

**Annexure 1(xiii)**  
**Research in Private Sector**

**HIMALAYA DRUG COMPANY:** The Himalaya Drug Company founded in 1930, has always aspired to put Ayurveda, one of the oldest healing systems in the world, at par with modern medicine. The discovery of *Rauwolfia serpentina* and the world's first anti-hypertensive drug that came from it, Serpina, helped establish the organization as a reputable pharmaceutical company in the eyes of doctors practising modern medicine.

Today the Company's products are available in over 40 countries around the world including the UK, the US, Switzerland, Belgium, Holland and Russia. Liv.52, one of Himalaya's leading brands, is listed as a registered pharmaceutical product in Switzerland, as a medicine in Russia and as a health supplement in many other international markets.

Ayurvedic Concepts, the Company's first retail outlet, opened in 1996 in the Cayman Islands. This unique, guided self-care centre offers the wide range of scientifically validated Ayurvedic therapies that the Company has researched thoroughly. The success of the Cayman Islands venture spurred The Himalaya Drug company to collaborate with Ayurvedic Concepts Limited of Houston, Texas, to open a chain of similar stores in the US.

The Himalaya Drug Company is the only Indian company whose Ayurvedic medicines are available in the Hale Clinic in London, a centre for medicine supported by H. R. H., Prince Charles. The company's products are also available through the prestigious John Bell & Croyden stores in the UK.

The Product Range is Geriforte, Ophacare, Mentat, Styplon, Koflet, Clarina, Bonnisan, Diakof, Purim, Septilin, Serpina, Diabecon, Abana, Liv 52, Efcid-CA, Gasex, Herbolax, Tentex forte, Diarex, Himcolin, Cystone, Renalka, EveCare, Speman, Pilex, V-Gel, Confido, Lukol, Rumalaya.

The Healthcare products include Antacid suspension, Ayurslim capsules, Blood purifier capsules & syrup, Cough syrup, Daily health capsule, Dental

cream, Digestive capsules & syrup, ImmuneGuard capsules & syrup, Laxative syrup. Another range of Bodycare products includes Antiseptic cream, Anti-stress massage oil, Cold relief balm, Foot care cream, Muscle & joint rub, Pain balm, and Pain massage oil.

The Haircare products of the company are After wash hair conditioner, Anti-dandruff hair cleanser, Anti-Dandruff hair vitaliser, Nourishing hair cleanser with conditioner, Protein rich hair cleanser, Revitalising hair nutrient, A Range of Skincare Products from the company includes Acne-n-pimple cream, Anti-Wrinkle cream, Astringent lotion, Deep cleansing lotion, Gentle Exfoliating scrub, Gentle face wash cream, Gentle face wash gel, Moisturising lotion for dry skin, Protective lip salve, Revitalising cream, Rich moisturising lotion, Soothing hand & body lotion and Animal health care products are: Gastricare, Speman, Tentex forte, Inflamin, Styplon, Diarex, Rumalaya, Septilin.

The company is exporting to various countries such as Albania, Denmark, Greece, Kenya, Belgium, Ecuador, Holland, Kuwait, Bulgaria, Egypt, Hungary, Mexico, Cayman Islands, Estonia, Nepal, Czech Republic, Federal Republic of Yugoslavia, Italy, New Zealand, Philippines, Russia, Spain, Ukraine, Poland, Saudi Arabia, Switzerland, Uzbekistan, Portugal, South Africa, UAE, Venezuela, Qatar, Sri Lanka, UK, Vietnam, Romania, Sultanate of Oman, USA, Yemen.

The thorough and rigorous approach adopted by the Company has helped it become one of the most respected Ayurvedic pharmaceutical companies in the world.

Most of its products meet the stringent standards set by the new European Union Legislation. The Research and Development facility at The Himalaya Drug Company is one of the few recognised for natural medicine by the Department of Science and Technology, Government of India.

2. **DABUR INDIA LIMITED:** Dabur India Limited is one of the leading consumer goods company of India with interests in healthcare, personal care and foods. For more than a century Dabur has worked in active collaboration with nature to provide the best of herbal health and personal

care products to its consumers. Today, Dabur is all set to take this abundant knowledge of Ayurveda to global frontiers.

Dabur is a company with a set of established business values, which direct its functioning as well as all its operations. The company offers its consumers, products to suit their needs and give them good value for money. The company is committed to follow the ethical practices in doing business. At Dabur, Nature acts as not only the source of raw material but also as an inspiration and the company is committed to protect the ecological balance.

A vast array of products touching the lives of almost every individual, from an infant to a grand old man, from poor to rich; that's how the Dabur's range of personal healthcare and food products could be best explained. Today Dabur trust has travelled beyond the boundaries of India and are available in more than 50 countries worldwide. These value for money products have made Dabur a household name.

Dabur products have found appreciation across the globe, in a market that spans the seven continents:

Middle East, East and West Europe, Russia and CIS, Central and South America, USA and Canada, South East Asia (Japan, Malaysia, Singapore, Thailand), North Africa, Bangladesh & Sri Lanka.

Overseas Production Bases: Dabur India Limited also has at United Kingdom (Work in progress), Egypt, Nepal & UAE (franchisee under technology transfer agreement).

Though Dabur starting its exports way back in the early 1900s, it gathered momentum in the seventies with the Middle East market. Presently, Dabur Amla Hair Oil is not only the largest hair oil brand, it has also helped in making Dabur a household brand in that region.

Yet another major market for Dabur is Europe. With increasing awareness about the natural goodness of herbal products, the demand for Dabur products has seen a steady increase in the last one decade. Dabur set up its office and warehouse in UK to service this burgeoning market. Apart

from this, Africa, USA, Russia and the Far East also offer tremendous potential.

Dabur Egypt Limited is a subsidiary of Dabur and was set up to manufacture and market Dabur products in Egypt and other parts of Africa. Dabur also has a franchisee for manufacturing its products in the Middle East. Dabur Nepal Private Limited is yet another subsidiary that has done exceedingly well since its inception. Today, the company is one of the largest exporters of Nepal. Dabur Nepal manufactures an astounding variety of Dabur products like Fruit Juices, Tooth powders, Digestives, Hair Oils and Honey. In fact, Dabur Nepal is the only manufacturing base for Real Fruit Juices. It has also set up a greenhouse for developing saplings of medicinal plants. The company has set up an apiculture centre to develop Honeybee Products in Nepal for exports.

3. **CHARAK** : The Charak group strives to bridge the gap between ancient and modern medicine to make the wonders of a 5000-year old legacy come alive scientifically, clinically and accurately.

Inspired by the greatest Ayurvedic scholar and physician of yore, Charaka (circa 1000 BC), the Shroff brothers set their vision far beyond the horizon to set standards that would stand the test of time. Thus was born the Charak Group – today one of the largest producers of Ayurvedic products in India.

Charak's raw materials are sourced from the best plantations which are found on the slopes of the Himalayas and various forests of India. It is remarkable to know that they are grown according to the prescribed standards and norms.

The Product Range of Charak comprises of Ayurvedic Medicines & Formulations which includes Therapeutic medicines, General Healthcare medicines, Veterinary medicines and extracts.

Charak exports to various countries like: Mexico, Phillipiness, Oman, Ukraine, Belgium, Russia, South Africa, UK, USA, Canada, Italy, Portugal, Switzerland, Mauritius and Srilanka.

Charak has played a very important role in taking the Indian heritage to the world. During the last two years, Charak's exports have grown four times and continue to be on the rise everyday. Today's Charak's products are available in the USA, Canada, Mexico, Italy, Germany, South Africa, Australia, Oman, Portugal, Mauritius, Sri Lanka, Malaysia, Switzerland, Ukraine and Russia. This is primarily due to the high rate of safety and efficacy of the products and the extreme flexibility with which the company deals with international customers.

4. **J & J. DECHANE:** J & J. DeChane was started in 1918, with the object of rendering medical aid primarily to rural areas.

J & J. DeChane during the last 80 years devoted all its efforts and attention to the health and well-being of the people by providing them with effective, safe and economical medicines.

DeChane Herbo-mineral medicines are based on the principles of Ayurveda, Homeopathy and Allopathy.

The Major Product Categories of the company are: Herbo-Mineral Medicines.

The Product Range includes: Ripanto, Fe Ripanto, Ferrous Fumarate I.P., Olosyn, Koflyn, Albo-Sang, Amyglia, Bio-Sal, Brahamidine, Chesol, Dagine, Decil, Diasyn, Gastromone, Herbitars, Entrops, Grandi-co, Healing dust, Hemoplex, Herbo-sulph, Iobine, Kynotomine, Magnine, Meditab, Mersina, Nervo-Plex, Nevoss, Olosyn, Rasgent, Remorin, Rubzon, Sal Phos, Senzine, Skinment, Spolax, Taxine, Vitesson, Zaher-co.

5. **THE ARYA VAIDYA SALA KOTTAKKAL:** Arya Vaidya Sala, established in 1902 for the manufacture and supply of Ayurvedic medicines for the treatment of his patients at Kottakkal, had its beginning essentially as a rural clinic, started growing in its size, scope and also in its stature and it became instrumental in creating an enhanced awareness among the public at large about the efficacy of the Ayurvedic system of medicines in the modern times.

Progress was rapid; and the reputation of the treatment and medicines shot up. To cater to the needs of an ever-increasing number of patients, branches were opened at Calicut (Kozhikode) in 1916, and at Palghat in 1932. After the death of Shri P. S. Varier, founder of “The Arya Vaidya Sala Kottakkal”, more branches and depots were opened.

Besides, there are more than 900 Authorised Agencies all over India and in foreign countries like Malaysia, Singapore, etc. where medical advice and our medicines are available to a very large number of ailing patients.

The Product Range comprises of products and treatments: The medicines manufactured by the Arya Vaidya Sala Kottakkal are: Chyavanprasad, Garbhakshini, Aswagandharishtam, Pinda Tailam, Dasamoolarishtam, Jeerakadyarishtam, Manasamitra vatakam pill, Seetajwarari kwatham+Talisapatradi vatakam. The treatments provided are: Dhara, Oordhwanga Dhara, Sarvanga Dhara, Pizhichil, Navarakkizhi, Sirovasti, Sirolepa.

Medicines are prepared on modern lines with high purity, quality & by ensuring the efficacy of every medicine.

It exports to countries like: Malaysia, Singapore & Indian Subcontinent.

6. **AMRUTANJAN Limited:** mrutanjan, started in 1893, has a wide range of Ayurvedic and Allopathic products ranging from pain balms of various strengths to revitalisers.

Mrutanjan has helped millions of people to relieve themselves of pain and discomfort of headache, cold, sprain, muscular pain, rheumatic pain and lumbago. The prime product of the company is Amrutanjan Pain Balm. This product enjoys the confidence of millions of people and is always a winner.

Amrutanjan Ayurvedic Products are GMP certified and the Major Products Categories are: Pain Balm, Maha Inhaler, Tingle, Strong Painbalm, Cold Snap, Agni.

The Export Break-up of different products are: Pain Balm- Rs. 2.0 million, Maha Inhaler- Rs.1.0 million, Tingle, Strong painbalm, Cold Snap, Agni- Rs.3.5 million.

All the products contain natural ingredients with no side effects & have been used for ages in the Siddha system of medicines.

Amrutanjan has been regularly exporting to the Middle East, Dubai, Malaysia, Oman, Kenya, Yuganda & other African countries. Arrangements are also being made to enter into the U. S. & Europe markets.

7. **BETHANY NATURE CURE YOGA CENTRE:** With the idea of providing total health Bethany Fathers started a centre in 1976 at Bethany Hills. On August 19<sup>th</sup>, 1982 the centre was shifted to Bethany Nagar (Makonam), equipped with modern amenities and facilities.

The Centre has peaceful salubrious atmosphere. The Centre provides Nature Cure Treatment, Counselling and Yoga classes.

Centre provides Nature cure treatment, Counselling and Yoga Classes. Nature cure is available for diseases like Diabetes, Asthma & T.B, Arthritis, Stress & Strain oriented diseases.

Nature cure looks at the three aspects of a person's health Physical, Mental & Spiritual. The centre provides nature cure treatment, counselling and Yoga Classes. Nature cure is available for diseases like Diabetes, Asthma & T.B., Arthritis, Stress & Strain oriented diseases, Skin related, Overweight, Kidney & Gall Bladder problem, Heart related, Constipation, Gastric Ulcer, Anaemia etc.

The Centre subscribes the philosophy that by using the elements of nature and training the mind, any disease can be cured & finally perfect health and power can be attained.

Many persons from different countries attend the programmes available at the centre.

8. **ZANDU PHARMACEUTICAL WORKS LIMITED:** Zandu, a household name established in 1919 is one of the leading players in the over-the-counter ayurvedic healthcare segment with products including the popular Zandu balm, general fitness medicine Zandu Kesari Jivan, Zandu Chyavanprash and digestive tonic Zandu Pancharishta. In the personal care segment, the major product is hair tonic Alma Lio. Jivan is the market leader of ayurvedic healthcare industry. Zandu also has a wide range of ethical ayurvedic formulations for malaria, diabetes, skin problems, arthritis, liver problems & diabetes.

Zandu has received USFDA approval for conducting investigative clinical trials for a potential cure for Parkinson's disease, for which it already has a patent in India. Once approved in the US, the company plans to examine the option of assigning the marketing rights to an overseas company.

Zandu has century old understanding of natural products and ayurveda.

As part of its long-term strategy, Zandu is planning to expand its presence in the ayurvedic personal care segment by launching herbal cosmetics & toiletries. The company also plans to launch 10-12 new products every year.

9. **SHREE BAIDYANATH AYURVED BHAWAN LIMITED:** One of India's most respected Companies, **Shree Baidyanath Ayurved Bhawan Limited**, popularly known as **Baidyanath**, is the acknowledged leader of Ayurvedic know-how. **Established in 1917**, the Company has played a pioneering role in re-establishing ancient knowledge with modern research and manufacturing techniques.

Besides being the manufacturer of the largest range of Ayurvedic Products in the world, **Baidyanath's** achievements and strengths include:

- ?? Manufacturer of over 700 Ayurvedic Products.
- ?? 10 manufacturing Centres.
- ?? Number of employees – 1700.
- ?? Continuously updated centralised R & D facilities.



- ?? Over 3500 exclusive showrooms manned by qualified medical practitioners.
- ?? Over 1000 distributors.
- ?? Exports to several countries.
- ?? Running Ayurvedic Hospitals.
- ?? Publishing a monthly magazine – “Sachitra Ayurved”.
- ?? 5 free clinics serving over 300 patients each day.
- ?? Institution of awards for significant research on Ayurveda.
- ?? Running two leading schools in two States of India.

**Baidyanath** can produce any Ayurvedic and Herbal formulation in large quantities for specific ailments. We are already manufacturing and exporting for private labels in USA and UK for dietary herbal supplements and welcome further proposals from international buyers.

**Baidyanath** organises 30 days residential training on Ayurveda at a nominal cost, by eminent Ayurvedic professors with text aid in Calcutta, India.

This training is conducted round the year and welcomes trainees in groups of four. Accommodation, with food, is provided at the company guest house. Facilities include airport transfer and optional Hindi language classes.

10. **Emami limited:** Well established company in Ayurvedic product. R&D expenditure is only Rs. 8.44 lacs. Their main focus is on expanding the range of ayurvedic medicines.
11. **JB Chemicals & Pharmaceuticals limited:** The Company spends around 1.5% of the revenue towards R&D and plans to increase this share to 2.5%. In 1999 the company was granted Certificate of Suitability by European Department for Quality of Medicines. R&D work focuses on standardisation of natural products using combination of ancient Ayurvedic database and sophisticated analytical method.

12. **Nicholas Piramal:** In April 1998 acquired Hoechst R&D. The institute focuses on new drug discovery and herbal drug research. The institute focus is on lead discovery through extensive screening of natural products extracts.
  
13. **Orchids Chemicals & Pharmaceuticals:** The company has collaborated with JSS college of pharmacy in projects to identify the active ingredients of traditional herbal medicines. The emphasis is on polyherbal drugs for nutraceuticals segment on diabetes, lipid-lowering medicines to be followed up with other segments like memory enhancement.

## Annexure 1 (xiv)

### Research on Herbal Remedies around the world

#### Europe

European phytomedicines, researched in leading European universities and hospitals, are among the world's best-studied medicines. In some cases they have been in clinical use under medical supervision for more than 10 years, with tens of millions of documented cases. This form of botanical medicine most closely resembles American medicine. European phytomedicines are produced under strict quality control in sophisticated pharmaceutical factories, packaged and labeled like American medicines, and used in tablets or capsules.

Examples of well-studied European phytomedicines include *Silybum marianum* (milk thistle), *Ginkgo biloba* (ginkgo), *Vaccinium myrtillus* (bilberry extract), and *Ilex guayusa* (guayusa). Their efficacy is well documented. Herbs of American origin, such as *Echinacea* (purple coneflower) and *Serenoa repens* (saw palmetto), are better studied and marketed in Europe than in the United States. Annexure gives a brief description on the recent research on these phytomedicines and American herbs.

- ?? **Milk thistle** (*Silybum marianum*). Milk thistle has been used as a liver remedy for 2,000 years. In 1970s studies, seed extracts protected against liver damage and helped regenerate liver cells damaged by toxins (alcohol) and by diseases such as hepatitis and cirrhosis. More recently, a 6-month treatment of milk thistle significantly improved liver function in 36 patients with alcohol-induced liver disease.
- ?? **Bilberry extract** (*Vaccinium myrtillus*). Bilberry extract is believed to help prevent or treat fragile capillaries. Capillary fragility can cause fluid or blood to leak into the tissues, causing hemorrhage, stroke, heart attack, or blindness. Less serious effects include a tendency to bruise easily, varicose veins, poor night vision, coldness, numbing, and leg cramping. Bilberry extract may protect capillaries and other small blood vessels by increasing the flexibility of red blood cell membranes. This action allows capillaries to stretch, increasing blood flow, and red blood cells can deform into a shape that eases their way through narrow capillaries.

?? **Ginkgo biloba extract.** Though this oriental herb has a different traditional use in Asia, Ginkgo biloba is one of Europe's most lucrative phytomedicines (Duke, 1988). In Europe, ginkgo is used mainly against symptoms of aging. It is believed to stimulate circulation and oxygen flow to the brain, which can improve problem solving and memory. It was shown to increase the brain's tolerance for oxygen deficiency and to increase blood flow in-patients with cerebrovascular disease. No other known circulatory stimulant, natural or synthetic, has selectively increased blood flow to disease-damaged brain areas. In a French study, "the results confirmed the efficacy of [ginkgo extract] in cerebral disorders due to aging". In another experiment, those given ginkgo showed consistent and significant improvement over the control group on all tests, including mobility, orientation, communication, mental alertness, recent memory, and other factors.

Ginkgo extracts also stimulate circulation in the limbs, reducing coldness, numbness, and cramping. In elderly people, ginkgo improved pain-free walking distance by 30 percent to 100 percent. It also lowered high cholesterol levels in 86 percent of cases tested and prevented oxygen deprivation of the heart. The extract seems to affect neurons directly, as shown by a recent French study. Another French study proved protection against cell damage, this time by ultraviolet light.

A German study documented benefits of long-term ginkgo use in reducing cardiovascular risks, including those associated with coronary heart disease, hypertension, hypercholesterolemia, and diabetes mellitus. By maintaining blood flow to the retina, ginkgo extracts inhibited deteriorating vision in the elderly.

?? **Ilex guayusa** (guayusa). In animal studies, a concentrated aqueous herbal preparation from guayusa leaves significantly reduced uncontrolled appetite, excessive thirst, and weight loss associated with diabetes. Although guayusa's active principles are not established, guayusa contains guanidine, a known hypoglycemic (blood sugar-lowering) substance.

?? **Echinacea** (purple coneflower). The subject of more than 350 scientific studies, most conducted in Europe, Echinacea seems to stimulate the immune system nonspecifically rather than against specific organisms. In laboratory tests, Echinacea increased the number of immune

system cells and developing cells in bone marrow and lymphatic tissue, and it seemed to speed their development into immunocompetent cells (cells that can react to pathogens).

Echinacea exhibits interferon like antiviral activity documented through extensive experiments in Germany. For example, in a double-blind, placebo-controlled study of 180 volunteers, Echinacea's therapeutic effectiveness for treating flu-like symptoms was "good to very good". Another study showed that orally administered Echinacea extracts significantly enhanced phagocytosis in mice. Another study showed that Echinacea polysaccharides increased the number of immunocompetent cells in the spleen and bone marrow and the migration of those cells into the circulatory system. The authors said these effects resulted in excellent protection of mice against consequences of lethal listeria and candida infections.

?? **Saw palmetto** (*Serenoa repens*). These berries have been used to treat benign prostatic hypertrophy (BPH). The standardized extract was clinically evaluated as effective, has no observed side effects, and costs 30 percent less than the main prescription drug marketed in the United States for BPH. Another effective herbal drug for treating BPH is made from *Prunus africanum* and is widely prescribed in France.

## China<sup>1</sup>:

?? Since the early 19th century, attempts have been made to understand the actions and properties of traditional Chinese medicine through scientific research. Nearly all of this work has been conducted during the past 60 years, primarily in laboratories in China, Korea, Japan, Russia, and Germany. It was also during this time that most of the drugs used in modern biomedicine were developed. It is therefore not surprising that most of the biomedical research into the effects and uses of traditional Chinese medicinal substances has attempted to isolate their active ingredients and to understand their effects on body tissues.

Several institutions and laboratories at the forefront of medicinal plant research in China are working to identify and study the active ingredients in traditional Chinese herbal remedies. Researchers at the

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<sup>1</sup> The data on specific herbs are taken from Chinese Herbal Medicine: Materia Medica, revised edition, compiled and translated by Dan Bensky and Andrew Gamble.

Institute of Materia Medica in Beijing study the use of herbal remedies to prevent and treat the common cold, bronchitis, cancer, and cardiovascular disease and to prevent conception. The institute has isolated compounds such as bergenin from *Ardisia japonica*, traditionally used to treat chronic bronchitis, and monocrotaline from *Crotalaria sessiliflora*, used in folk medicine to treat skin cancer. Most of China's 5,000 medicinal plant species are represented in the institute's herbarium. Other Chinese research organizations with major programs on medicinal herbs are the Institute of Chinese Medicine, Beijing; the Institute of Materia Medica, Shanghai; the Institute of Organic Chemistry, Shanghai; the Municipal Hospital of Chinese Traditional Medicine, Beijing; the College of Pharmacy, Nanking; and the Department of Organic Chemistry and Biochemistry, Beijing University.

Many herbs in China have been extensively studied by using methods acceptable from a Western perspective. Ginseng is one of the world's most thoroughly researched herbs. Following is an overview of recent research on ginseng and other herbs in China.

?? **Ginseng root** (*Panax ginseng* [ren shen]). The Chinese first used oriental ginseng (*Panax ginseng*) more than 3,000 years ago as a tonic, a restorative, and a specific treatment for several ailments. By the 10th century, oriental ginseng had traveled the Silk Road to the Arabic countries, and during the next 4 centuries it spread to Europe, where the French, among others, used it to treat asthma and stomach troubles.

In modern times, ginseng has been extensively studied in China, Japan, and Korea and, to a lesser degree, in the United States. In its various forms, ginseng or its compounds have various physiological effects. These include antistress capabilities, antihypoxia effects, alteration of circadian rhythms by modifying neurotransmitters, cardiac performance effects, protection against myocardial infarction in animals, histamine response effects, inhibition of platelet aggregation, alteration of circadian variation of plasma corticosterone, modulation of immune functions, and delay of the effects of aging.

?? **Fresh ginger rhizome** (*Zingiber officinale* [sheng jiang]). In one study, preparations of sheng jiang and brown sugar were used to treat 50 patients with acute bacillary dysentery. A cure rate of 70 percent was

achieved in 7 days. Abdominal pain and tenesmus (an urgent but ineffectual attempt to urinate or defecate) disappeared in 5 days, stool frequency returned to normal in 5 days, and stool cultures were negative within 4 days, with no side effects.

In another study, 6 to 10 thin pieces of sheng jiang placed over the testes were used to treat acute orchitis (inflammation of the testicles). The ginger was changed daily or every other day. All participants felt a hot-to-numbing sensation in the scrotum, while a few reported local erythema and edema. Among 24 patients in the study, average cure time was 3 days. In a control group of four patients, average healing time was 8.5 days. This technique is not recommended for patients with scrotum lesions.

?? **Chinese foxglove root** (*Rehmannia glutinosa* [sheng di huang]). A preparation of this herb and *Radix glycyrrhiza uralensis* (gan cao) was used to treat 50 cases of hepatitis in various stages. Within 10 days, 41 cases showed improved symptoms, reduced liver and spleen size, and improved liver function tests. Experiments from the 1930s seemed to show that sheng di huang, given to rats via gastric lavage or injection, lowered serum glucose levels. Later studies of this problem showed variable results. Work in Japan showed that the herb is useful in treating experimental hyperglycemia in rats. In other studies, decoctions of sheng di huang have been used to treat rheumatoid arthritis in adults and children. In one uncontrolled study, 12 subjects all showed reduced joint pain and swelling, increased function, improved nodules and rash, and lowered temperature. Follow-up over 3 to 6 months showed only one relapse, which was treated successfully with the same preparation.

?? **Baical skullcap root** (*Scutellaria baicalensis* [huang qin]). Huang qin was shown to inhibit the skin reaction of guinea pigs to passive allergic and histamine tests. It has been shown to be effective in treating guinea pigs with allergic asthma. Huang qin also prevented pulmonary hemorrhage in mice subjected to very low pressure. Huang qin has an inhibitory effect against many kinds of bacteria in vitro, including *Staphylococcus aureus*, *Corynebacterium diphtheriae*, *Pseudomonas aeruginosa*, *Streptococcus pneumoniae*, and *Neisseria meningitidis*. In one report, one strain of bacteria (*Staph. aureus*) that was resistant to penicillin remained sensitive to this herb. According to one study, 100 patients with bacillary dysentery received a prescription composed

mainly of huang qin. Mean recovery times were 2.5 days until symptoms disappeared, 3.3 days until normal stool examination, and 4.3 days until negative stool cultures.

?? **Coptis rhizome**, or yellow links (*Coptis chinensis* [huang lian]). Huang lian and one of its active ingredients, berberine, have broad effects in vitro against many microbes. It strongly inhibits many bacteria that cause dysentery; it is more effective than sulfa drugs but less effective than streptomycin or chloramphenicol. Decoctions of huang lian have been effective against some bacteria that developed resistance to streptomycin and other antibiotics. The herb's antimicrobial ingredient is generally considered to be berberine. Experiments on chicken embryos show that huang lian has an inhibitory effect against flu viruses and the Newcastle virus.

A 10-percent solution of huang lian also was used to treat 44 cases of scarlet fever. It was as effective as penicillin or a combination of penicillin and a sulfa drug. Huang lian also has been successfully used to treat diphtheria; in one study, the fever subsided in 1 to 3 days.

?? **Woad leaf** (*Isatis tinctoria* [da qing ye]). Da qing ye kills some kinds of bacteria, including some strains resistant to sulfa drugs. It was reported effective in hundreds of cases of encephalitis B, with cure rates of 93 percent to 98 percent. In most cases the fever subsided in 1 to 4 days, and symptoms disappeared 3 to 5 days later. Da qing ye has been effective by itself in mild and moderate cases; other herbs, acupuncture, and Western drugs should be added in severe cases.

In a study of 100 subjects, only 10 percent of the group given a da qing ye decoction twice daily had upper respiratory infections during the study period versus 24 percent of the control group. When a mixture of decoctions of da qing ye and *Herba taraxaci mongolici cum radice* (pu gong ying) was given to 150 children with measles, signs and symptoms disappeared in 4 to 5 days. In 68 of 100 cases, da qing ye was used successfully to treat infectious hepatitis.

?? **Wild chrysanthemum flower** (*Chrysanthemum indicum* [ye ju hua]). Ye ju hua has been used to treat hypertension, either alone as an infusion or with *Elos Ionicerae japonicae* (jin yin hua) and *Herba taraxaci mongolici cum radice* (pu gong ying) in a decoction. Ye ju hua preparations have an inhibitory effect in vitro against some bacteria and viruses. Preparations given orally or as injections lowered blood



pressure. Preparations made from the whole plant had more toxicity and fewer efficacies than those made from the flower alone.

One study was performed with 1,000 subjects to see whether ye ju hua would prevent colds. The subjects were compared with their own histories and against a matched set of 261 controls. A ye ju hua decoction was taken once a month by people with histories of infrequent colds, twice a month by those with three to five colds a year, and weekly by those with frequent colds. Comparison with their own histories showed a 13.2-percent reduction in frequency, but a greater frequency in comparison with the controls. At the same time, another clinical series of 119 cases of chronic bronchitis was observed. Using the same preparation, this group experienced a 38-percent reduction in acute attacks in comparison with their seasonally adjusted rate for the previous year.

?? **Bletilla rhizome** (*Bletilla striata* [bai ji]). Bai ji, in powdered form or in a powder made from starch and a decoction of bai ji, helped control bleeding in seven of eight cases of surgical wounds to dogs' livers. Pure starch was much less effective. Similar results have been achieved with sponges soaked in a sterile water-extraction solution of the herb. In anesthetized dogs with 1-mm-diameter stomach perforations, washing the perforations with 9 g of powdered bai ji through a tube closed the perforations in 15 minutes. Eight hours after the procedure the abdomens were opened, and no trace of gastric contents was found. When the dogs' stomachs were full or the perforations were larger, powdered bai ji had no effect.

In another study, powdered bai ji was used to treat 69 cases of bleeding ulcers, and in all cases the bleeding stopped within 6.5 days. In another series of 29 perforated ulcer cases, the powdered herb was successful in 23 cases, 1 required surgery, and the other 4 died (1 went into hemorrhagic shock while under treatment, and the other 3 were in precarious condition on admission).

In other studies, powdered bai ji was given to 60 chronic tuberculosis patients who had not responded to normal therapy. After taking the herb for 3 months, 42 were clinically cured, 13 significantly improved, and 2 showed no change. A sterile ointment made from decocted bai ji and petroleum jelly was used in a local application to treat 48 cases of burns and trauma (less than 11 percent of total body area). Dressings

were changed every 5 to 7 days, and all patients recovered within 1 to 3 weeks.

- ?? **Salvia**, or cinnabar root (*Salvia miltiorrhiza* [dan shen]). Dan shen caused coronary arteries to dilate in guinea pig and rabbit heart specimens. In one study of 323 patients given a dan shen preparation for 1 to 9 months, there was marked improvement in 20.3 percent of clinical cases and general improvement in 62 percent of cases. Results were best when patients had coronary artery disease and no history of myocardial infarction. In a clinical series of more than 300 patients with angina pectoris, a combination of dan shen and *Lignum dalbergiae odoriferae* (jiang xiang) given intramuscularly or intravenously improved symptoms in 82 percent and electrocardiograms in 50 percent of cases.
- ?? **Corydalis rhizome** (*Corydalis yanhusuo* [yan hu suo]). Yan hu suo is widely used to treat pain. Powdered yan hu suo is a very strong analgesic, about 1 percent the strength of opium. In one clinical study of 44 patients with painful or difficult menstruation, 50 mg of the yan hu suo active ingredient, dihydrocorydaline, given 3 times a day brought significant relief in 14 cases and reduced pain in another 18 cases. Side effects included reductions in menstrual flow, headaches, and fatigue.
- ?? **Root of Szechuan aconite** (*Aconitum carmichaeli* [fu zi]). Fu zi's toxicity has always been a major concern. It is usually prepared with salt to reduce its toxicity. Anesthetized dogs or cats given fu zi preparations showed a sharp drop in blood pressure. In another experiment, fu zi caused blood vessels to dilate in lower extremities and coronary vessels. In normal dosage for humans, fu zi slightly lowers blood pressure, while a large overdose can cause rapid heartbeat or ventricular fibrillation. This herb seems to have some cardiotonic function and a regulatory effect on heart rhythm. Administered with herbs such as *Cortex cinnamomi cassiae* (rou gui), *Panax ginseng* (ren shen), *Rhizoma zingiberis officinalis* (gan jiang), and *Radix glycyrrhiza uralensis* (gan cao), fu zi raised blood pressure in animals with acute hemorrhage. In one study, patients with congestive heart failure were treated by intramuscular injections of a fu zi preparation.

?? **Licorice root** (*Glycyrrhiza uralensis* [gan cao]). Gan cao preparations have been used with common antituberculosis drugs in many large clinical studies among patients who did not respond to standard treatment. In most cases, symptoms improved or disappeared and x rays improved markedly. In many clinical studies using gan cao for ulcers with groups of 50 to 200 subjects, effectiveness was around 90 percent. It was especially useful to treat the pain, which disappeared or improved within 1 to 3 weeks. The more recent the onset of disease, the better the results. In almost all cases the powdered herb was most effective.

?? **Dryopteris root**, or shield fern (*Dryopteris crassirhizoma* [guan zhong]). *Dryopteris crassirhizoma* is called dong bei guan zhong because it is found in northeastern (dong bei) China. In recent times this herb has been prescribed as a preventive measure during influenza epidemics. Guan zhong preparations strongly inhibit the flu virus in vitro. In one clinical trial, 306 people took twice-weekly doses of guan zhong and 340 served as controls. In the treatment group, 12 percent became ill versus 33 percent of the controls. Local versions of guan zhong from Guangdong, Hunan, and Jiangxi provinces have mildly inhibitory effects in vitro against many pathogenic bacteria. Guan zhong also is effective against pig roundworms in vitro, and it expels tapeworms and liver flukes in cattle.

In other studies, decoctions and alcohol extracts of dong bei guan zhong strongly stimulated the uterus of guinea pigs and rabbits. It increased the frequency and strength of contractions. Intramuscular injections of dong bei guan zhong preparations were used with more than 91-percent success to treat postpartum, postmiscarriage, and postsurgical bleeding.

?? **Garlic bulb** (*Allium sativum* [da suan]). Da suan preparations have a strong inhibitory effect in vitro against amebae. In one study, concentrated da suan decoctions were used to treat 100 cases of amebic dysentery. The cure rate was 88 percent, and the average hospital stay was 7 days. In this clinical study, purple-skinned bulbs were more effective than white-skinned bulbs. Patients were discharged on a regimen that included purple-skinned da suan in the daily diet. When used with Chinese leek seeds, da suan juice and decoctions have a strong inhibitory effect in vitro against many pathogenic bacteria. Da suan can be effective against bacteria that

resist penicillin, streptomycin, and chloramphenicol. In one clinical study, 130 patients with bacillary dysentery were given da suan enemas. Of the follow-up colonoscopies, 126 showed that pathological changes were resolved within 6.3 days. In other studies with hundreds of patients, da suan's effectiveness against bacillary dysentery was more than 95 percent. Again, purple-skinned garlic seemed more effective than white-skinned and fresh bulbs were more effective than old ones. In one clinical study, 17 cases of encephalitis B were treated with an intravenous drip of da suan preparations and supportive care. Except for one fatality, all other cases recovered.

## India

Ayurveda, the oldest existing medical system, is recognized by WHO and is widely practiced. India recently increased research on traditional Ayurvedic herbal medicines after observations that they are effective for conditions to which they have traditionally been applied. For example, the ancient Sanskrit text on Ayurveda, the Sushruta Samhita, noted that Commiphora mukul was useful in treating obesity and conditions equivalent to hyperlipidemia, or increased concentrations of cholesterol in the body. The plant has been used by Ayurveda practitioners for at least 200 years and may have been in use since the writing of the Sushruta Samhita more than 2,000 years ago. In a recent study, the crude gum from Commiphora mukul significantly lowered serum cholesterol in rabbits with high cholesterol levels. The plant substance also protected rabbits from cholesterol-induced atherosclerosis (hardening of the arteries). This finding led to pharmacological and toxicological studies that showed this herbal remedy to be effective in humans, with no adverse side effects. Approval was obtained from the national regulatory authority in India for further clinical trials. The drug is marketed in India and other countries for treatment of hyperlipidemia.

The following other Ayurvedic herbs have recently been studied in India under modern scientific conditions:

?? **Eclipta alba.** In Ayurvedic medicine, Eclipta alba is said to be the best drug for treating liver cirrhosis and infectious hepatitis. Eclipta alba and Wedelia calendulacea are widely used in India for jaundice and other liver and gall bladder ailments. One recent study showed that a liquid

extract from fresh *Eclipta* leaves was effective in vivo in preventing acute carbon tetrachloride-induced liver damage in guinea pigs. Clinically, the powdered drug is effective against jaundice in children.

- ?? **Common teak tree** (*Tectona grandis*). Trunk wood and bark of the common teak tree are described in Ayurvedic medicine as a cure for chronic dyspepsia (indigestion) associated with burning pain. Teak bark forms an ingredient of several Ayurvedic preparations used to treat peptic ulcer. The solution reduced gastric ulcers in restrained albino rats and significantly inhibited gastric and duodenal ulcers in guinea pigs.
- ?? **Indian gooseberry** (*Emblica officinalis* [amla]). Studies were conducted on the effect of total serum cholesterol by using amla to supplement the diets of normal and hypercholesterolemic men aged 35-55. The supplement was given for 28 days in raw form. Normal and hypercholesterolemic subjects showed decreased cholesterol levels. Two weeks after the supplement was withdrawn, total serum cholesterol levels of the hypercholesterolemic subjects rose almost to initial levels.
- ?? **Picrorhiza kurroa**. *P. kurroa* rhizomes are main ingredients of a bitter tonic used in fever and dyspepsia (indigestion). This drug occupies a prestigious position in Ayurveda. It often substitutes for *Gentiana kurroo*, the Indian gentian. Powdered rhizomes also are used as a remedy for asthma, bronchitis, and liver diseases. Other researchers have reported that a *P. kurroa*-derived mixture called kutkin exhibits hepatoprotective activity; that *P. kurroa* acts as a bile enhancer; that it has antiasthmatic effects in patients with chronic asthma; and that it has immunomodulating activity in cell-mediated and humoral immunity. Another study shows that *P. kurroa* works to boost the immune system as a supplement to other treatments in-patients with vitiligo, a skin disease that causes discolored spots.
- ?? **Articulin-F**. This herbomineral formula contains roots of *Withania somnifera*, stem of *Boswellia serrata*, rhizomes of *Curcuma longa*, and a zinc complex. Experiment on a randomized, double-blind, placebo-controlled crossover study of articuln-F to treat osteoarthritis, a common progressive rheumatic disease characterized by degeneration and eventual loss of articular cartilage. Articuln-F treatment produced

a significant drop in pain severity and disability score, whereas radiological assessment showed no significant changes.

- ?? **Abortifacient plants.** Nath et al. organized a survey program in Lucknow and Farrukhabad, two towns in Uttar Pradesh, India, from March to July 1987. During the survey, they recorded the common folk medicine used by women and consulted Ayurvedic and Unani drug encyclopedias for the antireproductive potential of the following medicinal plants: leaves of *Adhatoda vasica*, leaves of *Moringa oleifera*, seeds of *Butea monosperma*, seeds of *Trachyspermum ammai*, flowers of *Hibiscus sinensis*, seeds of *Abrus precatorius*, seeds of *Apium petroselinium*, buds of *Bambusa arundensis*, leaves of *Aloe barbadensis*, seeds of *Anethum sowa*, seeds of *Lepidium sativum*, seeds of *Raphanus sativus*, seeds of *Mucuna pruriens*, seeds of *Sida cordifolia*, seeds of *Blepharis edulis*, flowers of *Acacia arabica*, and seeds of *Mesua ferrea*. Plant materials were collected, authenticated, chopped into small pieces, air dried in shade, and then ground to a 60-mesh powder. During the survey, female rats were given aqueous or 90-percent ethanol extracts of the plants orally for 10 days after insemination by males, with special attention to effects on fetal development. Leaf extracts of *Moringa oleifera* and *Adhatoda vasica* were 100-percent abortive at doses equivalent to 175 mg/kg of starting dry material.
- ?? **Neem** (*Azadiractica indica*) and turmeric (*Curcuma longa*). In the Ayurveda and Sidha systems of medicine, neem and turmeric are used to heal chronic ulcers and scabies. A study using neem and turmeric as a paste to treat scabies in 814 people was conducted. Ninety-seven percent of cases were cured within 3 to 15 days. The researchers found this to be a cheap, easily available, effective, acceptable mode of treatment for villagers in developing countries, with no adverse reactions.
- ?? **Trikatu.** Trikatu is an Ayurvedic preparation containing black pepper, long pepper, and ginger. It is prescribed routinely for several diseases as part of a multidrug prescription. These herbs, along with piperine (alkaloid of peppers), have biological effects in mammals, including enhancement of other medicaments. Of 370 compounds listed in the Handbook of Domestic Medicines and Common Ayurvedic Remedies (Handbook, 1979), 210 contain trikatu or its ingredients. Trikatu is a major decoction used to restore the imbalance of kapha, vata, and

pitta, the body's three humors. Piper species are used internally to treat fevers, gastric and abdominal disorders, and urinary difficulties. Externally they are used to treat rheumatism, neuralgia, and boils. *P. longum* and *P. nigrum* are folklore remedies for asthma, bronchitis, dysentery, pyrexia, and insomnia. In Chinese folklore, *P. nigrum* is mentioned as a treatment for epilepsy. The efficacy of *P. longum* fruits in reducing asthma in adults and children has been reported. *P. nigrum* promoted digestive juice secretion and increased appetite. *P. longum* was reported useful in patients with gastric disorders accompanied by clinical symptoms of achlorhydria.

### **Native American Indian Herbal Medicine**

In 1977 and 1978, Croom spent 2 years documenting plant remedies among the Lumbee Indians, the largest group of Native American Indians east of the Mississippi River. Following are some often-used medicinal plant remedies of the Lumbee:

- ?? **Rabbit tobacco** (*Gnaphalium obtusifolium*). These annual herbs reach a height of 1 to 3 feet and have erect stems with brown, shriveled leaves persisting into winter and stems covered with felt like hairs in summer. The leaves are 1 to 3 inches long, and alternate. The flowers are minute in whitish heads, appear in late summer to fall. Fields, pastures, and disturbed areas are the sites of this common native plant of the eastern United States. It is used to treat colds, flu, neuritis, asthma, coughs, and pneumonia. This is one of the most popular plants used by the Lumbee. The decoction is drunk hot, like most medicinal teas, and is said to cause profuse sweating.
- ?? **Poke** (*Phytolacca americana*). Also a common native plant of the eastern United States, poke is a robust, perennial herb that reaches a height of 9 feet. It has a large white root; a green, red, or purple stem; alternate leaves up to 1-foot long; and white flowers in a drooping raceme. The fruit is a dark purple to black berry, round, soft, and juicy. Poke is found in waste areas, roadsides, disturbed habitats, fields, and pastures. It is used to treat asthma, spring tonic, boils (risings), sores,

intestinal worms in people or chickens, cramps, and stomach ulcers. Poke is said to inhibit gram-positive and gram-negative bacteria and is listed as a parasiticide in the British Herbal Pharmacopoeia.

?? **Pine** (*Pinus echinata*, *P. palustris*, *P. virginiana*). Pines are resinous evergreen trees with needlelike foliage leaves in bundles of two to five. The male and female reproductive structures are in separate cones on the same tree; the female cone matures to a large woody cone with winged seeds; pollen sheds in the spring. Pine is used to treat colds, flu, pneumonia, fever, heartburn, arthritis, neuritis, and kidney problems.

?? **Oak** (*Quercus laevis*, *Q. phellos*). These deciduous trees have alternate, unlobed, or variously lobed leaves and minute flowers; the fruit is an acorn. Oak is used to treat kidney problems (including Bright's disease), bladder problems, virus, menstrual bleeding, diarrhea, sores, sprains, and swellings. It is also used as a booster for other remedies.

?? **Sassafras** (*Sassafras albidum*). These deciduous, aromatic, small trees or shrubs have green twigs and--when mature--thick, furrowed bark. The leaves are 2.5 to 5 inches long; alternate; and either unlobed, lobed on one side, or three-lobed. Flowers are small and yellow in clusters at the end of twigs. The fruit is a dark blue, fleshy drupe on a bright red stalk and cup. This common native plant of fence rows, woodland borders, and old fields of the eastern United States is used to treat measles, chicken pox, colds, flu, and fever. It is also used as a "shotgun heart remedy," a blood purifier, and a spring tonic.

According to the Handbook of Northeastern Indian Medicinal Plants Native American Indians used about 25 percent of the flora of Maryland for medicinal purposes. A few examples of medicinal plant species in Maryland are as follows:

?? **Sweetflag** or calamus (*Acorus*). The root has been used to treat flatulence, colds, coughs, heart disease, bowel problems, colic, cholera, suppressed menses, dropsy, gravel, headache, sore throat, spasms, swellings, and yellowish urine. Some tribes considered the root a panacea; others thought it had mystic powers.

?? **Bloodroot** (*Sanguinaria*). This very poisonous plant is emetic, laxative, and emmenagogue. It has been used to treat chronic bronchitis, diphtheria, sore throat, uterine and other cancers, tetterworm,



deafness, and dyspepsia; it has also been used as a pain reliever and sedative. In Appalachia it is carried as a charm to ward off evil spirits.

- ?? **Yellowdock.** Contains anthraquinones of value in the treatment of ringworm and some types of psoriasis. Rumicin from the roots reportedly destroys skin parasites. The anthraquinones are proven laxatives.
- ?? **Coneflower** (Echinacea, Rudbeckia). Echinacea (purple coneflower) reportedly increases resistance to infection, bad coughs, dyspepsia, venereal disease, insect bites, fever, and blood poisoning.
- ?? **Witch hazel.** A proven astringent and hemostat (to stop bleeding).
- ?? **Lobelia** (*Lobelia cardinalis*). Cardinal flower was used to indurate ulcers and to treat stomachache, syphilis, and worms. The leaf tea was used for cold, croup, epistaxis (nosebleed), fever, headache, rheumatism, and syphilis. *Lobelia inflata* (Indian tobacco) yields lobeline sulfate, used in antitobacco therapy. It is used as an antiasthmatic, an expectorant, and a stimulant for bronchitis; it also is used to treat aches, asthma, boils, croup, colic, sore throat, stiff neck, and tuberculosis of the lungs. Some smoked the herb to break a tobacco habit.
- ?? **Mayapple** (*Podophyllum peltatum*). Early Native American Indians used the roots as a strong purgative, liver cleanser, emetic, and worm expellant. A resin made from the plant has been used to treat venereal warts and exhibits antitumor activity; it also is used for snakebite and as an insecticide for potato bugs.
- ?? **Wild cherry** (*Prunus virginiana*). The bark has been used to treat sores and wounds, diarrhea, cold and cough, tuberculosis, hemoptysis, scrofula, sore throat, stomach cramps, and piles. Native American Indians treated snow blindness by leaning over a kettle of boiling bark "tea." Some smoked the bark for headache and head cold.
- ?? **White willow** (*Salix alba*). The bark is astringent, expectorant, hemostatic, and tonic. It is used to treat calluses, cancers, corns, tumors, and warts. Salicylic acid (used to make aspirin) is found in white willow. Leaves and bark of different willows are used in a tea to break a fever. Some Native American Indians burned willow stems and used the ashes to treat sore eyes.

**Annexure 1(xva)**  
**Institutions involved in various ISM&H Activities**

Medicine System	Total		Government		Other	
	No. of institutes	Admission capacity	No. of institutes	Admission capacity	No. of institutes	Admission capacity
Under-Graduate						
Ayurveda	154	6300	51	2004	103	4296
Siddha	2	150	2	150	0	0
ISM	187	7702	60	2445	127	5257
Post – Graduate						
Ayurveda	33	437	21	339	12	98
Siddha	1	24	1	24	0	0
ISM	37	516	24	403	13	113

*Source: Annual Report : Department of ISM & H 1999*

**Annexure 1(xvb)**  
**Ayurvedic Institutions in India**

**Institute Of Post Graduate Education & Research In Ayurveda**

294/3/1 Acharya Prafulla Chandra Road  
Calcutta, West Bengal  
India  
Phone-91-33-350-4159

**J B Roy State Ayurvedic Medical College**

170-172 Raja Dinendra Street Calcutta  
West Bengal, India  
Phone-91-33-554-5362/5418

**Faculty Of Ayurveda Institute Of Medical Science**

**Banaras Hindu University**

Varanasi-221005, India

**University Of Ayurveda.**

(I P G A E & R )  
Dhanvantru Mandir Jamnagar  
Gujarat, India

**National Institute Of Ayurveda Mahadev Villas Palace**

Amer Road Jaipur  
Rajasthan, India

**Govt College Of Indian Medicine. Sayaji Rao Road**

Mysore  
Karnataka , India.

**Govt. Ayurveda College**

Kadam Kuan,  
Patna - 800 003  
Bihar, India

**Govt. Ayurveda College**

Trivandrum  
Kerala , India

**Govt. College Of Indian Medicine.**

Tank Bund Road  
Bangalore  
Karnataka, India

**Madan Mohan Malviya Govt Ayurvedic College**

Udaipur  
Rajasthan - 313001  
India

**Tilak Ayurveda Mahavidyalaya**

583/2, Raste Peth  
Pune  
Maharashtra, India

**Mahila Ayurveda Degree College**

Kanya Gurukul Sonapat  
124205 Khanpur Kalan  
Haryana, India

**Ayurveda Mahavidyalaya Sampurnanand Sanskrith University**

Varanasi  
India

**Govt Ayurveda College**

Rewa  
M.P.  
India

**Dayanand Govt Ayurveda College**

G.T.Road  
Jalandhar City Punjab  
India

**Govt Ayurveda College**

Jalukwari  
Harbala Road  
Guwahati  
Assam, India

**R.N.M. Ayurveda Mahavidyalaya**

Motihari  
East Champaran  
Bihar, India.

**Gaur Brahman Govt Ayurvedic College**

Rohtak  
Haryana, India

**Sree Mast Nath Ayurveda Degree College**

Asthal Bohar  
Rohtak -124 001  
Haryana, India

**Srimati Kamladevi Gauridatta Mittal Punarvasu Ayurveda College**

Netaji Subhash Road  
Bombay-400 002

**S.C.Mutha Aryangla**

Vaidak Mahavidyala

Gendamal Satara-415 002  
Maharastra, India

**Ayurveda College**

Patanjalipuri  
Thaddgan  
Coimbatore - 641 108  
Tamilnadu, India

**Shree Laxminarayan Ayurvedic College**

Sant Tulsidas Marg  
Amritsar - 143 001  
Punjab, India

**Radhakrishna Toshniwala Ayurveda College**

Kedia Plot, Station Road  
Akola - 444 005  
Maharastra, India.

**Gopalbandhu Ayurveda Mahavidyalaya**

Puri  
Orissa, India

**Vadyaratnam P S Varier Ayurveda College**

Kottakal Dist.  
Mallapuram  
Kerala, India

**Ayurveda Mahavidyalaya Sion**

Near Sion Rly. Station  
Mumbai - 400 022  
Maharashtra, India

**College Of Ayurveda**

Arya Vaidya Pharmacy  
1382 Trichy Road  
Coimbatore-641018  
South India

**A.L.Govt. Ayurvedic College**

Warangal-506002

**Dr. B.R.K.R.Govt.Ayurvedic College**

Hyderabad-500038

**Dr. N.R.S.Govt.Ayurvedic College**

Vijayawada-521002

**S.V.Ayurvedic College**

Vasalamma Street  
Tirupati-517507

**Govt. Ayurvedic College**

Jalukbari  
Guwahati-781014

**Ayurveda Mahavidyalaya**

Gaya-823001  
Bihar

**Dayanand Ayurveda College &Hospital**

Siwan-841266  
Bihar

**Govt. M.R.Bharatiya Chikitsa Vijayan Sansthan**

Mohanpur  
Darbhanga-846007  
Bihar

**Govt. Syna Ayurvedic College**

Bhagalpur-812004  
Bihar

**Shri Dhanwanthari Ayurveda College**

Buxer  
Bhojpur-802101  
Bihar

**Swami Raghavendracharya Tridandi Ayurveda Mahavidyalaya**

Gaya-823001  
Bihar

**Aryakanya Shauddha Ayurveda Mahavidyalaya**

Karelibaug  
Vadodara-390018

**Govt. Akhandanad Ayurvedic College**

Ahmedabad-380001

**Govt. Ayurveda College**

Junahgarh-362001

**Govt. Ayurveda College**

Vadodara  
Gujarat-390001

**Institute Of Post Graduate Teaching & Research**

Dhanwantari Mandir  
Jamnagar-361008

**J.S.Ayurveda Mahavidyalaya**

College Road  
Nadiad-387001

Gujarat

**Seth J.P.Ayurveda College**

Opp. Sardar Bagh  
Bhavanagar-364001

**Shri Bala Hanuman Ayurveda Mahavidyalaya**

Post Lodra-382835  
Gujarat

**O.H.Nazar Ayurveda Mahavidyalaya**

Surat-395003  
Gujarat

**Gulab Kunverba Ayurveda Mahavidyalaya**

Jamnagar-361008

**Govt.Ayurveda College**

Paprola  
Kangra  
H.P.-176115

**A.L.N.Rao Memorial Ayurvedic Medical College**

Kappa-577126  
Karnataka

**Ayurveda Mahavidyalaya**

Haggeri Extn.  
Hubli  
Karnataka-580024

**Ayurvedic Mahavidyalaya**

Bijapur-586101  
Karnataka

**Ayurvedic Medical College**

Bhadravathi-577503  
Karnataka

**C.A.S.S.M.Trust's Ayurvedic Medical College**

Manhalli Road  
Bidar  
Karnataka

**Indian Institute of Ayurvedic Medicine & Research**

Bangalore

**S.D.M.College Of Ayurveda**

P.O.Kuthpady  
Udupi Tq Dk 574134  
Karnataka

**B.M.K.Ayurveda Mahavidyalaya**

Shahpur  
Belgaum-590003

**D.G.M.Ayurvedic Medical College**

Kalaspur Road  
Gadag-582101

**T.A.E.Society Ayurveda Medical College**

Hospet-583201  
Karnataka

**Govt. Ayurveda College**

Dhanvantri Nagar P.O.  
Thrippunithura-682301

**Vaidyaratnam Ayurveda College**

Kottakkal  
Edarikode-676501  
Kerala

**Vidyaratnam Ayurveda College**

Ollur  
Thiakkattusseri-680322  
Kerala

**Govt. Ayurveda College**

Raipur-492002  
M.P

**Govt. Ashtang Ayurveda College**

Indore-450011  
M.P

**Govt. Ayurveda College**

Burhanpur-450331  
M.P

**Govt. Ayurvedic College**

Gwalior-474009, M.P

**Govt. Ayurvedic College**

Jabalpur-482001  
M.P

**Govt. Dhanwanthari Ayurvedic College**

Mangal Nath Marg  
Ujjain-456006, M.P

**Ashtang Ayurveda Mahavidyalaya**

2062 New Sadashiv Peth



Pune-411030  
M.S

**Ayurveda College**  
Pune-411043

**Ayurveda Mahavidyalaya**  
Pusad  
Yavatmal-445204  
M.S

**Ayurveda Mahavidyalaya**  
Cidco  
Aurangabad  
M.S

**Ayurveda Mahavidyalaya**  
Sangamner-422605  
M.S

**Ayurveda Mahavidyalaya**  
Shri Sivaji Nagar  
Rahuri Factory-413706  
M.S

**Ayurveda Mahavidyaliya**  
Hadpasar-411028  
M.S

**Ayurveda Medical College**  
Vasai  
Thane-401209

**Ayurvedic Medical College**  
Peth Vadgaon  
Bhusawal-425201  
M.S

**College Of Ayurveda Research Centre**  
Akurdi  
Pune-411044  
M.S

**D.C.S Ayurveda College**  
Dhule-424002  
M.S

**D.M.Ayurveda Mahavidyalaya**  
Nandan  
Nagpur-440009  
M.S

**D.S.N.Ayurved Mahavidyalaya**

Dhule-424002

M.S

**Ganga Education Society Ayurvedic Medical College**

Kolhapur-416012

M.S

**Gangadhar Sastri Gune Ayurveda Mahavidyalaya**

Vishrambag

Ahmednagar-414001

**Govt. Ayurveda College**

Osmanabad-413501

M.S

**Govt. Ayurvedic College**

Nanded-431601

M.S

**Govt. Ayurvedic College**

Raja Raghuji Nagar

Nagpur-440009

M.S

**Gramin Ayurveda Mahavidyalaya**

Bolapur Road

Patur-444501

**Karmavir V.T.Randhir Ayurveda College**

Boradi

Shirpur-425428

**R.A.Podar Medical College**

Worli, Mumbai-400018

M.S

**R.J.V.S.Bhaisahab Sawant Ayurveda Mahavidyalaya**

Gendamal

Satra-415002

**Seth Govindji Raoji Ayurveda Mahavidyalaya**

21-A-13 Budhwar Peth

Solapur-413001

M.S

**Shri Ayurveda Mahavidyalaya**

Hanuman Nagar

Nagpur-440009

M.S

**Yashwant Ayurvedic College**

Kosli  
Kolhapur-416114  
M.S.

**Yerala M.T.Ayurveda College**

Curry Road  
Mumbai-400012  
M.S

**Govt. Ayurveda College**

Balangir-767001  
Orissa

**K.A.T.S.Ayurvedic College**

Ankuspur  
Ganjam-76110

**S.S.N.Ayurved College**

Jalandhar-144008  
Punjab

**S.D.Ayurved College & Pt. Kedarnath Memorial Ayurveda Hospital**

46-B Chandigarh

**S.S.M.D.Ayurvedic College & Hospital**

Moga  
Punjab

**Vedic Nursing Centre**

Ajmer  
Rajasthan

**Mohta Ayurveda College**

P.O.Sadulpur  
Churu-331023  
Rajasthan

**R.S.Sansthan Ayurvedic Compounder Nursing Training Centre**

Jaipur  
Rajasthan

**S.B.A.N.C. Training College**

Bhankrota  
Jaipur, Rajasthan

**Rajaputana Ayurvedic & Unani Tibbia College**

Char Darwaza  
Jaipur  
Rajasthan

**Shri Parashuram Puriya Rajasthan Ayurvedic College**  
Sikar-332001

**Govt. Medical Siddha Medical College**  
Palani-624601  
T.N

**Govt. Siddha Medical College**  
Palayamkottai  
Tirunelveli-627002  
T.N

**The Venkataramana Ayurveda College**  
114 Kutcheri Road  
Mylapore -600004  
T.N

**Bundelkhand Govt. Ayurvedic College**  
Jhansi-284002  
U.P

**Lalit Hari State Ayurvedic College**  
Attara Banda-210201

**Lalit Hari State Ayurvedic College**  
Pilibhit-262001  
U.P

**Rajkiya Ayurveda Mahavidyalaya**  
Avam Chikitsalay  
Varanasi  
U.P

**S.R.M. Govt. Ayurvedic College**  
Bareilly-243001  
U.P

**State Ayurvedic College**  
Tulsidas Marg  
Lucknow-226004  
U.P

**State Ayurvedic College**  
Gurkulkangri  
Hardwar  
U.P

**Swami Kalyandev Govt. Ayurvedic Medical College**  
170-172, Raja Dinendra Street  
Calcutta-700004  
West Bengal

**Swami Kalyandev Govt. Ayurveda Mahavidyalaya**  
Handia-221504  
U.P

**Mobile Clinical Research Unit**  
307, I.P.G.T & R. Hospital Building  
Gujarat Ayurvedic University  
Jamnagar-361008

**Regional Research Institute**  
Govt of India Ministry of Health & Family Welfare  
Tarikhet (Ranikhet) - 263663  
U.P.

**Central Research Institute (Ayurveda)**  
Unit-1, Bhubaneswar- 751009

**Regional Research Ayurveda**  
Todong, Gangtok-737102  
Sikkim

**Drug Standardization Research Project**  
Department of Dravyaguna, Institute of Medical Sciences  
B.H.U. Varanasi-221005

**Regional Research Centre (Ayurveda)**  
Gwalior Road, Jhansi  
U.P.

**Central Council for Research In Ayurveda and Siddha**  
No.61-65 Institutional Area, Opposite 'D' Block Janakpuri  
New Delhi-110058

**Dr. A. Lakshmi pathi Research Center for Ayurveda**  
Central Council for Research in Ayurveda and Siddha  
V.H.S. Campus. T.T.T.I Post  
Chennai- 600113

**Regional Research Institute (Ayurveda) Junagadh**  
Sadar Daug, Taj Manzil  
Junagadh-362001  
Gujarat

**Regional Research Institute (Ayurveda)**  
Govt, Central Pharmacy Annex 1st Block, Jayanagar  
Bangalore- 560011

**Central Research Institute (Ayurveda)**  
474/6- Sitapur Road  
Lucknow- 226020



**Annexure 1 (xvi)**  
**Ayurvedic Institutions in the West**

**Dr. Vasant Lad's The Ayurvedic Institute**

Post Box No: 23445 Albuquerque,  
New Mexico 87192- 1445  
Phone No: (505) 291-9698  
Fax: 5052947572.

**College of Ayurveda**

Ayurvedic Company of Great Britain  
50 Penywern Road  
London, SW5 9SX

**American Institute of Vedic Studies**

PO Box 8357 Santa Fe,  
NM 87504 U.S.A.

**The Ayurvedic Institute of Wellness Center**

1131 Manual N.E., Suite Albuquerque,  
NM 87112 U.S.A.

**Maharishi Ayurveda**

579 Punt Road  
South Yarra Victoria 3141  
Australia

**The Ayurvedic Institute**

PO Box 282 Fairfield  
Iowa, 52556 U.S.A.

**Australasian Institution of Ayurvedic Studies in New Zealand**

Po Box: 23047 Papatoetoe, Auckland,  
Phone no: 0064-9-2793591  
Fax-2793592

e-mail- [courses@shreeayurveda.co.nz](mailto:courses@shreeayurveda.co.nz)

Australasian Ayurvedic Practissioners Association Inc(New Zealand) Australasian Ayurvedic  
Practissioners Association Inc (Australia)

**Annexure-1 (xvii)**  
**Ayurvedic Associations (International)**

**Council for Complementary and Alternative Medicine**

19a Cavendish Square London,  
W1M 9AD United Kingdom

**Maharishi Ayurveda Health Center**

24 Linhope Street, London,  
NW1 6HT United Kingdom

**North African Center of Medicinal Plants**

Pharmacognosy Department Faculty  
of Pharmacy University of Cairo  
Kasr. El. Aini. Egypt

**Academie International des Medecines Naturelles**

52 boulevard Flandrin 75116  
Paris France

**Japan Institute of Traditional Medicine**

Chushoto Building 3-4-10 Nihonbashi Chio-ku,  
Tokyo 103, Japan

**Research Institute for Wakan-Yaku**

Toyama Medical and Pharmaceutical University  
2630 Suyitami Toyama-shi 930-01 Japan

**Instituto Mexicano de Seguro Social**

Unidad de Investigacion en Medicina Tradicional y Desarrollo de Medicamentos Calle  
Argentina 1 C P 62790 Xochitepec Morales Mexico

**American Association of Ayurvedic Medicine**

P.O. Box 598 South Lancaster  
Massachusetts 01561 U.S.A.

**American Holistic Medical Association**

4101 Lake Boone Trail, Suite 201, Raleigh,  
North Carolina 27607 U.S.A

**Herbal Gram**

PO Box 12006 Austin  
Texas 78711 U.S.A.

**Napralert (Natural Product Database)**

The University of Illinois Box 6998,  
Chicago Illinois 60680 U.S.A.

**Ayurvedic Traditional Medicines Association, Inc.(since 1980)**

P.O.Box 322, Casino,  
NSW 2470, Australia.



**Annexure 1(xviii)**  
**Statewise Number of Licensed Ayurveda Pharmacies**

S.No.	STATES/U.T.'S	NO. OF LICENSED PHARMACIES	NO. OF LICENSED PHARMACIES HOLDING LOAN LICENSES
1	Andhra Pradesh	556	4
2	Arunachal Pradesh	-	-
3	Assam	39	-
4	Bihar	228	-
5	Delhi	78	1
6	Goa	5	1
7	Gujarat#	892	125
8	Haryana	210	-
9	Himachal Pradesh	54	-
10	Jammu & Kashmir	10	-
11	Karnataka	241	20
12	Kerala	962	9
13	Madhya Pradesh	225	11
14	Maharashtra	757*	243*
15	Manipur	-	-
16	Meghalaya	-	-
17	Mizoram	-	-
18	Nagaland	-	-
19	Orissa	160	-
20	Punjab	149	2
21	Rajasthan	388	-
22	Sikkim	-	-
23	Tamil Nadu	218	17
24	Tripura	1	-

Source: Annual Report: Department of ISM & H 1999

**Annexure 1 (xix)**  
**Registered practitioners for Ayurveda and Siddha**

Year	Ayurveda		Siddha	
	Total Nos.	Percentage Growth	Total Nos.	Percentage Growth
1989	315719	-	11717	-
1990	337966	7.0	11801	0.7
1991	339200	0.3	11615	-1.5
1992	354423	4.5	11990	3.2
1993	353924	-0.1	11994	0.03
1994	354684	0.2	11895	-0.8
1995	355816	0.3	12437	4.5
1996	358564	0.8	12450	0.1
1997	360290	0.4	12780	2.6
1998	363885	0.99	12911	1.0
1999	366812	0.8	12911	0

*Source: Annual Report: Department of ISM & H 1999*

Annexure 1 (xx)

## REQUIREMENTS FOR DIETARY SUPPLEMENT LABELS

**STATEMENT OF IDENTITY**

**GINSENG**  
A DIETARY SUPPLEMENT

**NET QUANTITY OF CONTENTS**  
100 CAPSULES

**STRUCTURE-FUNCTION CLAIM FOLLOWED BY FDA WARNING**

When you need to perform your best, take ginseng. This statement has not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.

**DIRECTIONS**

**DIRECTIONS FOR USE:** Take one capsule daily

**Supplement Facts**

Serving Size - 1 capsule

**SUPPLEMENT FACTS PANEL**

Amount per capsule

Oriental Ginseng, powdered (root)	250 mg*
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\*Daily Value not established.

**OTHER INGREDIENTS**

Other ingredients: Gelatin, water, ABC Company, Anywhere, USA

**NAME AND PLACE OF BUSINESS**

SOURCE: American Dietetic Association

MSNBC