Prospects", *Holistic Healing,* April, 1999, p.21.
[33] *Holitic Healing* Team. "CIMH Joins Hands with State Government to Cultivate Rare Herbs in Kerala", *Holistic Healing*, October, 1998, p.4.
[34] Iyer, Ananth. "Why The Going Is Tough For Classical Ayurvedic Medicines", *Holistic Healing,* October, 1998, p.3.
[35] ITCOT. *Feasibility Report on Ayurvedic Medicines with Details of GMP,* Chennai: ITCOT, p.73.

Another case of worry is the issue of standardisation of Ayurvedic medicines. The processing of Ayurvedic drugs are also not standardised. The only guideline available is the Drugs and Cosmetics Act 1940.[36]

Lack of scientific evidence to prove the efficacy of medicines manufactured by Ayurvedic medicine manufacturing industry hampers the growth of the industry. The recent union budgets of India have mentioned the need for strengthening the infrastructure of the drug-testing laboratories for ensuring the efficacy and scientific validity of the medicines. The manufacturers of Ayurvedic medicines are not happy with this as the budgets do not mention about the allocation of funds for technology upgradation through import of equipments for ensuring good manufacturing practice (GMP). They have also demanded the status of agro-produces for medicinal plants, tax exemptions and roll back of excise duty on P & P medicines.[37]

In order to be competitive in the global market, it is essential that the requirements of GMP for Ayurvedic medicine manufacturing units are harmonized with that of international requirements.

One of the major criticisms levelled against Ayurvedic medicine manufacturers is the tall claims made by some of the manufacturers about their products. There should be a legislative control on the claims made by them on the labels, literature and advertisements.[38]

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[36] Sreekala, G. "The Ideal Chyavanaprash", *Holistic Healing,* February, 2001, p.6.
[37] www.saffronsoul.com: April, 2001.
[38] pp.15-16, Op. Cit. Venkateswaralu, M., Dr.

Ayurvedic medicines are multi-ingredient formulations. In multi-ingredient formulations, the manufacturer should establish that there are no incapabilities, either physical, chemical or therapeutic between the ingredients. Such a practice is not prevalent in the case of Ayurvedic medicines.[39]

Ayurvedic physicians often tend to prescribe modern medicines even in non-emergency situations. This is one of the reasons why Ayurvedic medicines are not so popular and Ayurveda has not progressed beyond a certain point.[40]

One of the reasons why Ayurvedic practitioners shy away from prescribing Ayurvedic medicines is lack of knowledge about newly introduced P & P medicines. Almost all Ayurvedic medicine manufacturers do not have direct communication with the practitioners. The medicines are promoted and routed through the medical representatives, agents and/or distributors. There are no properly trained representatives also.[41]

Most of the manufacturers are yet to establish that their products conform to the label claims.[42] Though labelling requirements of Ayurvedic medicines are specified under existing legislations, the packages of most medicines really do not give any information such as precautions and ingredients. In certain cases, there are claims on the label which violate the provisions of the existing Acts. This may mislead patients and compel them for self-medication.

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[39] Ibid., pp.15-16.
[40] *Holistic Healing* Team. "ADMA's National Symposium, 1998-An Overview", *Holistic Healing*, October, 1998,p.2.
[41] Iyer, Ananth. "Morale of Young Ayurvedic Graduates Needs to be Boosted", *Holistic Healing*, October, 1998, p.3.
[42] p.14, Op. Cit. Vekateswaralu, M., Dr.

A report from the British House of Lords Committee on Science and Technology downgrades Ayurveda, claiming the system lacks any scientific basis.[43]

The study conducted by Centre for Development Studies, Thiruvananthapuram, Kerala in 1987 shows that as much as 72 per cent of Karalites depended on Allopathy system of medicine. The figure rose to 82 per cent in 1996. Ayurveda system came a poor second with only 11 per cent of the population opting for it.[44]

Meagre budget allocation to ISM also hampers the growth of Ayurvedic medicine manufacturing industry in India. Though the infrastructure available for ISM and modern medicine is almost similar, ISM receives only 1.34 per cent of the health budget whereas in the case of modern medicine, it is 33 per cent.[45]

Some manufacturers, to promote the sales of their products, camouflage their products as based on Ayurveda. Examples for such products are toilet soaps, fairness creams and tooth pastes. Some products, in the name of Ayurveda, without any legal restriction and aggressive advertisement, sell well these days. Such unhealthy practices will defame Ayurveda and foreigners may later on fear to come to India for Ayurvedic treatment.[46]

The banning by the Supreme Court of India of cross prescription of Ayurvedic medicines by Allopathy doctors has, in recent years, really affected

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[43] Reuters: 20th February, 2001.
[44] *The Economic Times*: 12th April, 2001.
[45] Iyer Ananth. "Morale of Young Ayurvedic Graduates Needs to be Boosted", *Holistic Healing*, October, 1998, p.3.
[46] Bharucha, Ruzbeh, Nari. "Sree Sankara Ayurveda-Tradition at Its Lofty Best", *Holistic Healing*, July, 1999, p.23.

the sale of some well-known Ayurvedic products which were heavily prescribed by them.[47]

In the wake of the Supreme Court's decision to ban cross prescription of formulations of one system of medicines by the physicians of other systems, Ayurvedic medicine manufacturers of India like Himalaya, Charak, Zandu and Sree Baidyanath are envisaging plans to promote their sales further in Ayurvedic P & P products and certain pharmacopoeial preparations.[48]

Though India has a rich culture of medicines dominated by Ayurveda, the developed countries do not recognize Ayurveda as a system of medicine. Hence, the Ayurvedic medicine manufacturers of the country usually export most Ayurvedic products as herbal food supplements.[49]

ISM face major challenges especially on their scientific validity and standardisation. The biggest medical association in the United States of America, the American Academy of Family Physicians (AAFP) had adopted a resolution in San Francisco against alternative medicine manufacturers, making it mandatory to have scientific proof before making any claim of curing any ailment by their formulations. This is a major threat to the export of Ayurvedic medicines to the U.S.A from India.[50]

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[47] Iyer, Ananth. "Converting Ethical Preparations to OTC Will Benefit These Products and Establish Their Brand Equity", *Holistic Healing,* October, 1998, p.16.

[48] Iyer, Ananth. "Select Ayurvedic Prescription Products May Go OTC", *Holistic Healing,* October, 1998, p.1.

[49] Gangadharan,G.G., Dr. "International Regulation and Barriers for Traditional Systems of Medicine with A Brief History of Evolutions of Regulations in India", *Oushadham* (Malayalam), April, 2002, p.3.

[50] *Holistic Healing* Team. "TSM Practitioners Urge On-Par Status with Modern Medicine", *Holistic Healing,* October, 1998, p.11.

A mojor threat to the healthy development of Ayurveda, its treatment methods and medicines is the plans contemplated by various State Governments of India to start short term courses in *Panchakarma* and *Ksharasutra* by various universities. As these two branches of Ayurveda are taught during the final year of the degree of B.A.M.S., they, if practised by others, may affect the efficacy of the treatments in Ayurveda.[51]

GMP for Ayurveda, Siddha and Unani medicines have been notified in the Gazette Notification of India Extraordinary dated 23rd June, 2000 vide GSR No. 560-E. This is an important step envisaged by the Government of India to improve the standards of infrastructure and quality of raw materials and processing. The details of GMP have been given in Schedule-T of Rule 157 of the Drugs and Cosmetics Act, 1940. Though ensuring quality control of the medicines is one of the main objectives behind the requirement of GMP, little reference to the aspects of quality standards of final products has been made in the Schedule.

India is losing an estimated $10 billion a year in the international market from pilferage of Ayurvedic products and services. In the words of Mr.G.Varier of the Ayurvedic Company of Great Britain, there is a large scale theft of India's intellectual property (IP) rights. Much of the Western herbal medicines and Chinese herbal remedies today rely heavily on Ayurveda. Western Governments do not listen to the pleas of the Ayurvedic practitioners and manufacturers of these countries. The attitude of the Indian Government is not different . The result is the surrender of India's great fortune.[52]

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[51] Vijayasankar, V.M., Dr. "Propagation of Ayurveda – Indian Style", *Arogyakalpam,* October–December, 2001, pp.9-10.

[52] *The Financial Express*: 25th October, 1998.

Though Indian Patent Act passed by the Indian Parliament in December, 1998 excluded Ayurveda from its ambit, the WTO had issued an ultimatum to India to include Ayurveda in the Act. As a result of this demand, the Ayurvedic medicine manufacturers of India fear that India would lose its right to the U.S.A. almost all Ayurvedic combinations and the U.S.A., which is suspected to be behind the move, would claim that some elements of Ayurvedic medicines manufactured in India are patented by them.[53]

Section B of this chapter gave a brief description of the important Acts governing the Ayurvedic medicine manufacturing units and important problems faced by the units in India.

Having analysed the profile of the Ayurvedic medicine manufacturing units and problems faced by the units in India, an attempt is made in the next chapter to analyse the problems experienced by the units of the study area in additon to the problems analysed in this chapter.

[53] Irwine, Calif. "Indian Monopoly in Ayurveda under Threat", *Holistic Healing*, April, 1999, p.4.

CHAPTER V

PROBLEMS OF THE AYURVEDIC MEDICINE MANUFACTURING UNITS

PROBLEMS OF THE AYURVEDIC MEDICINE MANUFACTURING UNITS

The profile of the Ayurvedic medicine manufacturing units verified in the last chapter shows that there are a lot of problems faced by the units. An attempt is made in the present chapter to discuss the problems experienced by the units in adition to the problems analysed in the last chapter with special reference to the study area. Section A of the chapter analyses the general problems and Section B verifies the marketing problems.

SECTION-A

GENERAL PROBLEMS

Problems related to raw materials, production, finance and personnel are being studied under this section.

PROBLEMS RELATED TO RAW MATERIALS

The problems analysed under this head are related to the sources of medicinal plants, credit for purchases, methods of purchase, scarcity, quality, transportation from source, storage, delay in supply and purchase cost.

The sources from where the units procure medicinal plants indicate that there are chances of adulteration in the medicinal plants purchased. Analysis of the data contained in Table 5A.1 will point to this fact. It shows the sources

of medicinal plants and the respective percentage of average value to the total value of the plants purchased.

Table 5A. 1

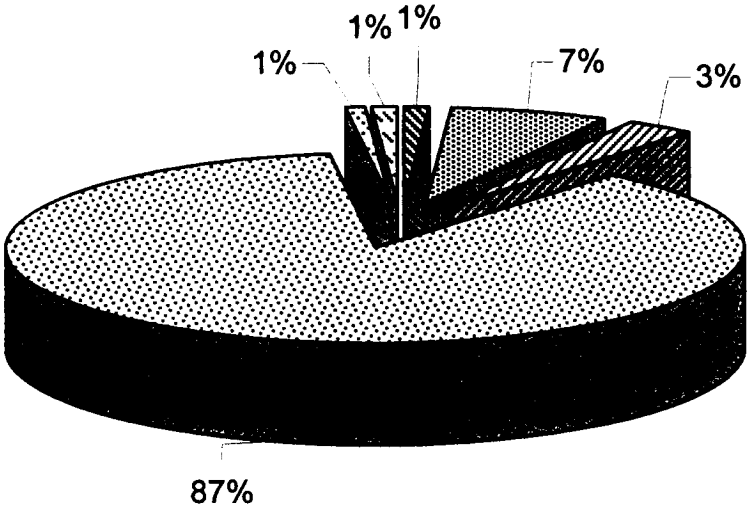
Values of Medicinal Plants Procured

Sources	Average Value (In Percentage)
Own herbal gardens	1
Own plant collectors	7
Private cultivators	3
Private vendors	87
Local market	1
Others (agents, importers, etc.)	1
Total	100

Source: Survey data

The table indicates that the percentage of average value of medicinal plants procured through private vendors and local market to the total value is 88. Since these sources do not come under the direct control of the manufacturers, there are chances of adulteration to this extent unless the materials are inspected properly. Most of the small sized units are to depend heavily on these sources as it is not economical for them to look for other sources. The dependence on various sources can be expressed in Figure 5A. 1.

Figure 5A.1
Sources of Medicinal Plants (In Terms of Value)



Inability to avail credit purchase is the second raw material-related problem of the Ayurvedic medicine manufacturing units. Ability to effect purchases on credit improves the working capital position of an organisation. This advantage could not be reaped buy most of the small sized units. In their case, only 39 per cent of the value of total purchases is on credit basis as is depicted in Table 5A. 2.

Table 5A.2

Value of Purchases of Raw Materials

Size of the Units	Purchases (In Percentage)		
	Cash	Credit	Row Total
L	22	78	100
M	47	53	100
S	61	39	100

Source: Survey data

The suppliers are reluctant to sell on credit basis to these units mainly due to two reasons. First, the quantity purchased are lower compared to the bigger units. Second, they feared not getting payment in time as most of the smaller units have meagre resources.

Failure to make use of the most economical method of purchase by some units is the third raw material-related problem. There are three methods adopted by the Ayurvedaic medicine manufacturing units for the purchase of raw materials viz., purchase agreement, direct casual purchase and tender. Raw materials are purchased as per purchase agreement at all times except for the purchases made from private vendors or local market and purchases made as

per tender. The chances of violating the agreement are rare as opined by the manufacturers. Direct casual purchase involves purchasing the raw materials at the prevailing market price. The quality and specifications of the materials may not be upto the bench mark in this case. On the other hand, tender as a method follows the procedure of inviting quotations of prices for the supply of raw materials of a specified standard from a number of suppliers and selecting the lowest quotation from among them.

Thus, taking advantage of purchase agreement and tender to purchase raw amterials should be preferred by the units to direct casual purchase. But, it is observed that taking adventage of purchase agreement and tender is poor as is indicated by Table 5A. 3. As high as 95 per cent of the small units does not

Table 5A. 3

Adoption of Purchase Agreement and Tender as Methods of Purchase

Size of the Units	Number of Units (In Percentage)					
	Purchase Agreement			Tender		
	A*	B*	Row Total	A*	B*	Row Total
L	43	57	100	57	43	100
M	36	64	100	23	77	100
S	22	78	100	5	95	100

A* = Units which adopt
B* = Units which do not adopt
Source: Survey data

adopt tender as a method. Similarly, 78 per cent of this category of units does not enter into any purchase agreement. The case of medium sized units is also not much better. The large units only are in a better position as far as adoption

of tender is concerned. But, the percentage of these units which adopt this method is 57 per cent only.

Scarcity is the fourth problem related to raw materials procured by the Ayurvedic medicine manufacturing units. Unless right quantity of raw materials are made available for production of the medicines, the manufacturing units will not be able to optimise economies of production and to meet demand for medicines from consumers fully. Table 5A. 4 explains the extent to which the units of the study area can procure raw materials.

Table 5A. 4

Extent to which Raw Material Supply Meet the Requirement

Extent	Number of Units (In Percentage)			
	L	M	S	Row Total
51-75%	14	14	14	14
76% and above but below 100%	29	50	59	53
100%	57	36	27	33
Column Total	100	100	100	100

Source: Survey data

A substantial part of 67 per cent of the total units cannot procure all the materials required for production. Among all the categories of units, the position of the small units is the worst in meeting total raw material requirement. Nearly 75 per cent of them is not in a position to procure the raw materials they require. The percentage of medium sized units under this class is 64. It can be seen that only 57 per cent of the large units can meet their raw material requirement fully.

Average or bad quality of raw materials procured by the units is found to be the fifth problem in relation to raw materials. Quality of raw materials influences the quality of medicines manufactured by the units to a great extent. The survey reveals that nearly half the number of the medium and small sized units uses raw materials of bad quality (Table 5A. 5). The percentages of the

Table 5A. 5

Quality of Raw Materials

Size of the Units	Number of Units (In Percentage)				
	Excellent	Good	Average	Bad	Row Total
L	0	29	43	28	100
M	0	23	36	41	100
S	0	16	38	46	100
Column Total	0	20	38	42	100

Source: Survey data

large, medium and small sized units which accept materials of average quality are 43, 36 and 38 respectively.

No unit of the study area claims the availability of raw materials of excellent quality. It can also be observed that only 16 per cent of the small sized units procures and consumes materials of good quality

Difficulties faced in transporting raw materials are seen as the sixth raw material-related problem of the Ayurvedic medicine manufacturing units. Cheap and dependable means and ways of transportation help to make available the raw material for production at the right time and in the right quality. Further, quality of easily perishable raw materials like medicinal

plants, which are to be processed at the earliest, depends heavily on timely transportation. Speedy transportation of raw materials is also impatant to meet demands for the medicines in time.

Table 5A. 6 displays the data related to the units which feel transportation easy and those which find it to be difficult. While 43 per cent of

Table 5A. 6

Transportation of Raw Materials

Size of the Units	Number of Units (In Percentage)				
	Very easy	Easy	Difficult	Very difficult	Row Total
L	14	43	29	14	100
M	18	23	41	18	100
S	5	8	68	19	100
Column Total	10	17	55	18	100

Source: Survey data

the large sized units opines that transportation of raw materials is either difficult or very difficult, 59 per cent of the medium sized units and as high as 87 per cent of the smaller ones come under this category. There are only 5 per cent of the small units which transport raw materials very easily.

Inadequate facilities to store raw materials is identified in the survey as the seventh problem related to raw materials. Facilities of storage protect medicinal plants from contamination, exposure to sunlight and rain. These also protect the units from animals like rats from being eaten away or otherwise

destroyed. Unless these are observed and taken care of, the quality and efficacy of the Ayurvedic medicines might be adversely affected.

As is evident from Table 5A. 7, nearly 50 per cent of the units finds that their storage facility for raw materials is either insufficient or very much

Table 5A. 7

Sufficiency of Storage Facility of Raw Materials

Size of the Units	Number of Units (In Percentage)				
	Very much sufficient	Sufficient	Insufficient	Very much insufficient	Row Total
L	14	28	44	14	100
M	0	46	36	18	100
S	27	32	30	11	100
Column Total	17	36	33	14	100

Source: Survey data

insufficient. A substantial portion of 68 per cent of the large units experiences this situation. Size-wise analysis reveals that the number of medium sized units is more than the smaller ones and the number of large units is more than the medium sized ones in terms of insufficiency of storage facilities.

Delay in supplying raw materials from the source also poses difficulties in the production of medicines in time. It is the eighth problem faced by the units in relation to raw materials. It is due to the irresponsibility of the suppliers in carrying out orders properly. Table 5A. 8 shows the frequency of supply of raw materials from the suppliers in time.

Table 5A. 8

Frequency of Supply of Raw Materials in Time

Size of the Units	Number of Units (In Percentage)				
	Always	**Frequently**	**Rarely**	**Never**	**Row Total**
L	0	57	43	0	100
M	4	41	55	0	100
S	0	35	59	6	100
Column Total	2	39	56	3	100

Source: Survey data

Majority (i.e. 59 per cent) of all the units gets the supply in time either rarely or never. A substantial part (i.e. 65 per cent) of the small units falls under this class. The corresponding figure for medium and large sized units are 55 per cent and 43 per cent respectively. The production and marketability of these units are badly affected by this.

High purchase cost is pointed out as the ninth problem for majority of the Ayurvedic medicine manufacturing units in relation to raw materials. Cost of raw materials constitutes a substantial portion of cost of production of Ayurvedic medicines as was opined by manufacturers of long years experience of the study area. Scarcity of raw materials coupled with delay in supply and high purchase cost compel most of them either to use low-priced substitutes or not to use them. These substitutes, most of the time, are not materials of equivalent quality and specifications, but are materials to provide the same flavour of the original ones.

Table 5A. 9 reveals how the manufacturing units respond to the purchase cost they are required to pay. High purchase cost is to be paid by

Table 5A. 9

Purchase Cost of Raw Materials

Size of the Units	Number of Units (In Percentage)			
	High purchase cost	**Moderate purchase cost**	**Low purchase cost**	**Row Total**
L	58	28	14	100
M	73	23	4	100
S	68	27	5	100
Column Total	68	26	6	100

Source: Survey data

68 per cent of the units compared to the marketing price prevailing in the country for most of the raw materials. Since large units have comparatively better material management system, only 58 per cent of them makes the complaint of high cost. Most of them have the infrastructure facilities to procure the materials from place where they are available at competitive prices.

Material management system to precure the raw materials at competitive prices being poor for medium and small sized units, 73 per cent and 68 per cent respectively of them have to pay high purchase cost. Only 6 per cent of all the units opine that they are required to pay low cost.

The foregoing discussion reveals that raw materials have been one of the important problem areas of Ayurvedic medicine manufacturing units. An attempt is made to analyse the problems related to production in the following pages.

PROBLEMS RELATED TO PRODUCTION

A number of problems do exist in the production area of the Ayurvedic medicine manufacturing units. They relate to extent of mechanisation of processes, state of production technology, production capacity utilized, quality control of finished products and number of P & P medicines.

Analysis of mechanisation of processes by the units reveals that there is no unit in the study area which has all the processes mechanised (Table 5A. 10).

Table 5A. 10

Extent of Mechanisation of Processes

Size of the Units	Number of Units (In Percentage) with the Extent of Mechanisation					
	Upto 25%	26% - 50%	51% - 75%	76% and above but below 100%	100%	Row Total
L	0	0	0	100	0	100
M	0	18	41	41	0	100
S	5	62	30	3	0	100
Column Total	3	41	30	26	0	100

Source: Survey data

Only the large units have more than 75 per cent of all the procesesses mechanised. A substantial portion of the small sized units (comprising 67 per cent) has mechanisation upto the extent of 50 per cent of the total processes only.

Verification of state of production technology in comparison with industry standards indicates that majority of the units still makes use of out-dated technology and a good number utilizing only current technology. This has been the second production-related problem of the Ayurvedic medicine manufacturing units.

Table 5A. 11 reveals the state of production technology of the units in comparision with industry standards. The technology in tune with the recent innovations and the one developed by the individual units in their R & D department to suit their requirements is taken as the state of the art technology. The technology with reasonable mechanisation without taking much effort to optimise production and marketing activities is considered current technology and one which falls below this level of standard is deemed out-dated technology.

Table 5A. 11

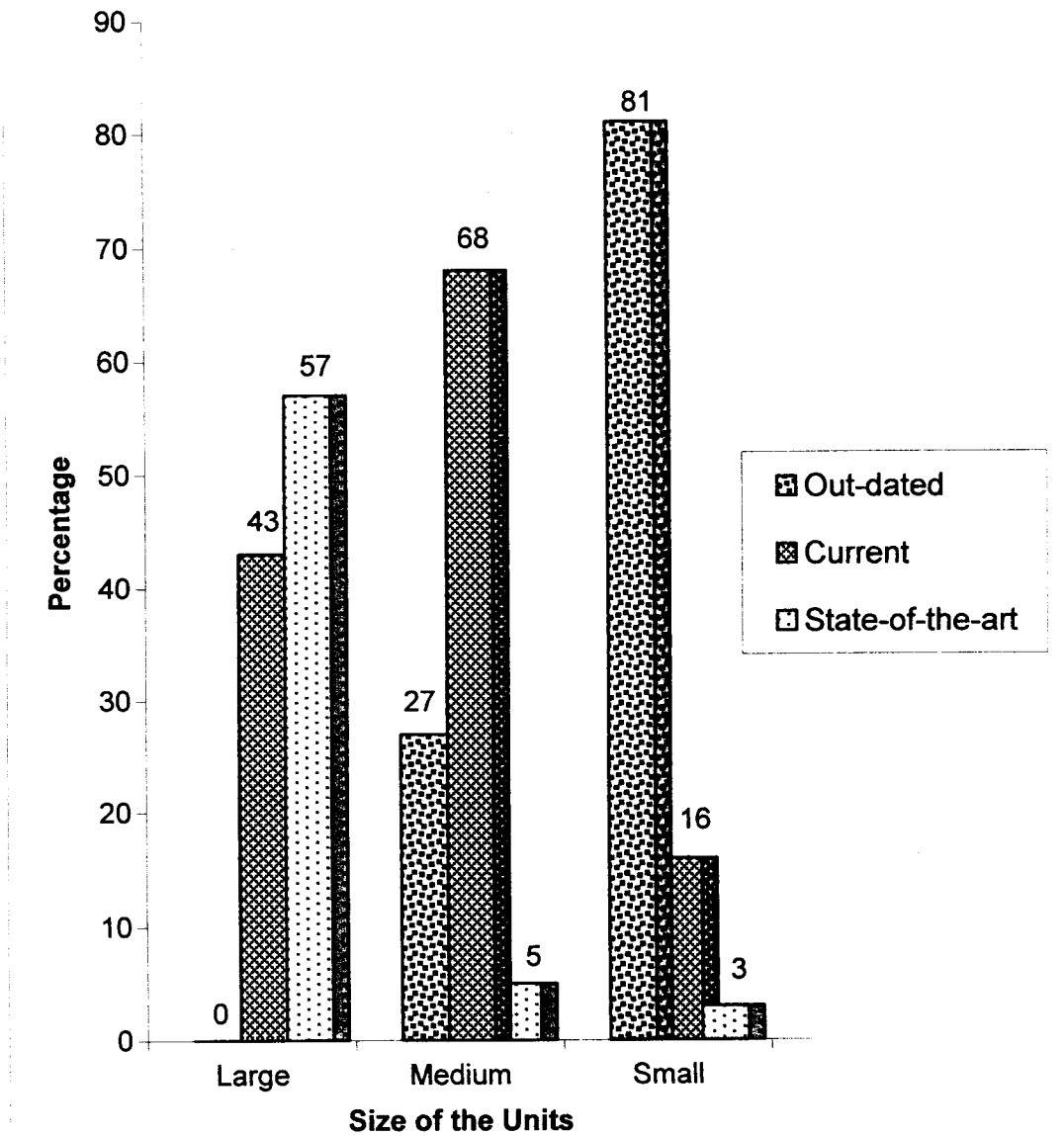
State of Production Technology

Size of the Units	Number of Units (In Percentage)			
	Out-dated	**Current**	**State-of-the-art**	**Row Total**
L	0	43	57	100
M	27	68	5	100
S	81	16	3	100
Column Total	55	36	9	100

Source: Survey data

As is evident from the table, 81 per cent of the small sized units operates with out-dated production technology. The portion of medium sized units which belong to this group is 27 per cent. Nearly half of all the large units and as high as 68 per cent of medium sized units carry on their business using current technology only. Though 57 per cent of the large units adopt state-of-the-art technology, only 5 per cent and 3 per cent of the medium and small sized units respectively are able to utilize this technology. Figure 5A.2 explains the details given in Table 5A. 11.

Figure 5A.2
State of Production Technology



Production Capacity Utilized

Utilizing the available production capacity fully enhances the production efficiency and minimises cost of production. Inability to utilize the production capacity fully is the third production-related problem. No unit of the study area utilizes cent per cent production capacity as is evident from Table 5A. 12.

Table 5A. 12

Production Capacity Utilized

Size of the Units	Number of Units (In Percentage) with theUtilization of Production Capacity					
	Upto 25%	26% - 50%	51% - 75%	76% and above but below 100%	100%	Row Total
L	0	14	58	28	0	100
M	0	14	44	42	0	100
S	3	13	43	41	0	100
Column Total	2	14	45	39	0	100

Source: Survey data

Only 39 per cent of the total units is in a position to utilize the production capacity ranging between 76 per cent and above but below 100 per cent. As low as 14 per cent each of the large units and medium sized units and 13 per cent of the small units utilize 26 to 50 per cent of their installed capacity only. An analysis of the relevant figures of the table indicates that production efficiency of all the units including the larger ones is poor. It brings the cost of production at a higher level and which, in turn, may affect the competitiveness of the units.

The reasons for the under-utilization of production capacity are given in Table 5A. 13. Ranking method is applied to assess the most probable reasons. The table shows the number of units which place first rank against each of the reasons.

Table 5A. 13

Reasons for Under-utilization of Production Capacity

Reasons	Number of Units (In Percentage)			
	L	M	S	Row Total
Scarcity of raw materials	14	36	22	26
Financial problems	29	27	43	36
Labour problems	0	0	0	0
Uncertainty of power	0	5	0	2
Substandard machinery	14	0	5	4
Lack of demand	43	32	30	32
Column Total	100	100	100	100

Source: Survey data

The most important problem responsible for under-utilization of production capacity is financial problem. Nearly half of the small units (i.e., 43 per cent) placed first rank against this problem. The second most felt problem is lack of demand. This is the most keenly felt problem for 43 per cent of the large units. As 26 per cent of all the units places first rank against scarcity of raw materials, this is considered the third keenly felt problem of the units.

Quality control of finished products (i.e., Ayurvedic medicines) by employees other than physicians is identified as the next production-related

problem of the units. Checking quality of the finished products of an Ayurvedic medicine manufacturing unit is carried out by Ayurvedic physicians, other employees of the organisation or chemical tests. Experts in the field of Ayurvedic medicine manufacturing opined that availing services of physicians is the most preferred method of quality control followed by chemical tests. Availing services of other employees is the least preferred method because their service cannot be considered as authentic unless they are professionally qualified and experienced personnel.

Table 5A. 14 displays the data related to quality control of finished products of the units in the study area. Though most of the units avail physicians' service the most for quality control, their proportion comes to be

Table 5A. 14

Quality Control of Finished Products

Size of the Units	Number of Units (In Percentage)			
	Physicians	**Other Employees**	**Chemical Test**	**Row Total**
L	28	44	28	100
M	36	55	9	100
S	54	38	8	100
Column Total	45	44	11	100

Source: Survey data

only 45 per cent of the total units. Chemical test is carried out by only 8 per cent and 9 per cent of the small and medium sized units respectively. The least preferred method of quality control, i.e., inspection by other employees is adopted by 55 per cent of the medium sized units.

The number of P & P medicines manufactured by an Ayurvedic medicine manufacturing unit is a yardstick for measuring the competitiveness of the unit. A very limited number of P & P medicines that could be manufactured by the units has been found to be one of the problems in relation to production. P & P medicines are the medicines developed in the R & D wing of the Ayurvedic medicine manufacturing units. Unlike the classical medicines which can be manufactured by any unit which has a licence, manufacture of P & P medicine is the exclusive right of the unit which develops it.

As is evident from Table 5A. 15, no unit has more than twenty P & P medicines though the total number of medicines manufactured by some units is

Table 5A. 15

Distribution Showing P & P Medicines Manufactured

Number of P & P Medicines	Number of Units (In Percentage)			
	L	M	S	Row Total
1-10	30	45	24	32
11-20	14	0	0	2
Nil	56	55	76	66
Column Total	100	100	100	100

Source: Survey data

more than 600. In the case of medium sized and small sized units, the number of P & P medicines does not exceed 10. A substantial portion of different categories of units does not manufacture any P & P medicine. The portions of

the large, medium and small sized units which do not manufacture any P & P medicine are 56 per cent, 55 per cent and 76 per cent respectively.

The analysis of data in the just concluded pages indicates that the Ayurvedic medicine manufacturing units, especially the smaller ones, face some problems in relation to mechanisation of processes, out-dated production technology and lower number of P & P medicines manufactured. Utilization of full production capacity has been at a lower level for large units and standard of quality control of medicines poor for the large and medium sized units. The following pages point to the financial problems of the Ayurvedic medicine manufacturing units.

FINANCE

The discussion on raw materials and production indicates that finance is a marketing function of the units which significantly influences the supply of raw materials and utilization of production capacity. Hence, it would be imperative to verify the important financial problems of the units. In the following paragraphs, problems related to sectioning of loans, repayment of loans taken, frequency of clearing dues by debtors and bad debts are being analysed.

The problems faced by the units in relation to sanctioning of loans from banks and other financial institutions are delay in sanctioning, inadequate collateral securities and too many formalities for sanction. Table 5A. 16 reveals that inadequate collateral securities and delay in sanctioning are found to be the prominent problems.

Table 5A. 16

Problems Related to Sanctioning of Loans

Problems	Number of Units (In Percentage)			
	L	M	S	Row Total
Delay in sanctioning	58	54	16	33
Inadequate collateral securities	14	23	68	47
Too many formalities for sanction	28	23	16	20
Column Total	100	100	100	100

Source: Survey data

The proportion of the manufacturers who consider inadequate collateral securities with them to take loans is 47 per cent and proportion of those who think delay in sanctioning loans as their financial problem is 33 per cent. Problem related to majority of the small scale units (i.e., 68 per cent) is inadequate collateral securities. Delay in sanctioning is the major problem of large and medium sized units. The percentages of large and medium sized units which face this problem are 58 per cent and 54 per cent respectively.

The units of the study area which face difficulties in making timely repayment of the loans as is depicted in Table 5A. 17. It was observed during

Table 5A. 17

Frequency of Repaying Loans in Time

Frequency of Repayment	Number of Units (In Percentage)			
	L	M	S	Row Total
Always repaid	0	14	19	15
Frequently repaid	57	68	43	53
Rarely repaid	43	14	33	27
Never repaid	0	4	5	5
Column Total	100	100	100	100

Source: Survey data

the survey that all the units, irrespective of size, had taken one or more loans. Table 5A. 17 reveals that the percentages of the units which rarely or never repaid the loans taken in time is 32 per cent. The proportion of the large units which rarely repaid i.e., 43 per cent is nearly half their total number and the corresponding percentage for small units is 33 per cent.

Inability of the units in collecting dues from the debtors in time is recognized as the third financial problem. Debtors clearing their dues within the allowable credit period or earlier would enhance the quantum of liquid cash available to the business for meeting various expenditures including repayment of loans. Table 5A. 18 depicts the ability of the Ayurvedic medicine manufacturing units in collecting dues from their debtors in time.

Table 5A. 18

Frequency of Clearing Dues by Debtors in Time

Frequency	Number of Units (In Percentage)			
	L	M	S	Row Total
Always cleared	14	5	8	8
Frequently cleared	43	41	41	41
Rarely cleared	43	54	51	51
Never cleared	0	0	0	0
Column Total	100	100	100	100

Source: Survey data

Units comprising 51 per cent rarely got payment from the debtors in time. Though the respective percentage in relation to large units is 43 per cent, it is 54 per cent in the case of medium sized units. Only 8 per cent of all the units could always clear the dues in time.

Like the ability to secure dues from debtors, the percentage of bad debts and provision for bad debts to sundry debtors is also an indication of the efficiency with which the units are able to manage debtors. The survey revealed that more than half the total number of the units (i.e., 55 per cent) have this percentage between 26 and 50 as is given in Table 5A. 19.

Table 5A. 19

Bad Debts and Provision for Bad Debts

Percentage of Bad Debts and Provision for Bad Debts to Sundry Debtors	Number of Units (In Percentage)			
	L	M	S	Row Total
0% - 25%	71	36	32	38
26% - 50%	29	64	54	55
51% - 75%	0	0	14	7
Column Total	100	100	100	100

Source: Survey data

The percentages of the medium and small sized units which fall under the class 26 per cent to 50 per cent are 64 and 54 respectively. This means that a substantial part of the medium and small sized units are unable to collect properly the dues from nearly half of the total debtors. The large units are in a better position as there is only 29 per cent of them falling under this class.

The last few pages of this chapter help to identify the financial problems of the Ayurvedic medicine manufacturing units. In the following pages, personnel problems of the units are being analysed.

PERSONNEL

As personnel problems are closely associated with and cannot be segregated from problems related to raw materials, production and finance, the analysis of general problems of the Ayurvedic medicine manufacturing units would not be complete unless a discussion is made on personnel problems. In the following paragraphs, personnel problems related to rates of wages, occurrence of labour strikes, closure due to labour unrest, absenteeism and labour turnover are being discussed.

To retain the existing labour force, especially the more efficient labourers, the management of every organisation need to fix wage rates at optimum level which should neither be too high to afford nor at a very low level. Optimum level of wage rates is determined on the basis of various factors such as nature of the work, locality of the unit, rates applicable to similar businesses, minimum wages payable under various laws, etc. The data related to the manufacturing units of the study area are analysed after considering these factors. The result of this analysis is displayed in Table 5A. 20.

Table 5A. 20
Distribution Showing Level of Wages Paid

Level	Number of Units (In Percentage)			
	L	M	S	Row Total
High	58	82	76	76
Optimum	14	18	13	15
Low	28	0	11	9
Column Total	100	100	100	100

Source: Survey data

As is evident from the table, optimum level of wages is paid by 15 per cent of the units only. More than three-fourths (i.e., 76 per cent) of the units pay higher wages. This may result in increased cost of production and hence lower profits. Medium sized units also may be facing such a situation as 82 per cent of them is to pay high wages. But, none of them ever paid low wages. The percentage of large sized units which had to pay low wages (28 per cent) is nearly three times the low wages paid by the small units.

Occurrence of labour strikes directly affects the smooth functioning of an organisation, especially production activities. It has been identified as the second personnel problem of the units. Table 5A. 21 shows the frequency of occurrence of labour strikes within the Ayurvedic medicine manufacturing units. The occurrence is measured on a four-point scale, viz., very often, often, sometimes and never.

Table 5A. 21

Frequency of Occurrence of Labour Strikes

Frequency	**Number of Units (In Percentage)**			
	L	**M**	**S**	**Row Total**
Very often	0	0	0	0
Often	28	0	11	9
Sometimes	58	68	59	62
Never	14	32	30	29
Column Total	100	100	100	100

Source: Survey data

Though 29 per cent of the units had never faced the problems related to labour strikes, 62 per cent sometimes had it. More than half the number of all categories of units are subject to such problems. As high as 86 per cent of the large units often or sometimes had the bitter taste of labour strikes. This is the highest for all the categories of units.

Closure of the units is for sometime had been recognized as the third problem in connection with labour. Closure for a substantially long time usually happens due to labour problems especially in the State of Kerala where trade unionism is stronger. To assess the extent to which such closures affect the working of the units, four-point scale analysis is adopted.

Table 5A. 22 indicates that 50 per cent of the units sometimes closed down their shutters. Almost the same percentage of all the categories of units showed this frequency. However, there are some units belonging to the small

Table 5A. 22

Frequency of Closure Due to Labour Problems

Frequency	Number of Units (In Percentage)			
	L	M	S	Row Total
Very often	0	0	0	0
Often	0	0	11	6
Sometimes	43	55	49	50
Never	57	45	40	44
Column Total	100	100	100	100

Source: Survey data

sized category (i.e.,11 per cent) who had to often close down. Closing down often or very often is to be addressed seriously as this would interrupt production and marketing for a pretty long period though not continuously.

Absenteeism every now and then can also be considered as a temporary labour strike particularly in the case of small and medium sized units where number of workers is very limited. If the absenteeism is concerned with the skilled staff, the problem is further aggravated. The frequency of absenteeism may be considered under controllable limits in the case of large units as is indicated by Table 5A. 23. All the large units never or sometimes experienced this problem. 57 per cent of these units never experienced absenteeism as a problem. The reason could be the fear of loss of jobs by the employees of large units which are comparatively secured in relation to the jobs of other categories of units.

Table 5A. 23

Frequency of Absenteeism of Labourers

Frequency	Number of Units (In Percentage)			
	L	M	S	Row Total
Very often	0	18	11	12
Often	0	27	16	18
Sometimes	43	46	27	35
Never	57	9	46	35
Column Total	100	100	100	100

Source: Survey data

The case with medium sized units is the worst as far as absenteeism is concerned. Nearly 50 per cent of them experienced absenteeism very often or often. The respective percentage is 27 per cent only for small units. The reason attributable to this phenomenon could be the close personal relationship between the owners of the small units and the employees and hence feeling the pulses of motivation clearly. It could also be an indication of less satisfied employees of medium sized units though the wages paid by them are the highest (see Table 5A. 20 also).

High rate of labour turnover is another personnel problem interrupting smooth functioning of a business. It is an indication of dissatisfaction among the employees. Table 5A. 24 displays the data related to the rate of labour turnover which strengthens the interpretation of the previous table that the number of dissatisfied employees is higher in medium sized units. Rate of

Table 5A. 24

Distribution Showing Rate of Labour Turnover

Rate	Number of Units (In Percentage)			
	L	M	S	Row Total
High	14	68	54	54
Normal	58	23	27	29
Low	28	9	19	17
Column Total	100	100	100	100

Source: Survey data

labour turnover is the highest in medium sized units (i.e., 68 per cent) compared to other categories of units. Small sized units are just behind the

medium sized ones. The percentage of these units which experienced high rate of labour turnover is 54.

The percentage of total units which experience normal rate of labour turnover is 29 only. The large units are far better than the other two categories as 58 per cent of the large units recorded normal rate of labour turnover. Normal labour turnover is the turnover that can be expected within a category of units under conditions of maximum production efficiency.

Analysis of the data related to personnel problems focuses on the uneconomical wage structure, the need to manage labour strikes, frequency of absenteeism of labourers and high rate of labour turnover.

Foregoing discussion on general problems of the Ayurvedic medicine manufacturing units threw some hight to the intensity of the general problems experienced by the different categories of units, viz., large, medium and small sized units. An attempt is made to analyse the marketing problems faced by these categories of units under Section B.

SECTION-B
MARKETING PROBLEMS

General problems of Ayurvedic medicine manufacturing units and the marketing problems thereof are complementary to each other. Section A of the present chapter analysed the general problems which indicates that possibilities of the presence of marketing problems of the units cannot be ruled out.

The marketing problems faced by the Ayurvedic medicine manufacturing units are analysed in the following pages. The problems are grouped under the heads product, price, place and promotion. Some problems which cannot be grouped in this way are discussed first. They relate to the conducting of market study, assessing market share, segmenting the total market and degree of competition between the units.

Prior to the commencement of business operations, market study is essential and an Ayurvedic medicine manufacturing unit is not an exception. An in-depth enqiury into the needs and wants of the consumers requires market study. Market study helps to formulate the policies of the organisation to achieve its objectives through creating satisfied consumers.

Table 5B. 1 reveals which units of the study area conduct market study. It can be observed that only 33 per cent of the units conducts any market study.

Table 5B. 1

Distribution Showing Market Study Conducted

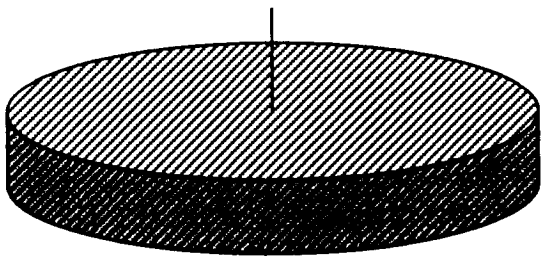
Market study	**Number of Units (In Percentage)**			
	L	**M**	**S**	**Row Total**
Conducted	100	55	8	33
Not conducted	0	45	92	67
Column Total	100	100	100	100

Source: Survey data

Category-wise distribution indicates that the percentage of small sized units which do not conduct the study is as high as 92 per cent. Nearly half the total number of medium sized units (i.e., 45 per cent) also do not conduct any market study. The units which conduct market study can also be explained with the help of Figure 5B.1.

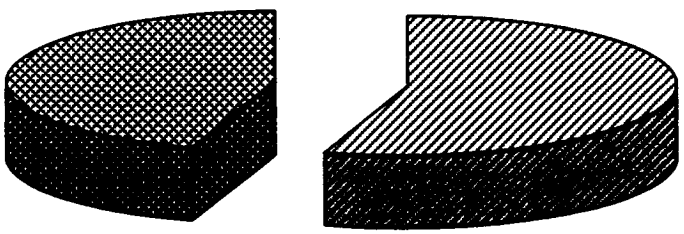
Figure 5B.1
Distribution Showing Market Study Conducted by the Units

Large Sized Units



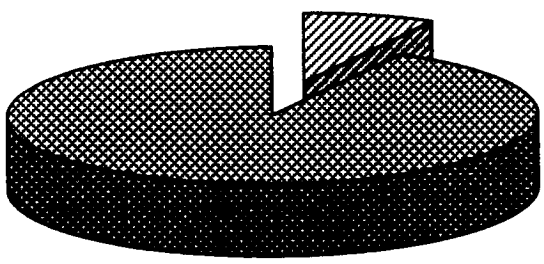
Market study conducted Market study not conducted

Medium Sized Units



Market study conducted Market study not conducted

Small Sized Units



Market study conducted Market study not conducted

For assessing the market share of each unit, the area of market is limited to the northern region of Kerala. Attempt was made to identify approximately the share in terms of value of sales turnover of each unit to the total value of sales turnover of all the units in the area for the year 2002 -`03.

Analysis of the data reveals that only 3 per cent of the units assesses their market share. These units are large sized units belonging to Thrissur and Malappuram Districts. It constitutes nearly 29 per cent of this category of units. This indicates that even the large sized units which have high potential to grow do not formulate clear-cut objectives to grow and compete with other units manufacturing similar medicines. Another reason behind this state of affairs can be that the number of medicines coming under each product line is so numerous and diversified that it would not be appropriate and would be difficult to compare the market share of a number of firms.

As to the initiative taken to segment the total market and thereby to assess the strengths and weaknesses of one's products also, the Ayurvedic medicine manufacturing units do not exhibit an appreciable attitude. It is observed on analysis of the data collected through the survey that only 11 per cent of the total units segmented the market (Table 5B. 2). Further, it is found

Table 5B. 2
Segmentation of Total Market

Total Market	**Number of Units (In Percentage)**			
	L	**M**	**S**	**Row Total**
Segmented	43	18	0	11
Not segmented	57	82	100	89
Column Total	100	100	100	100

Source: Survey data

that no small sized unit attempts to market segmentation. The percentage of medium sized units which segmented the total market is an low as 18 per cent. Even for the large units, the proportion of the units which segment the total market is nearly 45 per cent.

Assessing competition from similar units is a part of marketing stragegy. The data related to competition is given in Table 5B. 3 which shows that 57 per cent of the large sized units compete with each other. Only 23 per cent

Table 5B. 3

Distribution Showing Competition Faced

Number of Units with which to Compete	Number of Units (In Percentage)			
	L	M	S	Row Total
Nil	57	23	19	24
1-5	43	77	81	76
Column Total	100	100	100	100

Source: Survey data

of the medium sized units compete with the same category of units. The percentage is as low as 19 in relation to the small units which compete with each other. This indicates that the degree of competition is low among the Ayurvedic medicine manufacturing units especially the medium sized and small sized units. It can also be pointed out that the competition is only between a number of units not exceeding 5.

Having analysed the problems in relation to market study, market share, market segmentation and extent of competition among the units, the other marketing problems of the Ayurvedic medicine manufacturing units are

discussed in the following pages. They are the problems related products, price, place and promotion.

PROBLEMS RELATED TO PRODUCTS

Branding is one of the problem areas in relation to marketing of Ayurvedic medicines. It, sometimes, ensures better acceptability of the medicines by the consumers than their good quality and other special features.

The Ayurvedic medicine manufacturing units of the study area are not keen in getting their products branded. As is shown in Table 5B. 4, 56 per cent of the manufacturers do not make any attempt to get any of their products

Table 5B. 4

Units Having Branded Products

Products	Number of Units (In Percentage)			
	L	M	S	Row Total
Branded*	71	59	30	44
Unbranded**	29	41	70	56
Column Total	100	100	100	100

* Anyone or more of the products
** All the products
Source: Survey data

branded. A substantial portion of the small units (i.e., 70 per cent) comes under this group. Nearly the same percentage (i.e., 71 per cent) of the large units, on the other hand, brand one or more of their products.

Problem related to packaging is the second product-related problem of the Ayurvedic medicine manufacturing units of the study area. It is the

marketing activity and decision involved in providing an appropriate package, container or wrapper for a product to protect it from spoilage, leakage, etc. In addition to the obvious purpose of containing the products, packaging gives a way to present a manufacturer's products to potential buyers.

Except for a few units, all the manufacturers of Ayurvedic medicines use breakable glass containers for packaging medicines especially those medicines which are in liquid or semi-liquid form. There are chances of breaking of these containers during distribution and handling. Not only that these containers are identical in nature and are not capable of enhancing the image of the manufacturer. A few manufacturers find plastic bottles, containers or wrappers as packaging materials. But, these containers may spoil the medicines which contain alcohol and naturally developed chemicals.

The data related to packaging research gives an idea about how keen the Ayurvedic medicine manufacturing units are in formulating packaging policy. Table 5B. 5 indicates that 89 per cent of the units has not yet conducted such a

Table 5B. 5

Distribution Showing Units Conducting Packaging Research

Packaging Research	Number of Units (In Percentage)			
	L	M	S	Row Total
Conducted	43	18	0	11
Not conducted	57	82	100	89
Column Total	100	100	100	100

Source: Survey data

research. All the small units and more than 80 per cent of the medium sized units and nearly 60 per cent of the large units come under this category. The

units which conducted the research depended external agencies for the purpose. The result in such cases may not be accurate as the research conducted by the units themselves.

Labelling, which is essentially a part of packaging, is the third element of an Ayurvedic medicine where some problems exist. Label is an absolute necessity for some products, especially medicines. One of the important functions of a label is to provide verbal information about the composition of the product, its usage, price, description of the manufacturer, etc. It is essentially a part of package.

No special policies are formulated by the Ayurvedic medicine manufacturing units to make labelling of classical medicines attractive and complete. In the case of these medicines, the existing rules do not make it obligatory on the part of the manufacturing units to provide information related to the product, its composition, usage, dosage etc. because all these are prescribed in the *yogas* (specifications) stipulated by the old *rishis*. These are made obligatory in the case of P & P medicines only. Table 5A. 15 given earlier shows the units which marketed P & P medicines. These units made no special effort of their own to develop the label in their own R & D. The study revealed that not more than 10 per cent of the total units developed a level of standard quality in the opinion of experts in the field.

Standardiasation is another product-related problem of the Ayurvedic medicine manufacturing units. It is the process involved in establishing

standards to the medicines with a view to ensure their efficacy in curing diseases. The standardisation of Ayurvedic medicines requires undergoing tests of specific identity and purity of the ingredients.

Most of the Ayurvedic medicine manufacturing units in the study area do not have the facility to test the potential of the medicines. The potential is the efficacy in curing diseases. Table 5B. 6 gives the data related to the number of units which have sufficient facility to test efficacy and hence facility of standardisation.

Table 5B. 6

Facility to Standardise Medicines

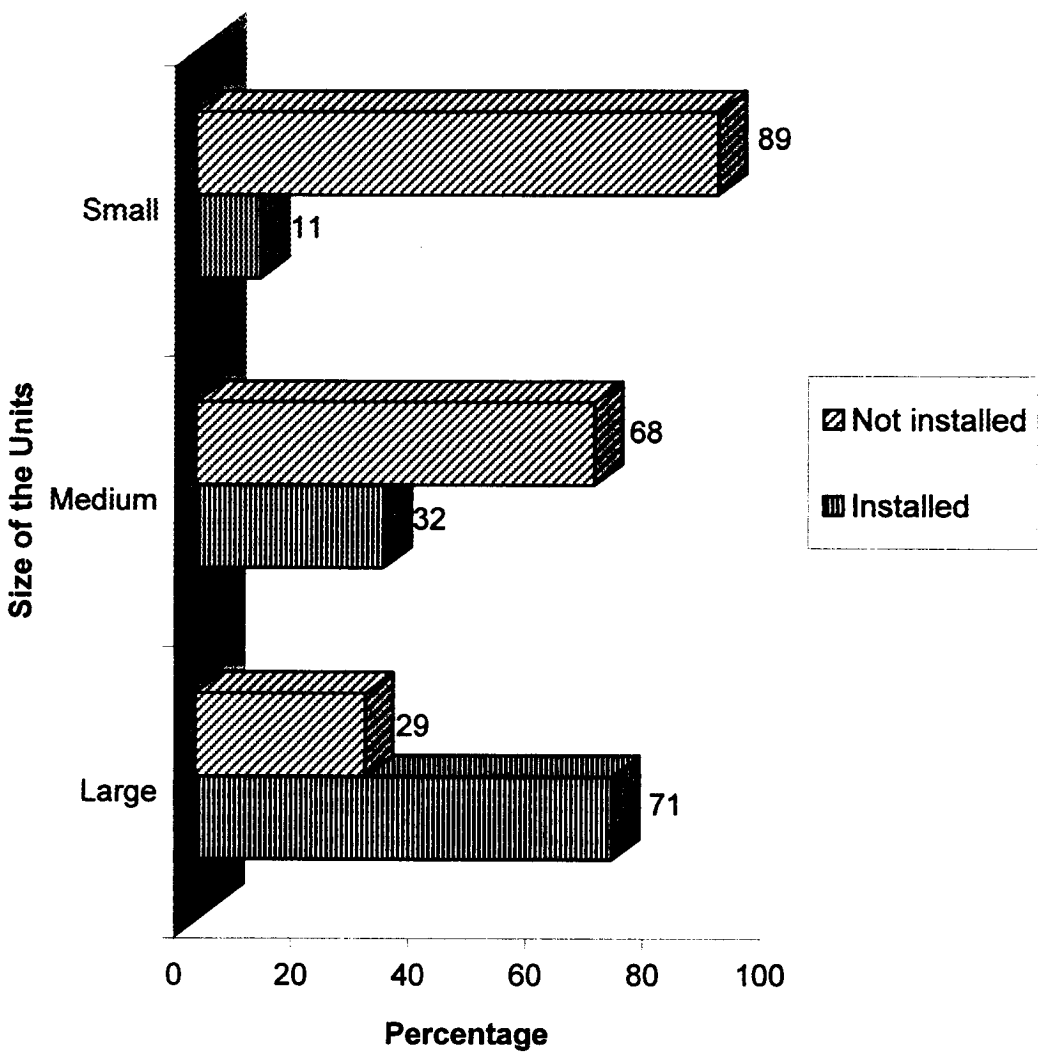
Facility	Number of Units (In Percentage)			
	L	M	S	Row Total
Installed	71	32	11	24
Not installed	29	68	89	76
Column Total	100	100	100	100

Source: Survey data

More than 75 per cent of the units does not have the facility. The corresponding figure is 89 per cent for the small units and 68 per cent for the medium sized ones.

The number of units which have installed sufficient facility for standardisation of medicines is shown in Figure 5B. 2.

Figure 5B.2
Facility to Standardise Products in Different Categories of Units



Having discussed the marketing problems related to the medicines of the units, analysis of the problems related to price is being attempted to in the following pages.

PROBLEMS RELATED TO PRICE

Arriving at the right price of an Ayurvedic medicine involves examining a number of factors affecting pricing decisions. These factors in relation to the Ayurvedic medicine manufacturing units of the study area are being analysed in the following paragraphs.

The traditional method of fixing price is arriving at the cost per unit of an Ayurvedic medicine and adding a desired profit margin. Most of the units of the study area adopt cost plus profit method as is evident from Table 5B. 7.

Table 5B. 7

Number of Units Adopting Cost Plus Profit Method

Cost Plus Profit Method	Number of Units (In Percentage)			
	L	M	S	Row Total
Adopted	86	82	95	89
Not adopted	14	18	5	11
Column Total	100	100	100	100

Source: Survey data

The table shows that 89 per cent of the units rely on cost to fix the price of the medicines. This practice is more common for small units followed by large units. The percentage of small units adopting the pricing is as high as 95 per cent. The figure for large units is 86 per cent. More than 80 per cent of the

medium sized units also adopts this method. In the opinion of experts, these units could have depended more on other methods of pricing used in modern time so that competitiveness of the units could be improved without affecting quality and efficacy of the medicines.

Table 5B. 8 shows the data related to the number of medicines for which cost plus profit method is adopted. It indicates the importance of this method

Table 5B. 8

Medicines Under Cost Plus Profit Method

Number of Medicines	Number of Units (In Percentage)
1-100	41
101-200	36
201-300	18
301-400	3
401-500	2
Column Total	100

Source: Survey data

to the units of the study area. It points to the fact that 95 per cent of the units adopted this method for a number of medicines not exceeding 300.

Demand-based pricing is the method of pricing adopted by some of the Ayurvedic medicine manufacturing units. This method involves a manufacturer fixing a price as high as possible enabling him to earn exorbitant profits as long as the consumers of the target market are willing to pay any price to get a medicine. This demand is based on a number of factors like the quality of the product, the acceptance of the brand name, the image of the marketer, promotional activities and perceptions and tastes of the consumers.

Table 5B. 9 reveals that nearly three-fourths of the units (i.e., 74 per cent)

Table 5B. 9

Number of Units Adopting Demand-based Pricing Method

Demand-based Pricing Method	Number of Units (In Percentage)			
	L	M	S	Row Total
Adopted	43	36	16	26
Not adopted	57	64	84	74
Column Total	100	100	100	100

Source: Survey data

does not adopt demand-based pricing method. The category-wise percentages of the units which do not adopt demand-based pricing method are 57, 64 and 84 for large, medium and small sized units respectively. The percentages are substantially high especially for medium and small sized units. This indicates that these units fail to take advantage of demand-based pricing.

Analysis of the number of medicines for which demand-based pricing is made applicable would give a more vivid picture of adoption of this method of pricing. Table 5B. 10 reveals the details of the units which adopt the method.

Table 5B. 10

Medicines Under Demand-based Pricing Method

Number of Medicines	Number of Units (In Percentage)
1-50	100
Above 50	Nil
Total	100

Source: Survey data

It indicates that these units have not more than 50 medicines which are subject to demand-based pricing. Among them 85 per cent do not have more than 5 medicines priced under the method.

Another factor influencing price of Ayurvedic medicines is competition from other manufacturers producing similar products. A manufacturer has to analyse how the competitor prices his products and how he behaves in a given situation. If a manufacturer effects any change in price to gain market share, it may be followed by a similar change in the price in the competitor's medicine. So before formulating any pricing policy, the manufacturer has to anticipate the competitor's response.

Analysis of the data related to pricing of the Ayurvedic medicine manufacturing units reveals that only 30 per cent of the units adopt competition based pricing method (Table 5B. 11). Respective percentages for large,

Table 5B. 11

Number of Units Adopting Competition-based Pricing Method

Competition-based Pricing Method	Number of Units (In Percentage)			
	L	M	S	Row Total
Adopted	43	36	24	30
Not adopted	57	64	76	70
Column Total	100	100	100	100

Source: Survey data

medium and small sized units are 43, 36 and 24. Even for the large units, the percentage does not exceed 50. The proportion of small sized units is as low as 24 per cent. This means that most of the units are not keen in increasing profitability and market share. The earlier discussion under the head

product strengthens that majority of the units are not interested in assessing their market share.

The number of medicines for which competition-based pricing is applicable is depicted in Table 5B.12 which also shows that the units are not very much inclined to compete with similar manufacturers. All the units which adopt this pricing method have not more than 25 medicines. In this, 75 per cent does not have more than 10 medicines.

Table 5B. 12
Medicines Under Competition-based Pricing Method

Number of Medicines	Number of Units (In Percentage)
1-25	100
Above 25	Nil
Column Total	100

Source: Survey data

The fourth factor which influence pricing decisions of Ayurvedic medicines is their positioning. Ayurvedic medicine manufacturers often use price as a means of positioning their products in the minds of potential consumers. Some consumers perceive that high prices are associated with quality, prestige or exclusivity and the manufacturers use premium prices to foster those images. Other manufacturers need to lower the prices in order to obtain the advantage of positioning. The third alternative before them is maintaining a mid-range position on price.

Table 5B. 13 depicts the picture of the number of Ayurvedic medicine manufacturing units which resort to positioning as a method of pricing to

achieve desired marketing objectives. It can be observed that 86 per cent of the units is not interested in positioning. Almost 90 per cent of the small units is

Table 5B. 13
Adoption of Positioning as a Method of Pricing

Positioning	Number of Units (In Percentage)			
	L	M	S	Row Total
Adopted	29	14	11	14
Not adopted	71	86	89	86
Column Total	100	100	100	100

Source: Survey data

not interested in positioning. More than 70 per cent of the large sized units is also not so inclined to positioning. Medium sized units are very near to the attitude exhibited by the small ones. 86 per cent of them does not adopt positioning as a method of pricing.

The number of medicines for which positioning is made applicable is given in Table 5B. 14. It shows that only upto 25 medicines are considered by the Ayurvedic medicine manufacturing units for positioning. There are two reasons behind this. First, the manufacturers might think that it would be

Table 5B. 14
Number of Medicines Under Positioning Method of Pricing

Number of Medicines	Number of Units (In Percentage)
1-25	100
Above 25	Nil
Column Total	100

Source: Survey data

unethical to position the price at premium level though it is learnt from experts that there is no severe price control measures on the part of various governments. Second, the manufacturers are not so keen in positioning.

Past discussion concentrated on the analysis of various problems and methods related to the fixation of price of Ayurvedic medicines. Another problem area in relation to the Ayurvedic medicine manufacturing units is physical distribution. The data coming under this head are being analysed in the following pages.

PROBLEMS RELATED TO PHYSICAL DISTRIBUTION

Place, also referred to as physical distribution, occupies an important position in marketing activities as a manufacturer cannot achieve his objectives unless the goods manufactured are delivered to the consumer. Physical distribution is regarded a necessary evil or a tactical problem as the costs involved for distribution are heavy especially for large Ayurvedic medicine manufacturing units who have to make available the medicines to consumers spread out in distant areas.

Unless the manufacturer is in a position to adjust distribution in accordance with the demand for medicines, some of the marketing opportunities may be lost.

The distribution of the Ayurvedic medicines involves a number of problems to be addressed. They are being analysed in the following paragraphs.

The first problem to be tackled in relation to physical distribution is order processing. The three steps or functions of order processing are receiving an order from a buyer, routing it to the proper supplying department of the

manufacturer and billing the buyer. The higher the efficiency with which orders are processed, the greater would be the satisfaction level of consumers.

Table 5B. 15 shows efficiency of order processing of the manufacturing units in the study area. Only 35 per cent of the units exhibit high or very high

Table 5B. 15

Efficiency of Order Processing

Efficiency of Order Processing	Number of Units (In Percentage)			
	L	M	S	Row Total
Very high	14	9	16	14
High	14	14	27	21
Average	28	41	41	39
Low	44	36	16	26
Column Total	100	100	100	100

Source: Survey data

efficiency. The percentages of medium and large sized units coming under these classes are as low as 23 and 28 respectively. Low efficiency of order processing is exhibited by 44 per cent of the large units.

Quality of inventory management is the second distribution related problem in relation to the Ayurvedic medicine manufacturing units. It is inevitable for an efficient distribution system to ensure good inventory management due to various reasons. Providing buffer stock for material shortages and price increase by suppliers of materials, maintaining a reserve for repair parts in the event of breakdown and maintaining production levels that ensure optimum use of people and equipments are some of the reasons. Too

little inventory results in a stockout, a situation in which the manufacturer is unable to meet consumer's orders. Too much inventory increases costs, because money is tied up in products that are finished but not sold.

The results of analysis of the level of inventory of the Ayurvedic medicine manufacturing units are depicted in Table 5B. 16.

Table 5B. 16

Level of Inventory

Level	Number of Units (In Percentage)			
	L	M	S	Row Total
High inventory	58	54	32	42
Optimum inventory	14	23	8	14
Low inventory	28	23	60	44
Column Total	100	100	100	100

Source: Survey data

As low as 14 per cent of the units keep optimum level of inventory. The percentage of small units coming under this class is 8 only. A good number of units are keeping high or low inventory.

Problems related to warehousing facility have been the third group of distribution-related problems of the units. Warehouse is used for facilitating the storage and sorting medicines manufactured and their transportation. The decision on warehousing is determined by cost concept and consumer satisfaction, i.e., a compromise between distribution cost and delivery time.

The nature of warehousing facilities of the units in the study area after considering cost concept and consumer satisfaction goals is displayed in Table 5B. 17. More than 80 per cent of the units have warehousing facilities at levels other than optimum level. Optimum level is the level at which

Table 5B. 17

Nature of Warehousing Facilities

Nature	Number of Units (In Percentage)			
	L	M	S	Row Total
Higher level	14	36	16	23
Optimum level	28	14	16	17
Lower level	58	50	68	60
Column Total	100	100	100	100

Source: Survey data

consumer satisfaction is maximum at a possible minimum level of cost. Category-wise analysis of the units shows that the small units which do not satisfy optimum level of warehousing facilities constitute 84 per cent. The percentage is at a higher level for medium sized units, i.e., 86 per cent. Even for the large units, the percentage is as high as 71 per cent.

The fourth distribution-related problem of the Ayurvedic medicine manufacturing units is transportation. Effective management of transportation requires management of its costs and minimising delivery time. Considering the geographical nature of the land in Kerala, truck is commonly used for transportation of Ayurvedic medicines. The categories of vehicles used for transportation posed problems.

The categories used have been owned vehicles, hired vehicles and parcel services. In them, the first two categories are meant for the distribution of the marketer's products only whereas the third one is a general or public carrier. The first one is comparatively cheaper, speedier and more convenient. Most of the time, the second category is the second most preferrable one as far as cost, speed and convenience are concerned. Results of the analysis of the categories of vehicles made use of by the marketers of the study area are given in Table 5B. 18.

Table 5B. 18

Categories of Vehicles Used for Distribution

Categories	Number of Units (In Percentage)			
	L	M	S	Row Total
Owned vehicles	20	29	11	19
Hired vehicles	20	42	61	49
Parcel services	60	29	28	32
Column Total	100	100	100	100

Source: Survey data

Marketers may make use of more than one category at a time. For the convenience of analysis, the details of those who make use of one category only are depicted in the table which may go wrong.

The table shows that the most dependable category, viz., owned vehicles, are made use of by 19 per cent of the units only. The percentage is only 11 per cent for small sized units and 20 per cent for large units. The same percentage of large units only make use of hired vehicles. Taking all the units together, the second most preferred category of vehicles, i.e., hired vehicles,

are made use of by nearly 50 per cent of the units. The least preferred category is made use of by 32 per cent of the units. This category is depended by a substantial part of 60 per cent of the large units.

Having discussed the most important problems affecting physical distribution of the Ayurvedic medicine manufacturing units, viz., order processing, inventory management, warehousing and transportation, analysis of the problems in relation to promotion of the units in the coming pages.

PROBLEMS RELATED TO PROMOTION

Promotion is essentially the foremost process of communication. It is a message which performs a number of functions like providing information about a manufacturer, his products, differentiating them from competitors' products and stimulating their demand.

In the case of promotion of Ayurvedic medicines, though the initiator of the buying process of medicines is the consumer*, it is chiefly the physician, who monitors treatment for the patient, ultimately dictates what medicines and of which manufacturer should be bought. Here, the physician, i.e., the influencer, decides whether to buy an Ayurvedic medicine or not. For OTC products, the target audience can be distributors and agencies of Ayurvedic medicine manufacturers as well who are also the important influencers for these products.

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* Consumer is, most of the time, the patient who undergoes treatment for a disease under a physician. He, sometimes, happens to be an OTC customer, who purchases the medicines on his own perception of the efficacy of the medicines. These medicines include general tonics and others intended to maintain health and balms and *choornas* meant for external application of human body.

Problems associated with the four elements of the promotion mix, viz., advertising, sales promotion, personal selling and public relations in relation to the Ayurvedic medicine manufacturers of the study area are analysed in the following pages.

Advertising

Advertising is any paid form of non-personal presentation or promotion of ideas, goods or services. In small Ayurvedic medicine manufacturing units, advertising is usually handled by advertising agencies appointed for the purpose. In some medium sized units and all large sized units, it is performed by advertising or marketing department.

Advertising offers some significant advantages over other promotional elements or techniques. First, the cost of communication per member of the audience is comparatively very low. The second advantage is ease of repetition of the same message. The third advantage is that a higher level of creative flexibility can be exercised. The fourth advantage of advertising is its impersonal nature in promoting sensitive products.

To select the media that can be depended for advertising, a balance between cost and effectiveness should be made. No unit of the study area conducted any study to measure cost and effectiveness. Experts interviewed feel that based on cost effectiveness, the most preferred media in the order of importance is newspapers and periodicals, radio, TV and internet and so on as is given in Table 5B. 19. For determining the most widely used medium by a

Table 5B. 19

Medium Used for Advertising

Medium	Number of Units (In Percentage)			
	L	M	S	Row Total
Newspapers and periodicals	29	14	5	11
Radio, TV and internet	43	9	0	8
Event sponsoring	14	36	41	36
Banners and boards	0	18	27	21
Cinema theatre slides	14	23	27	24
Column Total	100	100	100	100

Source: Survey data

unit, ranking method is used to analyse the data. Table 5B. 19 depicts the number of units which placed first rank against each medium.

Although event sponsoring is the third most preferred medium in the opinion of the experts, the largest proportion of 36 per cent of the units made use of this medium. A larger proportion of 41 per cent of the small units made use of this method. The least preferred media of banners and boards and cinema theatre slides are used by 21 per cent and 24 per cent of the units respectively. The percentage against the most preferred media of newspapers and periodicals and radio, TV and internet are respectively 11 and 8 only. The large units are in a better position, but a good percentage of units (i.e., 43 per cent) placed first rank against the second most preferred medium of radio, TV and internet.

Sales Promotion

Sales promotion is the second element of the promotion mix of the Ayurvedic medicine manufacturing units. It is the promotional tool consisting of a number of incentive tools to stimulate quicker and greater purchase by channel members of the distribution process. It includes tools for consumer promotion (e.g., contests, gifts, etc.), and dealer promotion (e.g., commission, gifts advertising allowance, excess quantity on bulk purchases, etc.). In addition to these, for Ayurvedic medicines, physician promotion (e.g., commission, free samples, gifts and contests) is also required because physicians are the influencers to buy.

The units of the study area use incentive type promotions to attract prospects, to reward loyal consumers and to increase purchase rate of occasional consumers. The problems related to the sales promotion techniques applied by Ayurvedic medicine manufacturing units are discussed in relation to distributor promotion, agency promotion, physician promotion and consumer promotion in the coming paragraphs.

Analysis of the distribution system of the units reveals that distributors are the wholesalers who purchase Ayurvedic medicines of various manufacturers and distribute them to the retailers. These retailers often include agencies of manufacturers who are allowed to sell some medicines of manufacturers other than their principal. A retailer, who is permitted to sell his principal's medicine only, is generally referred to an agency.

For promoting distributors, the techniques that may be used by the units in the order of most cost effective techniques are commission on the value of

purchases made from the manufacturer, supply of excess quantity of medicines when bulk purchases are made, provision of advertising allowance and gifts. The order of cost effectiveness of techniques is determined on the basis of interviews conducted with experts in the field of marketing of Ayurvedic medicines. For analysing the data related to the study area, ranking method is used. The technique most often applied by a unit is given fist rank, the second most often applied one is given second rank and so on. Table 5B. 20 displays the result of analysis.

Table 5B. 20

Techniques Used to Promote Sales through Distributors

Techniques	Number of Units (In Percentage)			
	L	M	S	Row Total
Commission	0	54	32	36
Excess quantity on bulk purchases	0	23	32	26
Advertising allowance	0	0	0	0
Gifts	0	0	0	0
No distributor	100	23	36	38
Column Total	100	100	100	100

Source: Survey data

As is evident from the table, the most preferrable technique of commission on value of purchases made from the manufacturer is adopted by most of (i.e., 36 per cent) the manufactures; but it is preferred by 32 per cent of the small units only. The second most preferred technique is given first rank by 26 per cent of the units only.

In the area of agency promotion also, the units faced problems. The techniques used for agency promotion in the order of most preferred technique for optimum cost effectiveness as per expert opinion are given in Table 5B. 21. Ranking method is used to assess whether the units considered the same order.

Table 5B. 21

Techniques Used to Promote Sales through Agencies

Techniques	Number of Units (In Percentage)			
	L	M	S	Row Total
Commission	100	18	0	16
Excess quantity on bulk purchases	0	0	0	0
Service of manufacturer's physician	0	0	0	0
Payment of salary of physician	0	0	0	0
Advertising allowance	0	0	0	0
Contests	0	0	0	0
Gifts	0	5	0	2
Training in sales	0	0	0	0
No agency	0	77	100	82
Column Total	100	100	100	100

Source: Survey data

It can be observed that except for the small sized units, most of the units place first rank against the most preferred technique by the experts, i.e., commission. No one unit places first rank against other techniques except gifts which is the sixth most preferred technique by the experts. But, there are only 5 per cent of the medium sized units who preferred this technique the most. Taking the proportion of all the units, it comes to 2 per cent only.

Physician promotion is third component of sales promotion of the units where problems exist. Commission on medicines prescribed, gifts and free samples of medicines are the techniques used for physician promotion by the Ayurvedic medicinal manufacturers of the study area. Commission is the most preferred technique in the opinion of the experts related to the industry as this technique is the most attractive technique to the physicians. The second most preferred technique is free samples and the third one gifts. Table 5B. 22 indicates that 61 per cent of the units do not resort to sales promotion by

Table 5B. 22

Techniques Used to Promote Sales through Physicians

Techniques	Number of Units (In Percentage)			
	L	M	S	Row Total
Commission on medicines	29	27	27	27
Free samples of medicines	0	9	0	3
Gifts	0	18	5	9
No sales promotion through physicians	71	46	68	61
Column Total	100	100	100	100

Source: Survey data

physicians. The survey also revealed that when ranking method is used to analyse the data, only 3 per cent of the units placed first rank against the second most preferred technique of free samples whereas there are 9 per cent of the units placing first rank against the third most preferred technique of gifts.

Consumer promotion is the fourth component of sales promotion of Ayurvedic medicines. The techniques used for consumer promotion in the

order of highest preference, if cost effectiveness is taken into consideration, are gifts followed by contests. Either of these techniques is not used by 92 per cent of the units as is given in Table 5B. 23. As high as 95 per cent of the small

Table 5B. 23

Sales Promotion of Consumers

Techniques Used	Number of Units (In Percentage)			
	L	M	S	Row Total
Gifts	14	9	5	8
Contests	0	0	0	0
No consumer promotion	86	91	95	92
Column Total	100	100	100	100

Source: Survey data

units, 91 per cent of the medium sized units and 86 per cent of the large units come under this category.

Personal Selling

The salesman has to cultivate flexibility in his art of selling because different prospects exhibit different attitudes. But, a salesman of Ayurvedic medicines requires less skill in selling his products because the products sold by different manufacturing units show more or less the same features as most of them are classical medicines. P & P medicines may require greater skill than classical medicines because each of these medicines has its own peculiar features. The number of P & P medicines for the units being very small (i.e., not more than 20), no much effort is to be exercised to sell them. This might be behind the fact that the Ayurvedic medicine manufacturers of the study are not applying a good number of techniques to promote their salesmen.

There are two categories of salesmen for the Ayurvedic medicine manufacturing units, viz., counter salesmen and travelling salesmen, often called medical representatives. In the following paragraphs the problems related to their promotion are being discussed.

The promotion of counter salesmen poses some problems. Counter salesmen of Ayurvedic medicine manufacturers are the salesmen working at the sales outlets of the manufacturers. The techniques often applied to motivate and promote sales through them are commission, salary increment, promotion in jobs and gifts. These are listed in the order of cost effectiveness in Table 5B. 24 which are given as per the opinion of experts in the field of Ayurvedic medicine marketing. i.e., commission is considered the most cost effective technique and gifts the least cost effective one.

Table 5B. 24
Sales Promotion of Counter Salesmen

Techniques Used	Number of Units (In Percentage)			
	L	M	S	Row Total
Commission	14	0	13	10
Salary increment	44	54	41	45
Promotion in jobs	14	10	0	5
Gifts	28	36	46	40
Column Total	100	100	100	100

Source: Survey data

Table 5B. 24 shows the number of units which place first rank against each of the above mentioned techniques. Although salary increment to the salesmen is considered the second most preferred technique by the experts, 45 per cent of the units place first rank against this technique. 54 per cent of the

medium sized units come under this category. A good proportion of the units, i.e., 40 per cent considered the least preferrable technique of gifts as the technique of highest preference.

Some problems are present in the promotion of medical representatives also. medical representatives are the salesmen who travel from place to place canvassing orders from distributors, agencies and physicians. They are often required to collect dues from the distributors and agencies, receive suggestions put forward by them and to act as the claim of feedback between these dealers and the manufacturers. The techniques suggested by the experts in the marketing of Ayurvedic medicines for promoting medical representatives in the order of preference are commission, salary increment, promotion in jobs, gifts, contests and sales targets. Table 5B. 25 displays the data related to the techniques actually preferred by the units. The most preferred technique is given first rank. The table gives the data related to the number of units which placed first rank against each of the techniques. It shows that 61 per cent of the

Table 5B. 25

Sales Promotion of Medical Representatives

Techniques Used	Number of Units (In Percentage)			
	L	M	S	Row Total
Commission	29	36	5	18
Salary increment	29	14	8	12
Promotion in jobs	13	0	0	2
Gifts	0	0	0	0
Contests	0	0	0	0
Sales targets	29	14	0	7
No medical representative	0	36	87	61
Column Total	100	100	100	100

Source: Survey data

units has no medical representative at all. Nearly 90 per cent of the small sized units fall under this category. The most preferred techniques by majority of the remaining units are commission and salary increment which coincides with the opinion of the experts, but the least preferred technique of sales targets is the third preferred technique by the units of the study area.

Public Relations

Also referred to as publicity, public relations is the non-paid personal or impersonal element of communication of the existence of products and their marketing. Publicity can be mouth publicity by consumers, publicity by a print medium like newspaper or electronic medium like TV, etc. The survey reveals that no unit of the study area has been in the habit of observing the effect of publicity on the marketability of Ayurvedic medicines.

The last few pages discussed the promotional problems faced by the Ayurvedic medicine manufacturing units.

To examine the stability of return on investment of the Ayurvedic medicine manufacturing units, the capital employed by the units during the years under study are compared with the respective net incomes (i.e., net profits or losses). The degree of correlation between the average amount of capital employed by all the units and average amount of net incomes earned by all the units for the years from 1994-`95 to 2002-`03 are found out for this purpose. The results arrived at are given Table 5B. 26.

Table 5B. 26

Correlation Between
Average Capital Employed and Average Net Income

Year	Karl Pearson's Coefficient of Correlation
1994 - `95	+ 0.89
1996 - `97	+ 0.90
1998 - `99	+ 0.95
2000 - `01	+ 0.96
2002 - `03	+ 0.98

Source: Survey data

For arriving at capital employed for a unit, the net fixed assets (i.e., fixed assets less depreciation) and net working capital (i.e., current assets less current liabilities) are added. Average capital employed is the average of capital employed of all the units of the study area. This average is compared with the average of net incomes of the units for the respective year to calculate correlation. The results of analysis reveal that during the ten years from 1994-`95 to 2002-`03, there is high degree of positive correlation and the degree increases year after year. This means that when there is a change in the capital employed, there is proportionate change in net income also. It points to the fact that even though there are problems of various kinds faced by the units, there is stable return on capital employed.

CONCLUSION

The foregoing discussion points to the existence of a good number of problems in relation to raw materials, production, finance, personnel and marketing of Ayurvedic medicine manufacturing units.

Analysis of problems related to raw materials reveals that adulteration, scarcity, bad quality, transportation, storage facility etc. are the important problems in this regard. There are problems such as inadequate mechanisation, out-dated technology and insufficient facilities to check the quality of medicines in relation to production. Bad debts, loan-related problems, etc. are the financial problems faced by the units. There are a number of personnel problems which also affect the smooth functioning of the units. Marketing problems in relation to products, pricing, physical distribution and promotion also hamper the growth of these units.

The foregoing chapters of this study analysed the problems and prospects of the Ayurvedic medicine manufacturing units. The next chapter, i.e., the last chapter is intended to give the summary of findings of the study and to suggest the possible measures to solve the problems.

CHAPTER VI

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

SUMMARY OF FINDINGS, SUGGESTIONS AND CONCLUSION

Having discussed the general and marketing problems in Chapter V, an attempt is made in this chapter to give the summary of findings of the study and suggestions to improve the working of the Ayurvedic medicine manufacturing units.

Ayurveda, which means science of life, is originated 5000 years ago. The consistent spurt in enthusiasm towards Ayurveda in recent years has resulted in a new era of marketing. Ayurveda, the Indian system of medicine, is now regarded as an alternative and holistic natural health care system.

Being an ancient science, Ayurveda is placed under the category TSM. Financial outlays by the Government of India under the Five Year Plans show that there has been significant increase in outlay for the development of TSM. Compared to the First Plan allocation, the allocation for the Ninth Plan was increased to 666 times. This indicates the shift towards the recognition and support for TSM by the Government.

Majority of the health care facilities available under the head 'ISM and Homoeopathy' is provided for Ayurvedic hospitals and dispensaries by the Government of India. In terms of the number of registered medical practitioners and educational facilities available also, Ayurveda is placed far above other components of ISM & H.

The number of units which started operations in the study area shows that though there was increase in the number of the units until the year 1980, the number decreased thereafter. The decrease in the number of units started during 1981-2000 is one-third the number started during 1961-1980. This fact points to some problems related to Ayurvedic medicine manufacturing units.

But, Year-wise progress of establishment of Ayurvedic hospitals in India since 1st April 1980 indicates that there had been more or less uniform rate of progress from 1984 to 1998. Year-wise progress of establishment of Ayurvedic dispensaries in the country since the same date shows that except for a slight decline in 1984, there had been uniform rate of progress until the year 1998.

Medicines manufactured by the major Ayurvedic medicine manufacturing units in South India indicate that except for the manufacturers Oushadhi at Thrissur and IMPCOPS at Chennai, the single largest product line with the maximum number of product items is *tailas.* The smallest product line in terms of number of product items is *rasakriyas.* But, the highest demand is for *arishtasavas,* the share of demand of this product line being 30 per cent of the demand for all the product lines. The lowest demand is for *gulikas, choornas, Bhasmasindhooras, Rasakriyas* and P & P medicines. Their demand comes to be 10 per cent of the total demand.

The figures collected from the study area show that the average amount of sales turnover is the highest for the product line *kashayas* and the lowest for rejuvenative services. The average amount of sales turnover is the highest in the home district of the units which comes to be more than 60 per cent of the

total sales turnover and the lowest outside India. The sales turnover outside India is as low as 3 per cent of the total sales turnover. But, for the units of Kasargode District, the portion of sales turnover in other districts of Kerala is the highest which is nearly 80 per cent. The sales turnover outside India for them is nil.

Sales turnover through exports shows that nearly 95 per cent of exports of medium and small sized units is for P & P medicines; but for the large units, the corresponding figure is around 20 per cent only.

As high as 90 per cent of the small units and 80 per cent of the medium sized units do not export any of their medicines whereas it is nearly 15 per cent only for large units. For most of the medicines, the profit margin lies between 15 per cent and 20 per cent.

A substantial portion of 65 per cent of the manufacturing units opted their main place of manufacturing in Panchayats. This may be due to various economies of production enjoyed in villages. The same proportion of the units commenced business as sole traders.

The present form of business reveals that the number of sole traders are reduced to two-third while the number of partnership firms increased to one and half times and the number of companies doubled. This can be indication of increase in size of the units.

Nearly 85 per cent of the units are found operating without any branch. The number of branches in any case does not exceed 20. The fact that 61 per cent of the Ayurvedic medicine manufacturing units does not appoint medical representatives affects the distribution of medicines.

The profile of the agencies of the manufacturers shows that the agencies are owned by sole traders or partnership firms, the proportion of sole traders being 82 per cent. It is found that all the agencies do not get the services of a qualified physician on all the days of a week. The agencies avail the services of the physician for a maximum of 3 to 4 days only. The proportion of these agencies comes to be 44 per cent.

For better marketability of the Ayurvedic medicines, the agencies have to avail the services of the manufacturer's doctor/*Vaidyan*. The survey reveals that nearly 40 per cent of the agencies only are in a position to avail the services of the manufacturer's doctor. Out of these agencies, 38 per cent only are given remuneration of the doctor/*Vaidyan* by the manufacturer.

Consumers of the age 40 and above constitute a proportion as high as 62 per cent of the total number of consumers. Locality classification points to the fact that consumers of panchayat and municipal areas come to be nearly 90 per cent of their total number.

More than 80 per cent of the consumers belong to the groups salary earner, wage earner, agriculturists and businessman, the second and third groups alone constituting more than 50 per cent. The annual income of more than 80 per cent of all the consumers does not exceed Rs. 1,00,000. This means that most of the consumers belong to either lower or middle income group.

A manufacturing unit with its chief promoter qualified as a *paramparya vaidyan* or Ayurvedic doctor is credited with a number of advantages as to the supervision of the manufacturing process and the marketability of the medicines. This privilege is not exercised by 30 per cent of the units.

The proportion of the manufacturing units which do not get satisfactory managerial consultancy services is 20 per cent whereas half the number of the units face some problems in getting a service from the Government authorities.

Analysis of personnel data reveals that the proportion of employees earning daily wages is higher than the proportion of employees earning salary. The advantage of appointing employees of daily wages is not reaped by nearly 70 per cent of the large units. It is also found that 2 per cent of the total employees of any unit is paid piece rate system of wages.

It is observed that the chances of adulteration of raw material are nearly 90 per cent. More than 60 per cent of the small sized units is not in a position to reap the advantages of credit purchases. Purchase agreement as a method of purchase of raw materials is not adopted by nearly 65 per cent of the medium and around 80 per cent of the small sized units. In the case of tender, another method of purchase which satisfies the specifications of the manufacturer including the obtaining of raw materials at the lowest price, the position is further aggravated. More than 75 per cent of the medium sized units and as high as 95 per cent of the small units do not make use of this method.

Due to various reasons, nearly 70 per cent of the manufacturing units is not in a position to meet their raw material requirements fully. This leads to

adulteration by the suppliers of raw materials in their strive to meet the demand for the goods dealt with by them. It is found that 20 per cent of the units only are getting materials of good quality.

Transportation which affects quality, quantity and availability of raw materials is either difficult or very difficult for 87 per cent of the small sized units and nearly 60 per cent of the medium sized ones.

The problems related to insufficiency of storage facilities for raw materials are faced by almost 60 per cent of the large sized units and more than half the number of medium sized ones.

Delay in supply of raw materials interrupts the production process and adversely affects the marketability of the Ayurvedic medicines. It is found that 65 per cent of the small units faces this problem. It is also found that on an average nearly 70 per cent of the medium and small sized manufacturing units have to pay high prices for raw materials. These data point to the finding that material management is poor especially for medium and small sized units.

Large units only have more than 75 per cent of their production processes mechanised. Nearly 70 per cent of the small units is in a position to mechanise upto 50 per cent of the production processes only.

More than 80 per cent of the small units still uses out-dated production technology. In utilizing the production capacity, the medium and small sized units are far better than the large sized ones. When nearly half the number of the medium and small sized units utilize more than 75 per cent of their production capacity around one-fourth of the number of large units only are

utilizing this level of capacity. The most important reasons attributable to this phenomenon for all the units are financial problems, lack of demand for medicines and scarcity of raw materials.

Checking of quality of the medicines by physicians is considered superior to checking by other employees of the Ayurvedic medicine manufacturing units. The survey reveals that less than 30 per cent of the large units and nearly 35 per cent of the medium sized units only have quality check done by physicians.

Manufacture and marketing of P & P medicines are advisable to enhance competitiveness of the units. But, the study shows that the maximum number of P & P medicines marketed by any unit is limited to 20. It also shows that more than 65 per cent of the units does not manufacture any P & P medicine.

Difficulties experienced in sanctioning and repayment of loans and bad debts have been the financial problems of the manufacturers of Ayurvedic medicines. Problems related to sanctioning of loans are delay in sanctioning, inadequate collateral securities of the units for granting of loans and too many formalities for sanction. The most prominent reasons are inadequate collateral securities of the units for getting loans followed by delay in sanctioning and too many formalities for sanction.

It is found that 32 per cent of all the units rarely or never re-paid the loans. The frequency of clearing dues by debtors indicates that debtors of more than 50 per cent of the units rarely or never cleared the dues in time. The proportion of bad debts and provision thereof to the total debtors is between 26 per cent and 50 per cent for nearly 65 per cent of the medium sized units.

Ensuring optimum wage level to the employees enhances the efficiency of the labourers which, in turn, may increase the profitability of the enterprises. The survey reveals that 15 per cent of the units only pays optimum wages.

It is observed that occurrence of labour strikes does not affect the functioning of the units considerably. Taking all the units together, a proportion of only 9 per cent had to close down their units either very often or often. The corresponding figure is 28 per cent for large units.

Absenteeism is also the highest for the medium sized units. The proportion of these units in which absenteeism is observed to happen either very often or often is as high as 45 per cent.

High labour turnover is another personnel problem affecting the smooth functioning of the Ayurvedic medicine manufacturing units. It is also found to be the highest for medium sized units.

Category-wise figures reveal that although the proportion of the units paying optimum wage level is the highest and frequency of occurrence of labour strikes is the lowest for the medium sized units, frequency of absenteeism and rate of labour turnover are the highest for the medium sized units.

Survey related to market study indicates that more than 90 per cent of the small units does not conduct any market study. The corresponding percentage is 45 for medium sized units.

Data as to the asessing of the market share shows that only 3 per cent of the units attempts to assess their market share. But, it is found that 29 per cent of the large sized units assess their market share.

All the small units do not try to segment the total market. This badly affects the ability to maintain the equilibrium between demand and supply and often leads to dissatisfaction of needs and wants of a good number of consumers. More than 80 per cent of the medium sized units and nearly 60 per cent of the large sized ones also do not attempt to market segmentation.

The number of manufacturers with whom a unit has to compete is limited to 5. It is also observed that 24 per cent of the units only has to face competition.

Branding of Ayurvedic medicines like any other products increases the marketability of the manufacturing units. Although around 70 per cent of the large units and 60 per cent of the medium sized ones have been able to brand anyone or more of their products, it is as low as 30 per cent for the small units.

Packaging, sometimes, enables the manufacturer to sell his/her products more than their quality. Attractive packaging is the result of research in this field. The survey reveals that all the small units do not attempt to conduct any type of packaging research. The corresponding figure is as high as 82 per cent for the medium sized units and nearly 60 per cent for the large units.

Although labelling is not very much related to classical Ayurvedic medicines, marketability of P & P medicines is very much dependent upon labelling. The survey reveals that no special efforts have been made by the units producing P & P medicines to develop the label in their own R & D. It is also observed that not more than 10 per cent of the units has attempted to develop a label of standard quality by an outside agency.

As far as standardisation is concerned, nearly 90 per cent of the Ayurvedic medicine manufacturing units has not installed sufficient facility to standardise the products. A substantial proportion of 70 per cent of the medium sized units comes under this group.

As high as 90 per cent of the units adopts cost plus profit method of pricing. The maximum number of medicines which are priced in this way is found to be 500. For 95 per cent of the manufacturing units, the number of medicines coming under cost plus profit method is 300.

Adjusting price in accordance with demand increases the competitiveness of the units. It is revealed in the survey that around three-fourths of the total units do not make use of demand-based pricing for their products. The proportion of the small sized units not making use of this pricing method is as high as 84 per cent. The maximum number of medicines subject to demand based pricing is 50 only.

The survey reveals that more than 75 per cent of the small units does not adopt competition-based pricing. The respective figure is 64 per cent for medium sized units. This denotes that these units are not interested to face competition and thus to ensure better marketability of the medicines. The number of medicines for which this method of pricing is made applicable is limited to 25.

The study reveals that to position an Ayurvedic medicine, pricing is not made use of by nearly 90 per cent of the units. The maximum number of medicines coming under this method also is 25.

The problems in relation to physical distribution of the Ayurvedic medicine manufacturing units have been analysed with reference to order processing, inventory management, warehousing facilities and transportation. The efficiency of order processing has been average or low for 65 per cent of the units. Nearly 80 per cent of the medium sized units and more than 70 per cent of the large units are working with average or low efficiency of order processing.

Optimum level of inventory is found to be maintained by 8 per cent of the small sized units, 14 per cent of the large units and 23 per cent of the medium sized units only.

The proportion of the units which are not in a position to keep optimum level of warehousing is as high as 83 per cent. On analysing transportation problems, the data reveal that nearly 20 per cent of the units are not having owned vehicles. Owned vehicles help distribute the medicines more efficiently and speedily than hired vehicles and parcel services.

For promoting the medicines, the Ayurvedic medicine manufacturers made use of advertising, sales promotion, personal selling and public relations. For advertising, the most cost effective method of newspapers and periodicals have been preferred by 11per cent of the units and the next cost effective method of radio, TV and internet is preferred by 8 per cent of the units only.

Sales promotion is done at distributor, agency, physician and consumer levels. Commission and supply of excess quantity on bulk purchases are the most preferred methods to promote the distributors by the medium and small sized units.

Analysis of the data related to agencies reveals that there is no agency for small sized units. Only 18 per cent of the units preferred commission, the most cost effective technique of agency promotion, to promote the agencies.

Physician promotion is the most important component of sales promotion of Ayurvedic medicine manufacturing units as physicians are considered the influencers of buying habits of the consumers. But, the most preferred technique of commission on medicines has been preferred by 27 per cent of the units only and second most preferred technique of free samples preferred by 3 per cent of the units only.

The survey reveals that as high as 95 per cent of the small units and 86 per cent of the medium sized units do not employ any technique for consumer promotion.

The most preferred technique of commission to promote counter salesmen of the manufacturers is found to be preferred by 10 per cent of the units only. No medium sized unit prefers this method. Analysis of the data related to medical representatives reveals that nearly 90 per cent of the small units and more than 35 per cent of the medium sized units do not employ medical representatives.

It is found that no unit of the study area has been observing or studying the effect of publicity as a component of promotion.

Analysis of correlation between average capital employed and average net income for the years from 1994-`95 to 2002-`03 of the Ayurvedic medicine manufacturing units reveals that there is high degree of positive correlation

between the two variables. It means that the net income changes proportionately in relation to the capital employed in spite of all the problems faced by the units.

SUGGESTIONS

The earlier pages of this chapter brought to light the findings of the present study. Following are the suggestions that may be put forward to tackle the problems by the units individually or jointly with the help of necessary measures on the part of the governments.

Tackling Administrative Problems

- The Ayurvedic medicine manufacturers who do not have adequate number of branches and agencies should start the required number of branches and agencies in unrepresented areas so that demand-supply equilibrium between the manufacturer and the consumers for the medicines can be maintained. If required, the distributor network can be widened by the selection of appropriate distributors.

- In the case of Ayurvedic medicine manufacturing units which do not get satisfactory managerial consultancy services, the Central and State Governments can make them available through appropriate agencies.

- Important problems faced by the units in availing services from various governments are too many formalities to be observed and delay in service. The governments can tackle these problems by simplifying the procedures and making arrangements for speedy disposal of applications for availing the services.

Availing Medicinal Plants

- The manufacturing units will have to depend more on private cultivators, own plant collectors and own herbal gardens for medicinal plants required to manufacture the Ayurvedic medicines because when purchases of medicinal plants are made from these sources, there is lower probability of adulteration than purchasing them from private vendors and local market.

- Adulteration is mainly due to the scarcity of raw herbs. This results in increased cost of production also. A way out of this is government intervention to organise scientific cultivation of rare species. Man power may be trained in scientific methods of herb collection also.

- Unseasonal collection of herbs shall be controlled and if possible stopped through appropriate and adequate measures taken by Central and State Governments.

- Unscientific procurement and over-harvesting of medicinal plants need be controlled through stringent measures.

- Deforestation and indiscriminate exploitation of forest resources have led to scarcity of medicinal plants. Since 90 per cent of the medicinal plants traded in India are collected from the wild, the Central and State Governments have to take effective steps to severely punish those involved in destroying the forest resources.

- The cases of bio-piracy by way of patenting Indian medicinal plants by other countries should be tackled through the intensive study and proper documentation of details related to various medicinal plants grown in India.

- To standardise the herbs, the constituents of each herb must be evaluated and documented. These standards help control the quality of the herbs. The documentation must also provide for specific tests of identity, purity and confirmation about the effective parts of the herbs.

- In addition to the measures that can be taken by the governments, the Ayurvedic medicine manufacturers, especially the small and medium sized manufacturers, can form co-operative societies, not less than one in each district, to ensure the timely supply of cheap and quality raw materials including medicinal plants to the manufacturers. This arrangement would minimise the problems related to scarcity, transportation, storage facility and delay in the supply of raw materials.

- The contaminant concerns arising out of the application of fertilisers and pesticides in the cultivation of the medicinal plants are passed on to the Ayurvedic medicines through the manufacturing process. These bad effects can be reduced by undergoing appropriate clinical tests. The contamination can, further, be reduced during the manufacturing process by means of the application of appropriate purification processes.

Improving Efficiency of Production

- Out-dated production technology of the smaller units should be improved by the installation of cheap and quality equipments. The Government of India may chalk out and implement the necessary plans to help these units by making available modern technology including the import of sophisticated machines and equipments at subsidised costs.

- Under utilized production capacity of the units can be utilized fully by the introduction of more P & P medicines. This would enhance their competitiveness as well.

- For the manufacture of Ayurvedic medicines like *tailas* and *grithas,* the classical texts require the manufacturers to carry out prolonged heating and stirring. When steam heating is resorted to for large scale production, these norms are not observed properly. The Government of India and Government of Kerala may instruct the large units to reduce the production of these medicines. To meet the demand for these medicines, the smaller units may be encouraged to produce more of these medicines.

- Processing of Ayurvedic medicines are not standardised. The Acts related to the manufacture of Ayurvedic medicines, especially the Drugs and Cosmetics Act, need be amended so as to incorporate provisions related to these issues.

- To convince the public about the quality and efficacy of Ayurvedic medicines, well-designed clinical tests should be made mandatory under the statutes.

- The R & D wing of the Ayurvedic medicine manufacturing units must develop more and more P & P medicines as these are more profitable compared to classical medicines.

- The conditions to be satisfied by the units to obtain GMP certification under the Drugs and Cosmetics Act do not contain the different aspects of quality standards of Ayurvedic medicines that must be maintained by the manufacturing units. Necessary and appropriate amendments should be made in the Act so as to incorporate the standards.

Strengthening Financial Position

- The smaller units can avail more credit purchases if they inculcate a habit of prompt payment of dues against credit purchases.

- Delay in the sanctioning of loans to the Ayurvedic medicine manufacturing units by banks and other financial institutions need be tackled by the intervention of government officials and the associations of the medicine manufacturers.

- Adequate grants and subsidies and, if necessary, credit facilities may be given by the financial institutions and corporations owned by the State and Central Governments particularly to the small units.

- The manufacturing units should attempt to collect the dues from the debtors in time through an appropriate debt management system. For thus, they can avail the services of financial consultants. The concerned State governments may take necessary measures to see that the units get the adequate and prompt services in this regard.

Solving Personnel Problems

- Wages payable to the employees are to be standardised within the industry and to be made at par with industries involving similar nature of work and working conditions with the intervention of associations of the Ayurvedic medicine manufacturers. This will reduce chances of occurrence of labour strikes, absenteeism and high rate of labour turnover.

- The intervention of the Government of Kerala to tackle the personnel problems of Ayurvedic medicine manufacturing industry is the need of the hour as most of the large units still employ a large number of personnel in spite of the advanced production technology and automation they have.

Improving Marketing Efficiency

- The associations of the manufacturers should inculcate the habit of conducting market study and assessing market share among the members. They should educate the members belonging to the medium and small sized units the need to segment the total market and to satisfy the needs and wants of the consumers in a better manner.

- Bottles are used for packaging purpose in the case of most of the Ayurvedic medicines of liquid or semi-liquid form. The chances of breakage of this type of packages are high. To avoid or reduce risks arising out of such occurrences, the packaging research activities by the units have to be strengthened and the use of flexible pouches and handy plastic bottles can be recommended after conducting a cost effectiveness study in the case of medicines which do not react with the material of the container.

- The labelling of classical as well as P & P medicines by the units must be made more effective and attractive to provide information about the medicines, their composition, the manufacturer, etc. in a better manner.

- To react appropriately to the pulses of the market in terms of pricing strategy, all the units particularly the medium sized and small sized ones, should analyse the effects of demand-based and competition-based pricing methods on different products and conduct studies to reap the advantages of positioning of a product by pricing.

- Most of the units do not keep optimum level of inventory. The management of these units have to check it by utilizing the services of experts in this field.

- Advertisements through the print and electronic media are to be intensified especially by the medium and small sized units.

- The primary demand for Ayurvedic medicines need to be increased by the Central and State Governments through appropriate awareness programmes. The secondary demand for the medicines can be increased by means of designing and implementing appropriate sales promotion tools by the manufacturing units in addition to the advertising techniques currently used.

- Counter salesmen of the units are to be motivated in a better manner by providing them with commission on sales made and other attractive incentives.

- The medium and small sized units which do not have medical representatives should appoint adequate and properly trained medical representatives as they can be engaged to canvass the physicians to prescribe Ayurvedic medicines.

CONCLUSION

The earlier chapters of the present study examined the evolution and development of Ayurveda, important aspects of Ayurvedic medicines, the profile of the Ayurvedic medicine manufacturing units, the Acts governing them and the problems faced by the units.

Findings of the study point to the measures to be taken individually as well as jointly by the units and also the support to be given by Government of India and Government of Kerala to tackle the problems faced by Ayurveda generally and the Ayurvedic medicine manufacturing units particularly.

The Government of India has recently decided to fund the State Governments and to set up laboratories for testing Ayurvedic drugs. It is learnt that policies are being formulated by Government of India to place Ayurveda at a higher level. The government may adopt a three-pronged strategy for the growth of Ayurvedic medicine manufacturing units. First, the people should be educated about the benefits of Ayurvedic medicines. Second, there is the urgent need to strengthen the infrastructure of Ayurvedic hospitals and services. Encouraging research on the development of new medicines and marketing should be the third area of priority.

Literature reviewed as a part of this study shows that a few studies only are conducted in the area of marketing of Ayurvedic medicines. There is ample scope for meaningful studies about Ayurvedic medicine manufacturing units.

A study to investigate the ways to tackle the problem of scarcity of medicinal plants may be attempted to. The impact of mechanisation on the quality of the Ayurvedic medicines manufactured could be another relevant study in the light of increased machanisation for commercial production. Effectiveness of promotion of physicians prescribing Ayurvedic medicines can also be pointed out as a study which can be conducted to enhance the marketability of Ayurvedic medicines.

APPENDICES

APPENDIX I
INTERVIEW SCHEDULE FOR
AYURVEDIC MEDICINE MANUFACTURING UNITS
(Please put a tick (✓) against the correct answer)

No. :
District Code :

I GENERAL

1. Year of commencement of the business : .....

2. Locality of the business :
   a) Panchayat ☐
   b) Municipality ☐
   c) Township ☐
   d) Corporation ☐

3. (i) Form of the organisation on commencement of business :
   a) Sole trader ☐
   b) Partnership ☐
   c) Co-operative ☐
   d) Company ☐
   e) Public enterprise ☐
   f) Charitable trust ☐

   (ii) Present form of the organisation :
   a) Sole trader ☐
   b) Partnership ☐
   c) Co-operative ☐
   d) Company ☐
   e) Public enterprise ☐
   f) Charitable trust ☐

   (iii) Reason for the change in the form, if any :
   a) Growth in business activities ☐
   b) Decline in business activities ☐
   c) Seeking various benifits from government ☐
   d) Income-tax reduction ☐
   e) Others (please specify) ..... ☐

4. Profile of the chief promoter :
   (i) Sex
   a) Male ☐
   b) Female ☐

   (ii) Religion :
   a) Hindu ☐
   b) Islam ☐
   c) Christian ☐
   d) Others (please specify) ..... ☐

(iii) Occupation : a) 'Paramparya vaidyan' ☐
b) Ayurvedic doctor ☐
c) Others (please specify) ..... ☐

(iv) Education : a) No formal education ☐
b) Upto SSLC ☐
c) Diploma / Degree ☐
d) DAM/ BAMS / MD or Ph.D. In Ayurveda ☐
e) 'Paramparya Vaidyam' ☐
f) Others (please specify) ..... ☐

II MANAGERIAL

5.(i) Do you require managerial consultancy services from any organisation? : a) Yes ☐
b) No ☐

(ii) If yes, level of satisfaction of services you got : a) Very satisfied ☐
: b) Satisfied ☐
c) Dissatisfied ☐
d) Very dissatisfied ☐

6.(i) Do you face any problem in getting services from government? : a) Yes ☐
b) No ☐

(ii) If yes, rank them in the order of highest intensity : a) Too many formalities [ ]
b) Insufficient services [ ]
c) Red tapism [ ]
d) Delay in service [ ]
e) Others (please specify) ..... [ ]

III RAW MATERIAL

7. Your sources of medicinal plants as raw material (Assign a total weight of 100 on the basis of value of medicinal plants) : a) Own herbal gardens .....
b) Own plant collectors .....
c) Private cultivators .....
d) Private vendors .....
e) Local market .....
f) Others (please specify) ....
Total 100

8. Value of cash and credit purchases of raw materials (Assign a total weight of 100)	:	a) Cash b) Credit Total	 100
9. Method of purchase of raw materials	:	a) Direct casual purchase b) Purchase agreement c) Tender d) Others (please specify)	☐ ☐ ☐ ☐
10. Extent to which raw material supply meet your requirement	:	a) Upto 25% b) 26% – 50% c) 51% – 75% d) 76% and above but below 100% e) 100%	☐ ☐ ☐ ☐ ☐
11. Quality of the raw materials you get	: :	a) Excellent b) Good c) Average d) Bad	☐ ☐ ☐ ☐
12. Transportation of raw materials	:	a) Very easy b) Easy c) Difficult d) Very difficult	☐ ☐ ☐ ☐
13. Storage facility for raw materials	:	a) Very much sufficient b) Sufficient c) Insufficient d) Very much insufficient	☐ ☐ ☐ ☐
14. How often you get supply of raw materials in time	: :	a) Always b) Frequently c) Rarely d) Never	☐ ☐ ☐ ☐
15. How do you rate the purchase cost of the raw materials in relation to the market price in India	:	a) High b) Moderate c) Low	☐ ☐ ☐

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IV PRODUCTION

16. Percentage of production capacity utilized now : a) Upto 25% ☐
b) 26% – 50% ☐
c) 51% – 75% ☐
d) 76% and above but below 100% ☐
e) 100% ☐

17. State of your production technology in comparison with industry standards : a) Out-dated ☐
b) Current ☐
c) State-of-the-art ☐

18. Extent of mechanisation of processes and jobs in the organisation : a) Upto 25% ☐
b) 26% – 50% ☐
c) 51% – 75% ☐
d) 76% and above but below 100% ☐
e) 100% ☐

19. Quality control of finished products carried out by : a) Physicians ☐
b) Other employees ☐
c) Chemical tests ☐

20. Number of P & P medicines you manufacture : .....

V. FINANCE

21. Capital invested in the business (Rupees in millions)

Original and Additional Investment	Fixed Assets (Written Down Value at the End of the Year)			Working Capital (C. Assets Less C. Liabilities) (4)	Capital Employed (3) + (4)
	Plant & Machinery (1)	Other Fixed Assets (2)	Total (3)		
Original	Rs.	Rs.	Rs.	Rs.	Rs.
1994-`95					
1996-`97					
1998-`99					
2000-`01					
2002-`03					

22.(i) Have you ever taken any loan?	:	a) Yes	☐
		b) No	☐
(ii) If yes, have you been in a position to repay them in time?	:	a) Always	☐
		b) Frequently	☐
		c) Rarely	☐
		d) Never	☐
23. (i) Do you experience any problem in sanctioning loans by a financial institution?	:	a) Yes	☐
		b) No	☐
(ii) If yes, what problem you experience?	:	a) Delay in sanctioning	☐
	:	b) Inadequate collateral securities	☐
		c) Too many formalities	☐
24. (i) Do you sell medicines on credit?	:	a) Yes	☐
	:	d) No	☐
(ii) If yes, how often the debtors cleared their dues?	:	a) Always	☐
	:	b) Frequently	☐
		c) Rarely	☐
		d) Never	☐
(iii) Percentage of bad debts and provision for bad debts to sundry debtors	:	a) Upto 25%	☐
		b) 26%-50%	☐
		c) 51%-75%	☐
		d) 76% and above but below 100%	☐
		e) 100%	☐

VI PERSONNEL

25. Number of employees you employed	:	a) 1-10	☐
		b) 11-25	☐
		c) 26-50	☐
		d) 51-100	☐
		e) 101-500	☐
		f) 501-1000	☐
26. Categories of employees in your organisation (Assign a total weight of 100)	:	a) Employees earning	.....
		b) Employees earning wages	.....
		Total	100

27. Number of employees under the different systems of wage payment : a) Piece rate system ..... b) Time rate system ..... Total .....

28. Level of rates of wages paid : a) High ☐ b) Optimum ☐ c) Low ☐

29. Occurrence of labour strikes : a) Very often ☐ b) Often ☐ c) Sometimes ☐ d) Never ☐

30. Closure of the organisation due to labour problems : a) Very often ☐ b) Often ☐ c) Sometimes ☐ d) Never ☐

31. frequency of absenteeism of labourers : a) Very often ☐ : b) Often ☐ c) Sometimes ☐ d) Never ☐

32. Rate of labour turnover : a) High ☐ b) Normal ☐ c) Low ☐

VII MARKETING

33. Did you conduct market study before commencing business operations? : a) Yes ☐ b) No ☐

34. What is your market share in terms of amount of sales turnover in the northern region of Kerala for the year 2002-'03 : a) Below 10% ☐ b) 10%-20% ☐ c) 20%-30% ☐ d) 30%-40% ☐ e) 40%-50% ☐ f) 50% and above ☐ g) Not assessed ☐

35. (i) Have you segmented your market? : a) Yes ☐ b) No ☐

(ii) If yes, on what basis? :
- a) Geographical basis ☐
- b) Income basis of consumers ☐
- c) Sex basis ☐
- d) Age basis ☐
- e) Others (please specify) ..... ☐

36. Have you branded any of your medicines? :
- a) Yes ☐
- b) No ☐

37. Have you ever conducted packaging research? :
- a) Yes ☐
- b) No ☐

38. Do you have the facility to standardise medicines? :
- a) Yes ☐
- b) No ☐

39. Number of manufacturers with whom you have to compete :
- a) Nil ☐
- b) 1-5 ☐
- c) 6-10 ☐
- d) 11-15 ☐
- e) 16-20 ☐
- f) 21 and above ☐

40. A. Your sales turnover for 2002-'03 in percentage :
- a) Home district .....
- b) Other districts of the State .....
- c) Other State of the country .....
- d) Other countries .....
- Total 100

Percentage in bracket

B. Number of product items under each product line and assign a percentage to each product line on the basis of sales turnover for 2002-'03 :
- a) Arishtasavas ..... (.....)
- b) Kashayas ..... (.....)
- c) Lehas ..... (.....)
- d) Grithas ..... (.....)
- e) Gulikas ..... (.....)
- f) Choornas ..... (.....)
- g) Bhasmasindhooras ..... (.....)
- h) Rasakriyas ..... (.....)
- i) Tailas ..... (.....)
- j) P & P medicines ..... (.....)
- k) Therapeutic services ..... (.....)
- l) Rejuvenative services ..... (.....)
- m)Others (please specify) .... (.....)
- Total 100

41. Your sales turnover and profit earned /loss sustained (Rupees in millions) :

Year	Sales Turnover (Rs.)			Profit (+)/ Loss (-)
	Cash	Credit	Total	
1994-`95				
1996-`97				
1998-`99				
2000-`01				
2002-`03				

42.(i) What problem you face in relation to demand when you utilize full production capacity? :

a) Lower demand ☐
b) Higher demand ☐

(ii) If the answer is a), rank the reasons in the order of highest intensity :

a) High price of the medicines [ ]
b) Poor quality of the medicines [ ]
c) General case of the industry [ ]
d) Others (please specify) ..... [ ]

43. To what extent you could meet demands for the medicines? :

a) Upto 25% ☐
b) 26%-50% ☐
c) 51%-75% ☐
d) 76% and above but below 100% ☐
e) 100% ☐

44. Number of product items under each product line and assign a percentage to each product line on the basis of exports for 2002-'03 :

		Percentage in bracket
a) Arishtasavas	.....	(....)
b) Kashayas	.....	(....)
c) Lehas	.....	(....)
d) Grithas	.....	(....)
e) Gulikas	.....	(....)
f) Choornas	.....	(....)
g) Bhasmasindhooras	.....	(....)
h) Rasakriyas	.....	(....)
i) Tailas	.....	(....)
j) P & P medicines	.....	(....)
k) Therapeutic services	.....	(....)
l) Rejuvenative services	.....	(....)
m)Others (please specify)	.....	(....)
Total	.....	100

45. Percentage of exports to sales turnover :

Year	Percentage
1994-`95	
1996-`97	
1998-`99	
2000-`01	
2002-`03	

Items

46. Profit margin and the number of product items in each category :

a) Upto 5% .....
b) 5%-10% .....
c) 10%-15% .....
d) 15%-20% .....
e) 20%-25% .....
f) 25%-30% .....
g) 30%-35% .....
h) 35%-40% .....
i) 40%-45% .....
j) 45%-50% .....
k) 50% and above .....
Total .....

47. (i) Do you adopt cost plus profit method for your medicines? :

a) Yes ☐
b) No ☐

(ii) If yes, number of medicines for which this method is adopted : .....

48. (i) Do you adopt demand-based pricing method for your medicines? :

a) Yes ☐
b) No ☐

(ii) If yes, number of medicines for which this method is adopted : .....

49. (i) Do you adopt competition-based pricing method for your medicines? : a) Yes ☐
b) No ☐

(ii) If yes, number of medicines for which this method is adopted : .....

50. (i) Do you adopt positioning as a method of pricing your medicines? : a) Yes ☐
b) No ☐

(ii) If yes, number of medicines for which this method is adopted : .....

51. (i) Do you have branches? : a) Yes ☐
b) No ☐

(ii) If yes, how many branches you have? : a) 1-5 ☐
b) 6-10 ☐
c) 11-15 ☐
d) 16-20 ☐
e) 21 and above ☐

52. (i) Do you have independent distributors? : a) Yes ☐
b) No ☐

(ii) If yes, how many independent distributors you have? : a) 1-5 ☐
b) 6-10 ☐
c) 11-15 ☐
d) 16-20 ☐
e) 21 and above ☐

53. (i) Do you have agencies? : a) Yes ☐
b) No ☐

(ii) If yes, how many agencies you have? : a) 1-5 ☐
b) 6-10 ☐
c) 11-15 ☐
d) 16-20 ☐
e) 21 and above ☐

54. (i) Do you have medical representatives?	:	a) Yes	☐
	:	b) No	☐
(ii) If yes, how many medical representatives you have?	:	a) 1-5	☐
		b) 6-10	☐
		c) 11-15	☐
		d) 16-20	☐
		e) 21 and above	☐
55. Efficiency of processing of orders received from customers	:	a) Very high	☐
		b) High	☐
		c) Average	☐
		d) Low	☐
56. Level of inventory for raw materials and finished products	:	a) High	☐
		b) Optimum	☐
		c) Low	☐
57. Level of warehousing facilities	:	a) High	☐
		b) Optimum	☐
		c) Low	☐
58. Category of vehicles used for distribution	:	a) Owned vehicles	☐
		b) Hired vehicles	☐
		c) Parcel services	☐
		d) No vehicle used	☐
59. Rank the media used for advertising in the order of highest preference	:	a) Newspapers and periodicals	[ ]
		b) Radio, TV and internet	[ ]
		c) Event sponsoring	[ ]
		d) Banners and boards	[ ]
		e) Cinema theatre slides	[ ]
		f) Others (please specify)	[ ]
60. Rank the techniques used to promote distributors in the order of highest preference	:	a) Commission	[ ]
		b) Excess quantity on bulk purchases	[ ]
		c) Advertising allowance	[ ]
		d) Contests	[ ]
		e) Gifts	[ ]
		f) Others (please specify)	[ ]

61. Rank the techniques used to promote agencies in the order of highest preference	:	a) Commission	[ ]
		b) Excess quantity on bulk purchases	[ ]
		c) Service of manufacturer's physician	[ ]
		d) Payment of salary of physician	[ ]
		e) Advertising allowance	[ ]
		f) Contests	[ ]
		g) Gifts	[ ]
		h) Training in sales	[ ]
		i) Others (please specify)	[ ]
62. Rank the techniques used to promote physicians in the order of highest preference	:	a) Commission on medicines prescribed	[ ]
		b) Free sample of medicines	[ ]
		c) Gifts	[ ]
		d) Others (please specify)	[ ]
63. Rank the techniques used to promote consumers in the order of highest preference	:	a) Gifts	[ ]
		b) Contests	[ ]
		c) Others (please specify)	[ ]
64. Rank the techniques used to promote counter salesmen	:	a) Commission	[ ]
		b) Salary increment	[ ]
		c) Promotion in jobs	[ ]
		d) Gifts	[ ]
		e) Others (please specify)	[ ]
65. Rank the techniques used to promote medical representatives	:	a)Commission	[ ]
		b) Salary increment	[ ]
		c) Promotion in jobs	[ ]
		d) Gifts	[ ]
		e) Contests	[ ]
		f) Sales targets	[ ]
		g) Others (please specify)	[ ]
66. Do you study the effect of publicity for promoting your medicines?	:	a) Yes	☐
		b) No	☐

APPENDIX II
INTERVIEW SCHEDULE FOR AGENCIES OF AYURVEDIC MEDICINE MANUFACTURING UNITS
(Please put a tick (✓) mark against the correct answer)

No. : Manufacturer : District Code :

1. Form of the business	:	a) Sole trader	☐
		b) Partnership	☐
		c) Others (please specify)	☐
2. (i) Number of days' visit by a qualified doctor/Vaidyan in a week to treat patients	:	a) Nil	☐
		b) 1-2	☐
		c) 3-4	☐
		d) 5-6	☐
		e) 7	☐
(ii) Is the doctor/Vaidyan appointed by the manufacturer?	:	a) Yes	☐
		b) No	☐
(iii) If yes, who pays his remuneration?	:	a) The manufacturer	☐
	:	b) Yourself	☐
		c) The manufacturer and yourself	☐
(iv) Your net income after his visit in comparison with the net income without his visit	:	a) Same	☐
		b) More	☐
		c) Less	☐
3. Inspection of your shop by the staff of the manufacturer-once in a	:	a) Week	☐
		b) Fortnight	☐
		c) Month	☐
		d) Quarter of a year	☐
		e) Half year	☐
		f) Year	☐
		g) No inspection	☐
4. Facility to store the products in your shop	:	a) Highly sufficient	☐
		b) Sufficient	☐
		c) Insufficient	☐
		d) Very insufficient	☐
5. Rate of your commission for the year 2002-'03	:	a) Below 10%	☐
		b) 10%-20%	☐
		c) 20%-30%	☐
		d) 30%-40%	☐
		e) 40% and above	☐

6. (i) Could you meet the demands for the medicines properly? :
   a) Always ☐
   b) Frequently ☐
   c) Rarely ☐
   d) Never ☐

   (ii) If demands not met properly, rank the reasons :
   a) Medicines not available in time [ ]
   b) Financial problems to purchase the medicines [ ]
   c) Insufficient storage facilities [ ]
   d) Unscientific storage facilities [ ]
   e) Others (please specify) ..... [ ]

7. (i) Do the consumers put forward suggestions to increase their satisfaction? :
   a) Always ☐
   b) Frequently ☐
   c) Rarely ☐
   d) Never ☐

   (ii) If they put forward, do you intimate the manufacturer the suggestions? :
   a) Always ☐
   b) Frequently ☐
   c) Rarely ☐
   d) Never ☐

   (iii) If you intimated, are you satisfied with the measurers taken by him? :
   a) Very satisfied ☐
   b) Satisfied ☐
   c) Dissatisfied ☐
   d) Very dissatisfied ☐

8. The problems you face with the manufacturer :
   a) Insufficient quantity of medicines supplied ☐
   b) Non-replacement of damaged medicines ☐
   c) Medicines not available in time ☐
   d) Commission low ☐
   e) No credit for purchases ☐
   f) Consumers' needs not attended to ☐
   g) Others (please specify) ..... ☐

9. Rank the suggestion to the manufacturer to increase your sales :
   a) Reducing price [ ]
   b) Improving quality [ ]
   : d) Agency promotion [ ]
   e) Consumer promotion [ ]
   f) Doctor/Vaidyan promotion [ ]
   g) Others (please specify)..... [ ]

APPENDIX III

INTERVIEW SCHEDULE FOR CONSUMERS OF AYURVEDIC MEDICINES

(Please put a tick (✓) mark against the correct answer)

No. :
Agency :
District Code :

1. Profile of the consumer :

(i) Age :
- a) Below 18 years ☐
- b) 18 years – 25 years ☐
- c) 25 years – 40 years ☐
- d) 40 years – 60 years ☐
- e) 60 years and above ☐

(ii) Religion :
- a) Hindu ☐
- b) Islam ☐
- c) Christian ☐
- d) Others (please specify) ..... ☐

(iii) Locality :
- a) Panchayat ☐
- b) Municipality ☐
- c) Township ☐
- d) Corporation ☐

(iv) Category of earner :
- a) Salary earner ☐
- b) Wage earner ☐
- c) Agriculturist ☐
- d) Businessman ☐
- e) Professional ☐
- f) Non-resident Indian ☐
- g) Others (please specify) ..... ☐

(v) Annual income :
- a) Below Rs. 10,000 ☐
- b) Rs. 10,000-Rs. 50,000 ☐
- c) Rs. 50,000-Rs. 1,00,000 ☐
- d) Rs. 1,00,000-Rs. 5,00,000 ☐
- e) Rs. 5,00,000 and above ☐

(vi) Percentage of your total income allocated for medical expenses : :
- a) Upto 10% ☐
- b) 10%-25% ☐
- c) 25%-50% ☐
- d) 50% and above ☐

2. Rank the systems of medicine you make use of in the order of highest preference	:	a) Allopathy	[ ]
		b) Ayurveda	[ ]
		c) Homoeopathy	[ ]
		d) Unani	[ ]
		e) Siddha	[ ]
		f) Naturopathy	[ ]
		g) Others (please specify)	[ ]
3. (i) How often you prefer Ayurvedic medicines?	:	a) Always	☐
		b) Frequently	☐
		c) Sometimes	☐
		d) Rarely	☐
(ii) Rank the reasons for your preference in the order of highest intensity	:	a) Less side effect	[ ]
		b) Lasting effect	[ ]
	:	c) Immediate effect	[ ]
		d) Less chemical contents	[ ]
		e) Better taste	[ ]
		f) Prolonged illness cured	[ ]
		g) Nearness to the dealer	[ ]
		h) Others (please specify)	[ ]
4 (i) Whose Ayurvedic medicines you prefer to buy?	:	a) Medicines of 'parampary vaidyasalas'	☐
		b) Medicinesof modern manufacturing units	☐
		c) No specific choice	☐
(ii) Rank the criteria for your preference	:	a) Cheaper products	[ ]
		b) Medicinesof better quality	[ ]
		c) Reputation of the manufacturer	[ ]
		d) Medicines with better packaging	[ ]
		e) Medicines with better labelling	[ ]
		f) Branded medicines	[ ]
		g) Others (please specify).....	[ ]

APPENDIX IV

MAJOR INSTITUTIONS LOCATED OUTSIDE INDIA WHICH ARE ENGAGED IN RESEARCH, DOCUMENTATION, TEACHING AND DEVELOPMENT OF AYURVEDA

1. The Ayurvedic Institute, U.S.A.
2. The College of Maharishi, U.S.A.
3. National Institute of Ayurvedic Medicine, U.S.A.
4. The New York Botanical Garden, U.S.A.
5. Florida Academy of Science, U.S.A.
6. Pergaman Press Inc., U.S.A.
7. The International Association for the Study of Traditional Asian Medicine, U.S.A.
8. The British Medical Association, U.K.
9. Chinese Medical Association, China.
10. Arbits Stelle Fur, Germany.
11. Academy of Republic Socialist Romania, Romania.
12. Himalayan Ayurveda Research Institute, Nepal.

APPENDIX V

CLASSICAL TEXTS OF AYURVEDA MENTIONED IN SCHEDULE 1 OF THE DRUGS AND COSMETICS ACT, 1940

1. Arogya Kalpadruma
2. Arka Prakasan
3. Arya Bhishak
4. Ashtangahrudayam
5. Ashtangasangraham
6. Ayurveda Kalpadruma
7. Ayurveda Prakasha
8. Ayurveda Sangraham
9. Bhaishajya Ratnavali
10. Bharat Bhaishajya Ratnakara
11. Bhava Prakasha
12. Brihat Nighantu Ratnakara
13. Charka Samhitha
14. Chakara Datta
15. Gada Nigraha
16. Kupi Pakva Rasayana
17. Nighantu Ratnakara
18. Rasa Chandansu
19. Rasa Raja Sundara
20. Rasarantna Samuchaya
21. Rasatantra Sara Va Siddha Proyoga sangraham Part – I
22. Rasa Tarangini
23. Rasa Yoga Ratnakara
24. Rasa Yoga Sangraham
25. Rasa Pradipika
26. Sahasrayogam
27. Savaroga Chikitsa Ratnam
28. Sarvayoga Chikitsa Rantnam

29. Sharangadhara Samhitha
30. Siddha Bhaishajya Manimala
31. Siddha Yoga Sangraham
32. Susrutha Samhitha
33. Vaidya Chinthamani
34. Vaidyaka Shabda Sindhu
35. Vaidyaka Chikitsa Sara
36. Vaidya Jiwan
37. Basava Rajeeyam
38. Yoga Ratnakara
39. Yoga Tarangini
40. Yoga Chinthamani
41. Kaasyapa Samhitha
42. Bhcla Samhitha
43. Viswanatha Chikitsa
44. Vrinda Chikitsa
45. Ayurveda Chinthamani
46. Abhinava Chinthamani
47. Ayurveda Ratnakar
48. Yogaratna Sangraham
49. Rasamritha
50. Dravyaguna Nighantu
51. Rasamanjari
52. Bangasena Samhitha
53. Ayurvedic Formulary of India (Part I)
54. Ayurveda Sara Sangraham
55. Rasendra Sara Sangraham

The many classical texts for reference of Ayurvedic principles comprise of Charaka Samhitha, Susrutha Samhitha, Ashtangahrudayam, Kaasyapa Samhitha, Sharangadhara Samhitha and Bhaishajya Ratnavali.

APPENDIX VI
SUMMARY OF MEDICAL CARE FACILITIES UNDER INDIAN SYSTEMS OF MEDICINE AND HOMOEOPATHY BY MANAGEMENT STATUS ON 1.4.1998

Sl. No.	Management	Ayurveda		Unani		Siddha		Yoga		Naturopathy		Homoeopathy	
		Hos	Dis	Hos	Dis	Hos	Dis	Hos	Dis	Hos	Dis	Hos	Dis
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	State Govt./UT ADM	1965	10994	155	777	202	349	3	0	9	9	101	3877
2	Local Body	82	1808	0	166	0	0	0	0	0	0	0	569
3	Others	121	1192	22	5	0	0	5	39	12	46	137	2367
Sub Total (Item 1 to 3)		2168	13994	177	948	202	349	8	39	21	55	238	6813
4	CGHS	1	31	0	9	0	2	0	3	0	0	0	34
5	Railway Ministry	0	38	0	0	0	0	0	0	0	0	0	124
6	Labour Ministry												
i	ESI	0	106	0	1	0	2	0	0	0	0	0	25
ii	Mica Mines	0	3	0	0	0	0	0	0	0	0	0	0
iii	Dolomite mines	0	13	0	0	0	0	0	0	0	0	0	0
iv	Beedi Workers	0	7	0	0	0	0	0	0		0	0	0
7	Ministry of Coal	0	28	0	0	0	0	0	0	0	0	0	0
8	Central Research Council's	20	32	12	8	2	4	0	0	0	0	5	41
	Total	2189	14252	189	966	204	357	8	42	21	55	243	7037

CGHS: Central Government Health Scheme
Hos : Hospital
Dis : Dispensary
Source: Ministry of Health and Family Welfare, Government of India

APPENDIX VII

YEAR-WISE PROGRESS OF ESTABLISHMENT OF AYURVEDIC HOSPITALS IN INDIA FROM 1980 TO 1998 (AS ON 1ST APRIL)

Year	Government	Local body	Others	Total
1	2	3	4	5
1980	219	0	33	252
1981	242 + 1@	NA	33	276
1982	257 + 1@	2	48	308
1983	283 + 1@	4	43	331
1984	1332 + 1@	79	40	1452
1985	1340 + 1@	77	42	1460
1986	1349 + 1@	77	42	1469
1987	1357 + 1@ + 17*	79	42	1496
1988	1360 + 1@ + 17*	77	46	1501
1989	1364 + 1@ + 17*	77	68	1527
1990	1365 + 1@ + 17*	77	70	1530
1991	1896 + 1@ + 18*	77	62	2054
1992	1907 + 1@ + 18*	77	65	2068
1993	1940 + 1@ + 20*	77	73	2111
1994	1945 + 1@ + 20*	77	93	2136
1995	1948 + 1@ + 20*	78	94	2141
1996	1948 + 1@ + 20*	78	94	2141
1997	1956 + 1@ + 20*	82	120	2179
1998	1965 + 1@ + 20*	82	121	2189

@ = Ayurvedic hospital under CGHS

* = Ayurvedic hospitals under Central Research Council for Ayurveda & Siddha

NA = Not available

Source: Ministry of Health and Family Welfare, Government of India.

APPENDIX VIII

YEAR-WISE PROGRESS OF ESTABLISHMENT OF AYURVEDIC DISPENSARIES IN INDIA FROM 1980 TO 1998 (AS ON 1ST APRIL)

Year	Government	Local body	Others	Total
1980	7379 + 28*	4224@	0	11631
1981	7794 + 27*	4233@	64	12118
1982	8335 + 27*	2657	1175	12194
1983	8481 + 27*	2081	1857	12446
1984	7266 + 27*	3099	708	11100
1985	8262 + 27*	3101	721	12111
1986	8300 + 29*	3109	671	12109
1987	8671 + 29*	2235	1419	12354
1988	9135 + 30*	1953	1394	12512
1989	9761 + 31*	1673	1374	12839
1990	9928 + 31*	1664	1357	12980
1991	10182 + 31*	1617	1353	13183
1992	10313 + 31*	1622	1359	13325
1993	10401 + 31*+179$$	1622	1382	13615
1994	10454 + 31*+179$$	1598	1381	13643
1995	10624 + 31*+179$$	1569	1296	13699
1996	10624 + 31*+179$$	1569	1328	13731
1997	10784 + 31*+179$$	1808	1192	13994
1998	10994 + 31*+32$+195$$	1808	1192	14252

@ = includes others

* = Ayurvedic dispensaries under CGHS

$ = Ayurvedic dispensaries under Central Research Council for Ayurveda and Siddha

$$ = Ayurvedic dispensaries under Ministries of Railways, Labour & Coal

Source: Ministry of Health and Family Welfare, Government of India

APPENDIX IX

STATE-WISE DISTRIBUTION OF HOSPITALS AND BEDS IN AYURVEDA BY MANAGEMENT STATUS AS ON 1.4.1998

Sl. No.	States/Uts.	Hop./ Beds	Existing as on 1.4.1997				Established during 1997-`98				Functioning as on 1.4.1998			
			Govt.	Local Body	Others	Total	Govt.	Local Body	Others	Total	Govt.	Local Body	Others	Total
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
1	Andhra Pradesh	Hosp	6	-	1$	7	-	-	-	-	6	-	1$	7
		Beds	344	-	60	404	-	-	-	-	344	-	60	404
2	Arunachal Pradesh	Hosp	1	-	-	1	-	-	-	-	1	-	-	1
		Beds	15	-	-	15	-	-	-	-	15	-	-	15
3	Assam	Hosp	1	-	1@	2	-	-	-	-	1	-	1@	2
		Beds	100	-	30	130	-	-	-	-	100		30	130
4	Bihar#	Hosp	4	-	5$	9	+	+	+	+	4	-	5$	9
		Beds	236$	-	635	871	+	+	+	+	236$	-	635	871
5	Delhi#	Hosp	1	5	3$	9	+	+	+	+	1	5	3$	9
		Beds	25	270	476	771	+	+	+	+	25	270	476	771

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
6	Goa	Hosp	2	-	3$	5	-	-	1	1	2	-	4$	6
		Beds	65	-	150	215	-	-	30	30	65	-	180	245
7	Gujarat	Hosp	36	-	8	44	1	-	-	1	37	-	8	45
		Beds	1095	-	630	1725	20	-	-	20	1115	-	630	1745
8	Haryana	Hosp	3	-	3$	6	-	-	-	-	3	-	3$	6
		Beds	55	-	430	485	-	-	-	-	55	-	430	485
9	Himachal Pradesh	Hosp	14	-	-	14	2	-	-	2	16	-	-	16
		Beds	270	-	-	270	20	-	-	20	290	-	-	290
10	Jammu & Kashmir	Hosp	1	-	-	1	-	-	-	-	1	-	-	1
		Beds	25	-	-	25	-	-	-	-	25	-	-	25
11	Karnataka	Hosp	55	-	37$	92	6	-	-	6	61	-	37$	98
		Beds	975	-	3790	4765	60	-	-	60	1035	-	3790	4825
12	Kerala#	Hosp	107	-	2$	109	+	+	+	+	107	-	2$	109
		Beds	2309	-	252	2561	+	+	+	+	2309	-	252	2561

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
13	Madhya Pradesh	Hosp	34	-	-	34	-	-	-	-	34	-	-	34
		Beds	1160	-	-	1160	-	-	-	-	1160	-	-	1160
14	Maharashtra#	Hosp	4	-	32$	36	+	+	+	+	4	-	32$	36
		Beds	675	-	5622	6297	+	+	+	+	675	-	5622	6297
15	Manipur	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
16	Meghalaya	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
17	Mizoram	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
18	Nagaland	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
19	Orissa	Hosp	5	-	2$	7	-	-	-	-	5	-	2$	7
		Beds	203	-	110	313	-	-	-	-	203	-	110	313

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
20	Punjab#	Hosp	4	-	7$	11	+	+	+	+	4	-	7$	11
		Beds	136	-	635	771	+	+	+	+	136	-	635	771
21	Rajasthan	Hosp	78	-	12$	90	-	-	-	-	78	-	12$	90
		Beds	784	-	395	1179	-	-	-	-	784	-	395	1179
22	Sikkim	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
23	Tamil Nadu	Hosp	1	-	3$	4	-	-	-	-	1	-	3$	4
		Beds	55	-	212	267	-	-	-	-	55	-	212	267
24	Tripura	Hosp	1	-	-	1	-	-	-	-	1	-	-	1
		Beds	10	-	-	10	-	-	-	-	10	-	-	10
25	Uttar Pradesh#	Hosp	1594	77$	-	1671	+	+	+	+	1594	77$	-	1671
		Beds	9421	490	-	9911	+	+	+	+	9421	490	-	9911
26	West Bengal#	Hosp	3	-	-	3	+	+	+	+	3	-	-	3
		Beds	215	-	-	215	+	+	+	+	215	-	-	215
27	A & N Islands	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
28	Chandigarh#	Hosp	-	-	1$	1	+	+	+	+	-	-	1$	1
		Beds	-	-	150	150	+	+	+	+	-	-	150	150
29	D & N Haveli	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
30	Daman & Diu	Hosp	1	-	-	1	-	-	-	-	1	-	-	1
		Beds	5	-	-	5	-	-	-	-	5	-	-	5
31	Lakshadweep	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
32	Pondichery	Hosp	-	-	-	-	-	-	-	-	-	-	-	-
		Beds	-	-	-	-	-	-	-	-	-	-	-	-
ALL INDIA		Hosp	1956	82	120	2158	9	-	1	10	1965	82	121	2168
		Beds	18178	760	13577	32515	100	-	30	130	18278	760	13607	32645

- = Nil information
+ = Information not received
$ = Hospitals attached with non-Govt. colleges have also been taken into account
• = Bed strength for one non-Govt. college is not available
** = bed strength for two non-Govt. colleges is not available
# = Information for current year has not been received hence repeated for the latest available year.

Source: Ministry of Health and Family Welfare, Govt. of India

APPENDIX X

STATE-WISE DISTRIBUTION OF DISPENSARIES IN AYURVEDA BY MANAGEMENT STATUS AS ON 1.4.1998

Sl. No.	States/ Uts.	Existing as on 1.4.1997				Established during 1997-`98				Functioning as on 1.4.1998			
1	2	3	4	5	6	7	8	9	10	11	12	13	14
1	Andhra Pradesh	550	105	782@	1437	-	-	-	-	550	105	782@	1437
2	Arunachal Pradesh	2	-	3	5	-	-	-	-	2	-	3	5
3	Assam	268	-	61@	329	-	-	-	-	268	-	61@	329
4	Bihar	216	261	45	522	+	+	+	+	216	261	45	522
5	Delhi	16	99	7	122	+	+	+	+	16	99	7	122
6	Goa	1	-	21	22	-	-	-	-	1	-	21	22
7	Gujarat	63	476	-	539	-	-	-	-	63	476	-	539
8	Haryana	408	-	-	408	2	-	-	2	410	-	-	410
9	Himachal Pradesh	809	-	-	809	155	-	-	155	964@	-	-	964
10	Jammu & Kashmir	247	-	-	247	-	-	-	-	247	-	-	247
11	Karnadaka	472	49	5	526	37	-	-	37	509	49	5	563
12	Kerala	562	-	187@	759	+	+	+	+	572	-	187@	759
13	Madhya Pradesh	2060	19	-	2079	14	-	-	14	2074	19	-	2093
14	Maharashtra	-	469	-	469	+	+	+	+	-	469	-	469
15	Manipur	-	-	-	-	-	-	-	-	-	-	-	-

APPENDIX XI

DISTRICT-WISE DISTRIBUTION OF HOSPITALS, BEDS AND PATIENTS TREATED IN 1958-`59 AND 1997–AYURVEDA IN KERALA

Sl. No.	District	Number of Hospitals		Number of Beds		Total Number of Patients Treated			
		1958-`59	1997	1958-`59	1997	1958-`59		1997	
						Inpatient	Out patient	Inpatient	Out patient
1	2	3	4	5	6	7	8	9	10
1.	Thiruvananthapuram	3	13	40	255	1072	57405	6488	1962432
2.	Kollam	3	9	30	190	269	109717	3067	1409499
3.	Pathanamthitta	-	4	-	80	-	-	685	1012978
4.	Alappuzha	3	10	30	180	469	87731	1443	1685505
5.	Kottayam	4	8	40	150	475	130016	1395	1090479
6.	Idukki	-	3	-	110	-	-	1310	260961
7.	Eranakulam	6	13	78	230	991	362729	2973	2056589
8.	Thrissur	5	14	75	243	963	182624	3249	1709432
9.	Palakkad	2	5	20	130	144	39378	2299	1087292
10.	Malappuram	-	10	-	200	-	-	1355	2013629
11.	Kozhikode	-	6	-	170	-	-	1399	1218462
12.	Wayanad	-	2	-	100	-	-	398	528303
13.	Kannur	2	6	20	211	91	75145	3163	1051639
14.	Kasaragod	-	5	-	100	-	-	941	608675
Total		28	108	333	2349	4474	1044754	30165	17695875

Source : Statistics Since Independence, Department of Economics & Statistics, Govt. of Kerala

APPENDIX XII

Important Forms of Ayurvedic Medicines

1. Arishtasavas
2. Kashayas
3. Lehas
4. Grithas
5. Gulikas
6. Choornas
7. Bhasmasindhooras
8. Rasakriyas
9. Tailas
10. P & P medicines

In addition to the above forms, there are the following categories. These are included in one or other forms of medicines mentioned above under this study for the purpose of easier analysis of the data.

1. Swarasa
2. Kalka
3. Phanta
4. Sita–kashaya
5. Paniya
6. Pramasthya
7. Kshirapaka
8. Mantha
9. Yavagu
10. Khandapaka
11. Bhavana
12. Putapaka
13. Sandhavarga
14. Kanjika
15. Dravaka
16. Swalpadravaka
17. Sankhadravaka

APPENDIX XIII
52 FASTEST MOVING AYURVEDIC MEDICINES IN INDIA

Product Line	Medicines
Arishtasavas	1. Arjunarishta
	2. Vasarishta
	3. Aswagandharishta
	4. Balarishta
	5. Dasamoolarishta
	6. Jeerakadyarishta
	7. Kadirarishta
	8. Lohasava
	9. Punarnavarishta
Lehas	1. Aswagandhadi Leha
	2. Bilwadi Leha
	3. Chwanprash
	4. Kooshmanda Leha
	5. Sukumara Rasayana
Grithas	1. Brahmi Gritha
	2. Kalyanaka Gritha
	3. Mahatikthaka Gritha
	4. Narasimha Gritha
	5. Mahathriphaladi Gritha
Gulikas	1. Aswagandha Capsule
	2. Sarpagandha Capsule
	3. Iriphaka Capsule
	4. Vallarai Capsule

Choornas and Choorna Tablets

1. Aswagandha Choorna
2. Ashta Choorna
3. Eldi Choorna
4. Drakshadi Choorna
5. Mahasudarshana Choorna
6. Sudarshana Choorna
7. Thaleesadi Choorna
8. Thriphala Choorna
9. Thrikatu Choorna
10. Aswagandha Choorna Tablet
11. Drakshadi Choorna Tablet
12. Eladi Choorna Tablet
13. Kantankri Choorna Tablet
14. Mahasudarshana Choorna Tablet
15. Nisha Amalaki Choorna Tablet
16. Sarpagandha Choorna Tablet
17. Sudharshana Choorna Tablet
18. Thriphala Choorna Tablet
19. Thaleesadi Choorna Tablet

Tailas

1. Bhringamalaka Taila
2. Brahmi Taila
3. Chandanadi Taila
4. Doorvadi Taila
5. Dhanwantharam Taila
6. Neelibringadi Taila
7. Pinda Taila
8. Vishamusti Taila
9. Jayapathrathi Taila
10. Ksheerabala Taila

Source: ITCOT Survey, 2001

APPENDIX XIV

LEVEL OF SATISFACTION FROM MANAGERIAL CONSULTANCY SERVICES OBTAINED

District	Size of the Units	Number of Units (In Percentage)					Row Total
		Units Which Do not Require the Services	Level of Satisfaction of Services Obtained				
			Very Satisfied	Satisfied	Dissatisfied	Very Dissatisfied	
TSR	L	0	0	100	0	0	100
	M	27	0	47	26	0	100
	S	52	0	31	17	0	100
Total		39	0	41	20	0	100
MPM	L	50	0	50	0	0	100
	M	75	25	0	0	0	100
	S	50	0	25	25	0	100
Total		58	8	21	13	0	100
KKD	L	50	0	25	25	0	100
	M	67	0	16	17	0	100
	S	33	0	25	42	0	100
Total		45	0	23	32	0	100
KGD	L	0	0	0	0	0	0
	M	0	0	0	0	0	0
	S	50	0	50	0	0	100
Total		50	0	50	0	0	100
Column Total		44	1	35	20	0	100

Source: Survey data

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