Ayurveda & Siddha

Introduction

Ayurveda and Siddha are ancient Indian medicine sciences dating back to five thousand years. Ayurveda became famous in North India, while Siddha system gained popularity in South India. Ayurveda is widely practised in India and is well knit into social fabric, as it is culturally linked with lifestyle of the local communities. The sources of Ayurveda are the Vedas, the oldest available classics.

Around 1000 B.C. the knowledge of Ayurveda was comprehensively documented in Charak Samhita and Sushruta Samhita. The basic premise of the system is that every individual is unique rather than being just another case of a particular disease. Ayurveda deals not only with the treatment of diseases but is in fact a complete way of life. Ayurveda is Sanskrit word derived from two roots: Ayus which means life, Veda which means knowledge meaning "science of life". According to Ayurveda every individual is made of five elements earth, water, fire, air and space. The structural aspect is made up of these five elements, but the functional aspect is governed by three biological humors, known as doshas viz. vata, pitta and kapha dosas. In this system of medicine, the body is identified according to the proportion of these doshas in the body. In ayurveda, health is considered as balance between body, mind and consciousness. This system recognizes three doshas, seven dhatus, three malas and agni. Disease is the condition of disharmony between any of these factors.

Rishi Agashthya is considered to be the father of Siddha Vaidya System of Medicines. The word Siddha came from the word siddhi, which means perfection of heavenly bliss. The persons who attained this were called Siddhars. They wrote in Tamilian language for all branches of science. They also propagated Siddha system in Arabia, Persia, Turkey, China & other places. Siddha is the science which take human and nature as part of closed system. The basis of Siddha science is understanding that earth, air, water, fire and ether correspond to five senses of human body are fundamentals to all living things. All created or evolved matters in the

world whether it is animal or vegetable or mineral, they all fall under these categories. The human anatomy & physiology, causative factors of diseases, materials for the treatment & cure of the disease, also fall in the five elemental categories. These give rise to three doshas or humors. This knowledge has been passed from one generation to another through written medium mostly in palm leaf parchments.

Ayurveda & Siddha Sector

Market size for Ayurveda and Siddha is approximately **Rs 3505 crores (US$ 814 million) which is 84% of the ISM&H market share**. Total global herbal market is of size 62 billion dollars, of which India accounts only for 1 billion dollars. Though in India, since ancient time the herbs and medicines form the heritage, still we account for a low percentage of the world market. This can be understood only if the sector is studied with respect to different units operating in it, the type of technology embodied in them and the scope of expansion and improvement.

The face of Ayurveda and to a lesser extent Siddha has itself undergone a massive change with time. Initially it was treated as system of medicines practiced by vaidya and siddhars. They prepared medicines from the herb collected by them or by the other villagers. But now the face of the industry has changed with companies not only producing medicines but also entering consumer market with variety of herbal products (health care, cosmetics). Now research work is on for incorporation of new drugs into the system, discarding old drugs and coming up with drugs suited to the living style of the people today. Accordingly, varieties and substitutes have been identified for certain products and expansion in application and literature has come about.

During the Samhita period (1000 B.C.) Ayurveda developed into eight branches of specialties and it was also called **Ashtang Ayurveda**. They are Kayachikitsa (internal medicines), Kaumar Bharitya (pediatrics), Graha Chikitsa (psychiatrics), Shalkya (eye & ENT), Shalya tantra (surgery), Visha tantra (toxicology), Rasayana (geriatrics) and Vajikarna (science of virility).

During the last 50 years of development in teaching and training in Ayurveda, it has now developed into sixteen specialties. They are Ayurveda Sidhanta (fundamental principles of ayurveda), Ayurveda Samhita, Rachna Sharira (anatomy), Kriya sharira (physiology),Dravya Guna Vigyan (materia medica & pharmacology), Ras-Shashtra, Bhaishajya Kalpana (pharmaceuticals), Kaumar Bharitya (pediatrics), Prasuti tantra (obstetrics & gynecology), Swasth-Vritla (social and preventive medicine), Kayachikitsa (internal medicines), Rog Nidan (pathology),shalya tantra (surgery), Shalkya Tantra (eye & ENT), Mano Roga (psychiatry) and Panchkarma.

Ayurveda sector can be classified into:

- The ayurvedic practitioner or the persons who have knowledge of ayurveda and treat patients.
- The industry involved in production of different ayurvedic products like medicines and different beauty or health care products.
- Different research organisations involved with the new research and improvement upon existing literature, and
- The hospitals and dispensaries.
- The educational institutions and practitioners of Ayurveda and Siddha form the basic infrastructure of the system.

Siddha vaidya classifies disease & disorders into **4448 types**. Each of these diseases or disorders are believed to have 64 commonly prescribed types of remedies. Altogether there are more than **3,50,000 herbal formulas** used in Siddha system. Around 4,000 plants are used commonly and another 2000 on rare situation.

Siddhars deal with 11metals, 64 pashanam (mercurial & non-mercurial), 120 uprasams (salts and other minerals) and animal products in preparing medicines, 32 types of internal medicines and 32 external medicines. They have a long life and their potency is not lost. There are a number of pharmaceuticals, which are common for both Siddha and Ayurveda. The specialy of Siddhars is metallic preparation, which becomes alkaline, waxy preparation and preparations, which are impervious in water and flame. Siddhars also developed the knowledge of bringing inorganic substances into atomic and ionic form that can be easily absorbed by the body when

grounded with herbal juices and put in fire with a calculated number of cowdung.

Ayurvedic & Siddha Practitioner

Ayurveda and Siddha practitioner is the person who embodies the knowledge and technology in this system of medicine. Their quality and acceptance among the masses is an important factor in determining the system's success not only in India but abroad also. The quality would be dependent on the educational qualification that is acquired, their recognition by government, and systematic form of education in the colleges and the universities.

Diagnosis and treatment:

Treatment in Ayurveda has two components - preventive and curative. Preventive aspect includes personal hygiene, a regular daily routine, appropriate social behaviour and use of rejuvenating materials, food and rasayans (drugs). The curative aspect consists of three major categories of drugs, diets and exercise and general mode of life. While prescribing medicines to a person the practitioner considers other factors like the condition of body and mind, temperament, sex, age, metabolic fire, work-rest pattern, sleep pattern and diet.

In the Siddha system, diagnosis of disease involves identifying its causes, which is done through examination of pulse, urine, eyes, study of voice, colour of body, tongue and status of digestive system of body. The system emphasises not only on the medical treatment of the diseases but also the patient's environment, meteorological consideration, age, sex, race, habits, mental frame, habitat, diet, appetite, physical condition, physiological constitution etc. The Siddha system is effective in treating chronic cases of liver, skin diseases, rheumatic problems anaemia, prostrate enlargement, bleeding piles and peptic ulcer. The Siddha medicines include minerals like mercury, silver, arsenic etc.

Education

The Central Council of Indian Medicines is a Statutory body constituted under Indian Medicine Central Council Act 1970. The Central Council was

reconstituted in 1984 and 1995. Under the provision of IMCC Act 1970 the council lays down the minimum and uniform standards of education in Ayurveda and Siddha. The council has already prescribed minimum standards of education and syllabi for undergraduate and postgraduate courses. One of the main objectives of Central Council is maintenance of central register of Indian medicine.

In 1999 there were a total of **6,09,400** practitioners registered under **ISM&H**. Ayurveda practitioner constituted 60.19% of share i.e. 366812 registered Ayurvedic practitioner all over the country. In contrast Siddha practitioners registered a much smaller percentage i.e. only 2.1% of the total percentage of practitioners in Indian system of medicines.

For the decade 1989- 99 there has been an increase in Ayurvedic and Siddha practitioners, 16% and 10% respectively. **Annexure 1(i)** gives the data on registered practitioners for Ayurveda and Siddha.

Different government and non-government institutes are involved in imparting education in Ayurveda and Siddha. A total of 187 institutes were giving under-graduate and postgraduate education in 1999 in Ayurveda and three institutes giving the same in Siddha. Degree courses are offered by government and non-government organisations. They allot B.A.M.S (Bachelor of Ayurveda Medicines and Surgery) degree for the duration of five and half years (four and a half years of education and one year of internship). In Siddha system they are allotted B.S.M.S (Bachelor of Siddha Medicines & Surgery) of the duration five and a half years only which includes one years of compulsory training.

Post-graduate degrees are awarded in different specializing subject of Ayurveda. However, all colleges are not offering all branches of science for specialization. Diploma and M.Ds are awarded to deserving candidates. There are 33 institutes offering P.G courses in Ayurveda and only one institute offering PG course in Siddha. A list of institutions in India is given in Annexure 1(xii) and a list of institution giving the number of colleges offering Graduate and Undergraduate level courses is given in Annexure 1(ii).

Para medical training are also given by government and non- government institutes for example diploma in Ayurveda pharmacy, compounder training course, nursing course etc.

For the purpose of spread of education and to create the awareness among the masses schemes are carried out by the **Department of ISM&H.** For this purpose they have come up with Information Education and Communication scheme which has two component spread of information and education. Non-government Organisations have also been involved in promoting the strengths of ISM&H. Scheme for international exchange programs, seminars and workshops are also floated. The Department has started a new scheme known as "Scheme for International Exchange Program" with the objective to increase involvement of professional and researchers for dissemination of the results of Research & Development in the field of ISM&H. Thereby promoting the culture of R&D in the indigenous systems of medicine. Under the scheme, delegates and individuals i.e. experts, teachers, students and researchers etc. are deputed and received, and seminars, workshops and conferences are held in other countries to impart knowledge about in Indian system of medicines. The Department is also providing assistance for setting up of Ayurveda/Siddha/Unani/Yoga therapy centers for demonstration purpose in foreign countries.

Ayurveda and Siddha industry

The number of registered manufacturing units for Ayurveda and Siddha is very large, there are 7000 registered manufacturing units. The industry has evolved from its past image. Initially only vaidyas used to prepare medicines at home with the help of mortar and pestle. Later on few pharmacies started preparing around 400 to 600 classical preparations. Then came the modern face of the industry where the focus shifted to the consumer sector. These industries concentrated on few medicines, which are widely used and easier and simple to prepare, and also other herbal products like health supplements, beauty care and other cosmetic products.

Annexure 1(xiv) lists the essential drugs in ayurveda used commonly by dispensaries and hospitals in India.

There has been sophistication in drug design. The form in which drug is now available has also changed. Now it is available in the form of syrups, tablets, powders, aqueous extracts, medicated wines, alkalis and medicinal salts, distilled starches, ointments, jams, burnt products, medicated oils with special processing regimens, medicated butter oils and potentised tables.

Existing rules and regulation of the Government

The manufacturing units have to get manufacturing license from the government to produce ayurvedic medicines. The GMP notifications have been notified for the manufacturing units of Ayurvedic and Siddha products. A Drug Control Cell (ISM&H) is working in the department to assist the Drug controller (India) in matters pertaining to licensing and control of misbranded/adulterated and spurious manufacturing of Ayurvedic, Unani and Siddha drugs.

The Drug Control Cell (ISM) has been functioning since May 1992 in the Department of ISM. This cell is dealing with various issues pertaining to Quality Control, import, export, FIPB cases, classification of drugs under Drugs and Cosmetics Act, patent relating 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.

This department is concerned with the drugs legislation namely Drugs and Cosmetics Act 1940 and the rules there under. Technical Advisory Board and Drugs Consultative committees have been set up to look into the matters concerning ISM. The general guidelines have been formulated and issued for countering misleading and exaggerated advertisements of ISM drugs/ herbal drugs appearing in magazines, newspaper, electronic media under Drugs and Magic remedies (objectionable advertisement) Act, 1954. The general guidelines on drugs and magic remedies on action proposed to be taken under Drugs & Magic Remedies 1954 and guidelines with regard to issuing license of ASU (ayurveda, siddha &

unani), classical and patent proprietary drugs were issued to all state governments. States like Maharashtra, U.P., Bihar, Rajasthan, Manipur, Mizoram, Pondicherry, Tamil Nadu, Kerala, Himachal Pradesh, Madhya Pradesh, Delhi and others have implemented the decision.

The license for manufacture and sale of ayurveda and siddha drugs are issued under Drugs and Cosmetics Act, 1940. As per the licensing requirements, raw material used in preparation of Ayurvedic drugs including Siddha drugs are identified and tested wherever tests are available for their genuineness and records of such test and methods are maintained.

Loan license is also issued to manufacture the Ayurvedic and Siddha drugs for sale. A loan license means a license which licensing authorities issue to an applicant who does not have his own arrangement for manufacture but intend to avail himself of the manufacturing facilities owned by a license.

There are also legal requirements in terms of labelling, packing and limit of alcohol. According to the requirements, the label should display clearly the ingredients used in the manufacturing of that product, and a reference of the method used. If the list of ingredients used is large then the same list is printed separately and enclosed with the packing.

The government has already notified GMP for Ayurveda, Siddha and Unani drug manufacture. In this, various conditions are laid down for raw material requirement, storage, manufacturing premises and all other methods. Under this the manufacturing units are to maintain a quality control unit in his own premises or through Government approved testing laboratories. The tests are to be carried out as per the Ayurveda and Siddha pharmacopoeia standard.

Industry and the Products

The industry works in a way that all the units - herb cultivator, herb supplier, research institutes, companies and pharmacies, practitioner and customers have a well-defined role to play. The basic raw material for the industry are medicinal plants and herbs which are used for producing medicines as mentioned in the pharmacopoeia (classical products) or the

Ayurvedic patented products. A detailed Herbal directory is given in **annexure 1 (ix)**.

The medicinal plants or herbs are obtained from the farmers who cultivate on their farms on contract basis or on their own. These contracts are generally given to them by companies to ensure the supply and quality of raw materials. Recently government research institutes and other research institutes have started growing medicinal plants in the ethnobotanical garden maintained by them for this purpose and for the purpose of conserving some of the extinct species. The tribal people or the persons who have sufficient knowledge about the plants collect many herbs and plants. The knowledge of the plants and its products are based on indigenous knowledge called “Dravya Guna Shastra”. The plants are studied on the basis of taste, metabolic properties, qualities, biological effect and potency.

There are approximately **1800 types** of plants used in Ayurveda system of medicines and **1100 types** of plants used in the Siddha system. Around 70% of herbs are found in tropical zone, mostly in the forest of Western & Eastern Ghats, Vindhyas, Chota Nagpur plateau, Aravallis, the Terai region and foothills of Himalayas and North east. Less than 30% of these plants are confined to the temperate and colder zone.

The collected or cultivated herbs are then sent to herb market through local trader or wholesale traders. These traders add value to the crude herbs in the sense that they further process these herbs by washing, drying and packing so they can be stored for longer use and transported easily. A comprehensive list of ayurvedic medicines commonly used is given in **Annexure 1(xiv) and 1(v)**. The wholesale traders supply the medicines to pharmacies, research institutes, for local market trading, or they export them to other countries in form of herbs and spices. Exports of Ayurvedic and Unani herbs amounted to Rs 2275 lakhs for the year 1999.

The pharmacies whether government owned or private limited further process these herbs and medicinal plants and make different medicines, herbal products and health supplements for consumers. The number of companies in the herbal business is approximately 8000. Among these

7000 pharmacies are in ayurveda industry. The companies and the pharmacies involved in ayurvedic sector can be divided in the organised and unorganised sector. In organised sector we take different government owned or large scale registered private companies who have a good infrastructure, research division and produce on a large-scale basis. Those companies also use sophisticated and expensive machines like HPLC and HPTLC for determining the quality and for standardisation of raw materials. In other places they do it manually with knowledge and experience. A statewise list of licensed ayurveda pharmacies is given in **annexure 1(xvii)**.

The products like Ointment and the medicines that uses alcohol has a longer shelf life can be preserved for a longer time. Some of the large-scale private companies have been surveyed and few results have been presented towards the later part of the report. These companies sell their products to consumers in the domestic market or export their products to other countries. Most of the larger companies like Dabur, Zandu, Himalaya Drug Company, Vicco and many other companies are the manufacturers as well as the exporters of the ayurvedic and herbal products and they also invest in Research and Development activities. Their research and development activities mainly constitute investigating existing formulation, coming up with new products and quality testing for standardisation of the raw materials and finished products. Dabur Research Foundation is an excellent example of this trend. The unorganised sector comprises of small manufacturers who are involved in production with not really sophisticated machinery and the process of manufacturing is historically developed.

Research and Development:

In Ayurvedic sector the research work has been taken by both government and the private sector companies to exploit the opportunities which this sector provides. Systematic effort in research and development started with the setting up of CCRIMH by the Government of India in 1969 which was split into four separate council CCRAS, CCRUM, CCRH and CCRYN. The bigger private sector companies also take up research work for

development of not only existing drugs and formulation but also new products and medicines.

Government Research Units:

Central Council of Research for Ayurveda and Siddha is the premiere institute in research for Ayurveda and Siddha. The main activities of the institute include clinical and fundamental research, drug research, literary research and other health related programs. The institute also support and finance other government research institutes at state level. There are 32 institutes available all over the country that are funded by the Council on regional basis. They are also involved in ethno botanical survey in which they identify, collect and supply medicinal plant. Till now they have explored 400 forest areas and more than 1,20,000 plants species have been collected so far. About 3000 drug samples of plant, minerals and plant origin have been collected so far. Council has initiated steps for developing medicinal plants or garden to cultivate rare and extinct species.

CCRAS is involved in Clinical, drugs and fundamental research. Pharmacogonostical investigation for about 175 important Ayurvedic medicinal plants/drugs mentioned in Ayurvedic formulary Part I have been completed so far. **Annexure 1(xiv)** gives a list of essential ayurvedic drugs used by dispensaries and hospitals. Pharmacogonostical investigation for 11 Siddha drugs has been completed by the research council. Chemical studies for 290 drugs in Ayurvedic & Siddha medicines have been done so far. And the council has obtained 18 patents for the process or preparations arising out of the research studies.

In this field of medicine, literary research involves collection of old books and text, editing, translating/scrutinising and publishing them, also collection of references on drugs and diseases by preparing bibliographic journals.

People in other countries are informed about the research and development works of the Council under the Scheme for International Exchange Program through seminar or workshops on ISM&H.

Private Companies' Research

Almost all the major companies are involved in research and development of new drugs and products in ayurveda. However, their expenditure on research and development is not very high. Generally a company spends about 1-1.5% of turnover on R&D. Some of these companies plan to increase their share to 2.5% of their turnover. Their main focus is on standardisation of their products and raw materials. They are also involved in identifying active ingredients in traditional medicines, coming up with new medicines. Some of the companies which do research works are Dabur, Zandu Pharmaceutical Works ltd., Amrutanjan limited, Emami limited, JB Chemicals & Pharmaceuticals limited, Nicholas Piramal, Orchids Chemicals & Pharmaceuticals, Shri Baidyanath Company. A brief description on the research activities carried out at these companies is given in **Annexure 1(iv).**

A detailed description on research on herbal remedies around the world is given in **Annexure 1(xix).**