

## Curriculum Outline

### **PART 1: History and Philosophy of Ayurveda (Ayurved Itihās Avum Darshan)**

It is very difficult to establish the exact time period of Ayurveda. However, the origin of Ayurveda as an oral tradition is taken to be circa 6000 BC. The history of Ayurveda is closely interwoven with the history and culture of the Indian Sub-continent. Ancient Ayurvedic rishis observed nature for its underlying patterns. Ayurveda has accepted the Vedic hypothesis that there are common principles underlying Microcosm (individual) and Macrocosm (universe). Man and the universe are composed of the same basic elements.

The six philosophies that are at the heart of Ayurveda are called as Shad Darshanas. The creators of these philosophies were enlightened scientists or rishis who had great insight or inner vision. All these philosophies have contributed to the teaching and practice of Ayurveda.

This part covers the history and philosophy of Ayurveda including:

1. A critical examination of the holistic role of mind, body, spirit and environment.
2. The spiritual and historical background of Ayurveda.
3. The development of Ayurveda in India during the post-mediaeval period.
4. The spread and development of Ayurveda in the Asian sub-continent.
5. The evolution/creation of the universe according to Sankhya philosophy.
6. The relationship between Ayurveda and the Shad Darshanas.
7. The role of Ayurveda within the Primary Health-Care System.

## PART 2: Fundamental Principles of Ayurveda (Moolika Siddhanta)

The human body is an ever-changing organism subject to the same cosmic laws and principles that govern the universe. On the cosmic plane, the three primordial forces or *gunas*, namely, *tamas*, *rajas*, and *sattva*, operating through the five energy principles or *pancha-mahabutha*, namely, *space*, *air*, *fire*, *water* and *earth*, directly interface with human existence. On the physical plane, the *tri-dosha* (bodily humours), *dhatus* (tissue elements), and *malas* (metabolic wastes), are the messengers of communication that interface the external with the internal nature.

In addition to these basic concepts, there are several other fundamental principles to be covered such as, *atma*, *prana*, *prakruti*, *agni*, *ama*, *srotas*, *ojas*. The understanding of these concepts is fundamental to the study of Ayurveda.

This part includes:

1. The theory of Panchamaha-bhutas, including a comparison with modern scientific theories.
2. The principles of the Gunas
3. The theory of Tri-doshas
4. The theory of Dhatus and Malas, including a comparison with modern anatomy and physiology.
5. The concept of homeostasis
6. The concepts of Atma, prana, manas
7. The concepts of agni, ama, srotas, ojas

### PART 3: Principles of Health and Health Promotion (Swatha Vritta)

Ayurveda is not just a system of medicine but also a science of health promotion designed to increase our well being and happiness in all aspects. It shows us how to live in such a way as to arrive at optimum health and maximum utilisation of our faculties. Maintenance of a healthy lifestyle by one's own right action is called "*swasthavritta*", which literally means "the lifestyle of abiding in one's own nature." A lifestyle (regime) that is balanced with a person's constitution type will allow them to enjoy freshness and vitality everyday.

This part includes:

1. A critical examination of the effect of lifestyle activities on the maintenance of health.
2. Comparison and contrast of modern and Ayurvedic views of lifestyle in the promotion of physical and mental health.
3. Examination of the cosmos as it affects human development.
4. Discussion of the effects of the five senses on a person's physical and mental health.
5. Evaluation of the effects of seasonal variations on the maintenance of health.
6. Determination of the doshic constitution of an individual.
7. Prescription of lifestyle changes to manage physical and emotional stress.
8. Evaluation of the natural rhythms of the body and the environment in the maintenance of health.
9. The effects of massage, yoga, meditation and other non-invasive modes of treatment on a person's mental and physical health.
10. Nutrition and diet
11. Maintaining homeostasis
12. Promotion of mental health
13. Ethical and social aspects of health promotion
14. Stress management
15. Detoxification

## PART 4: Principles of Ayurvedic Aetio-pathology (Vikruti Vijnana)

The doshas are not simply the dynamic energy within the body; rather they are influenced by various external and internal factors. Knowledge of these factors is essential for balancing the doshas. Each dosha undergoes three basic stages of development, namely (a) increase or accumulation (sanchaya) (b) aggravation or provocation (prakopa) and (c) decrease or alleviation (prashama). Though diseases are of many kinds and pathogens are of many varieties, all are products of disharmonies of the three biological humours, Vata, Pitta, and Kapha. Diseases reflect the predominant dosha, which produces them. When disturbed the doshas undergo six stages (kriyakalas) of development.

According to Ayurveda there are basically three types of diseases: a) endogenous (breakdown from within), b) exogenous (attack from without), and c) mental; any of which can subsequently lead to others. Ayurveda also teaches us that there is no single factor, which is wholly responsible for either health or disease; they are the result of the interaction of many factors.

This part provides an integrated approach to the understanding of disease, its causes, mechanisms, clinical features and diagnosis. It will:

1. Discuss the factors, which produce a constitutional imbalance or roga.
2. Critically examine the role of mind and body in the process of disharmony or disease.
3. Explain the causation of disease according to Ayurveda.
4. Discuss the concept of disease process according to Ayurveda and modern medicine.
5. Describe diseases with reference to the differential diagnosis of common symptoms and causes.
6. Discuss the distribution of disease in the community, and contrast the approach to prevention according to Ayurveda and the modern point of view.

In particular it will cover:

- (a) Causes of disease (Ayurvedic and modern concepts)
- (b) Nidana Pancaka
- (c) Nidana
- (d) Dosha Samya and Vaisamya
- (e) Agni Samya and Vaisamya
- (f) Dhatu Samya and Vaisamya
- (g) Ojas Samya and Vaisamya
- (h) Kriyakala
- (i) Samprapti
- (j) Roga
- (k) Arista laksana
- (l) Upasaya and Anupasaya
- (m) Vikalpa Samprapti

## PART 5: Clinical Methods (Roga-Rogi Pariksha)

This section explores the Ayurvedic methods of examining the patient and the disease, compares the clinical methods of Ayurveda with that of modern medicine, and provides practice in the application of the principles of trividha, astavidha and dasavida pariksha.

In Ayurveda the clinical examination and diagnostic tests investigate a person's "state," the pattern of movement of tissues (*dhatu*), wastes (*malas*), and biological humours (*dosha*) in the body and mind. Direct perception is the best way in which to discern a patient's physical and mental state. Whatever cannot be known directly must be elicited through logical inference, analogy and/or the testimony of other experts. Ayurveda uses *drashana* (observation), *sparshana* (palpation and percussion), and *prashna* (interview) as the main clinical barometer. The signs and symptoms elicited from these are then correlated to the particular Dosha responsible for the disharmony.

The examination of the pulse (*nadi*) is an important measure in the diagnosis. It is a matter of technical skill, subjective experience and intuition. Accuracy depends upon persistent practice and the development of the ability to sense the varied quality of different pulses. The pulse is a subtle manifestation of universal consciousness pulsating through a person's constitution. The experienced Ayurvedic physician will be able to assess *prakruti*, *vikruti*, *doshic* disorders, other subtle observations, and even prognosis of disease through the pulse.

Topics covered include:

1. Diagnosis of a patient's physical condition using the clinical methods derived from Ayurvedic and modern western medical techniques.
2. Comparing and contrasting the clinical diagnostic skills used by Ayurvedic and modern western doctors.
3. Evaluation of the mental state of a patient and its relationship to his/her somatic condition.
4. Explanation of how prakruti, vikruti and doshic constitution of an individual can be assessed through the pulse.

More specifically it covers:

- (a) The Concept of Clinical Examination (Ayurvedic and Modern)
- (b) Vyadhi Samprapti
- (c) Pariksha Kramas: (i) Tri vidha pariksha (ii) Asta sthana pariksha (iii) Dasa vidha pariksha
- (d) Prakruti Pariksha
- (e) Sroto Pariksha: (i) Pranavaha srota (ii) Annavaha srota (iii) Purisavaha srota (iv) Udakavaha srota (v) Mutravaha srota (vi) Swedavaha srota (vii) Rasavaha srota (viii) Raktavaha srota (ix) Mamsavaha srota (x) Medovaha srota (xi) Asthivaha srota (xii) Majjavaha srota (xiii) Sukravaha srota (xiv) Manovaha srota (xv) Antahasravi granthi srota

## PART 6: Principles and Practice of Ayurvedic Medicine (Chikitsa Vigyana)

Chikitsa (treatment) is the practical use of medications or therapeutic measures to cure an illness. Its goal is to correct disrupted doshas and to preserve the integrity of the doshas, dhatus and malas of the body and mind. Ayurvedic treatment is prophylactic as well as therapeutic, because Ayurveda is primarily a science of health promotion and only secondarily a science of medicine. The aim of this module is to enable students to acquire an understanding of the application of the principles and practice of Ayurveda in the clinical setting.

Ayurvedic treatments can be either or both general and specific. The goal of general treatment measures is to eliminate toxic substances from the body as quickly as possible and re-establish the natural balance of the doshas. Specific therapies are used appropriate to specific situations, using the most suitable methods to bring about optimum results.

A distinction is made between treatment methods that are contrary to the cause of the illness, to the illness itself, or to both; and treatment methods that are similar to the cause of the illness, to the illness or to both. Accordingly, this approach includes allopathic (*vishesha*) and homeopathic (*samanya*) principles, as well as other healing methods.

At this stage it will be beneficial if students have an opportunity to observe patients in clinical settings. Supervised clinical practice will complement the theoretical content and skills learned, as well as allowing practice of those skills within a safe environment. It allows students to develop the skill to relate to patients and other healthcare professionals. This part will:

1. Provide an understanding of the practice of Ayurvedic Medicine, allowing an accurate diagnosis of the patient's vikriti state based on Ayurvedic pariksha.
2. Explore the aetiology; pathology and diagnosis of diseases according to Ayurvedic principles, providing a critical examination of the physical and mental disorders related to each of the different doshic imbalances.
3. Explore the different Ayurvedic treatment modalities available for common diseases.
4. Diagnose and prescribe treatment to a group of patients with uncomplicated pathologies, using Ayurvedic principles
5. Evaluate the prognosis of physical disorders related to each of the different doshic imbalances.
6. Compare and contrast the process of treatment according to Ayurveda and other allied therapies including modern medicine.
7. Compare and contrast the modes of samana chikitsa and sodhana chikitsa.
8. Explore the principles of Ayurveda as a preventative health care system.
9. Provide an opportunity for supervised clinical practice in Ayurvedic clinics.
10. Prepare students for internship in Ayurvedic hospitals. (see also under Clinical Training below)

The **aetio-pathology and treatment** of the following disorders are to be covered:

1. Jvara (fever)
2. Jvaratisara (fever associated with diarrhoea)
3. Atisara (diarrhoea)
4. Grahani (duodenal disorders)
5. Arsa (piles)
6. Agnimandya (deficient digestion, etc)
7. Krimi (worms)
8. Panduroga (anaemia)
9. Raktapitta (innate haemorrhage)
10. Yaksma (consumption)
11. Kasa (cough)
12. Hikka-svasa (hiccough and dyspnoea)
13. Svarabheda (hoarseness of voice)
14. Arocaka (anorexia)
15. Chardi (vomiting)
16. Trasna (polydipsia)
17. Murccha (fainting)
18. Madatyaya (alcoholism)
19. Daha (burning sensation)
20. Unmada (insanity)
21. Apasmara (epilepsy)
22. Vatavyadhi (vata disorders)
23. Pittavyadhi (pitta disorders)
24. Kaphavyadhi (kapha disorders)
25. Vatarakta (gout)
26. Urustambha (paraplegia)
27. Amavata (arthritis)
28. Sula (colic)
29. Parinamasula (abdominal colic)
30. Udavartta (upward movement of vayu)
31. Anaha (hardness of bowels)
32. Gulma (abdominal lump)
33. Hrdroga (heart disease)
34. Mutrakrcchra (dysuria)
35. Mutraghata (retention of urine)
36. Asmari (calculus)
37. Prameha (diabetes insipidus)
38. Sthaulya (obesity)
39. Udara (abdominal enlargement)
40. Pliha-yakri (spleen-liver disorder)
41. Sotha (oedema)
42. Vrddhi-bradhna (scrotal enlargement)
43. Galaganda (goitre), gandamala (cervical Adenitis), apaci (scrofula), granthi (cyst) and arbuda (tumour)
44. Slipada (filariasis)
45. Vidradhi (abscess)
46. Vranasotha (inflammation)
47. Nadivrana (sinusitis)
48. Bhagandara (anal fistula)
49. Upadamsa (soft chancre)
50. Sukadosa (sprain)
51. Bhanga (fracture)
52. Kustha (skin diseases – leprosy)
53. Udarda, kotha and sitapitta (allergic manifestations)

54. Amlapitta (gastritis)
55. Visarpa (erysipelas) and visphota (boils)
56. Masurika (chicken pox)
57. Ksudraroga (minor diseases)
58. Mukharoga (diseases of mouth)
59. Karnaroga (diseases of ear)
60. Nasaroga (diseases of nose)
61. Netraroga (diseases of eye)
62. Siroroga (diseases of head)
63. Asrgdara (menorrhagia, metrorrhagia)
64. Yonivyapad (diseases of female genital tract)
65. Striroga (diseases of women)
66. Balaroga (diseases of children)
67. Visa (poisoning)



## PART 7: Purification and Rejuvenation Theory

Panchakarma is the core of a great number of of therapeutic modalities in Ayurveda. It is divided into two main categories - *Shamana* (rejuvenating), and *Shodana* (cleansing) therapies. *Shamana* encompasses the supporting therapies that are the preparation and post-therapy measures for panchakarma proper. These therapies, *Shamana* and *Shodana* are utilised together as panchakarma to form a powerful synergistic means of rejuvenation and revival.

The two main shamana therapies are *snehana* and *abhyanga*. *Abhyanga* involves the application of medicinal oils that are massaged into the entire body, followed by *svedana*, the inducing of diaphoresis through the application of fomentation. These treatments prepare the body, mind and spirit for the primary course of elimination (cleansing or detoxifying) therapies. *Shodhana* (cleansing or detoxifying) refers to panchakarma's five main cleansing and eliminating (detoxifying) procedures.

Panchakarma literally means five actions, and consist of the following activities: *Vamana* - herb induced vomiting, *Virechana* - herb induced purgation, *Niruha vasti* - medicated decoction enemas, *Anuvasana vasti* - medicated oil enema, and *Nasya* - nasal inhalation of medication. The five phases of panchakarma are designed to penetrate vital tissues of the body in order to uproot the source of aggravation and dislodge unwanted accumulations.

Panchakarma benefits both the healthy and unhealthy and is considered to be the most effective therapy for preventing and curing diseases, as well as for revitalising the entire human body.

This part explores the modes of shodana chikitsa (panchakarma), the different methods of panchakarma, the indications, contra-indications and complications of panchakarma, and the use of rasayana krama (rejuvenative therapy).

It will deal with:

1. A critical examination of the different groups of *Shamana* and *Shodana* therapies and discuss their therapeutic indications.
2. Designing a treatment plan using Panchakarma and Rasayana therapies.
3. Evaluation of the use of Panchakarma therapies in a variety of conditions
4. The use of Panchakarma therapies for a variety of doshic conditions and disorders.
5. Critical analysis of the advantages and disadvantages of the different groups of Panchakarma and Rasayana therapies.
6. The contra-indications and limitations of Panchakarma therapies.

More specifically it covers:

- (1) The Principles of Panchakarma Chikitsa.
- (2) The Principles of Rasayana Chikitsa.
- (3) The Phases of Panchakarma: (a) Poorva karma (b) Pradhana karma (c) Paschat karma
- (4) The Practise of Poorva karma: (a) Snehana karma (oleation therapy) (b) Swedana karma (sudation therapy)
- (5) Indication for Poorva karma
- (6) Contra-indications and complications of Snehana karma
- (7) Contra-indications and complications of Swedana karma

- (8) Herbs used in Poorva karma
- (9) The practice of Pradhana karma: (a) Nasya karma (b) Vamana karma (c) Virachena karma (d) Vasti karma (e) Rakta mokshana
- (10) Indications for Pradhana karma
- (11) Contra-indications and complications of Nasya karma
- (12) Contra-indications and complications of Vamana karma
- (13) Contra-indications and complications of Virachena karma
- (14) Contra-indications and complications of Vasti karma
- (15) Contra-indications and complications of Rakta mokshana
- (16) Herbs used in Pradhana karma
- (17) Principles and practice of Abhyanga
- (18) Principles and practice of Marma therapy
- (19) The practice of Paschat karma
- (20) The practice of Sahajana karma
- (21) The practice of Rasayana Chikitsa

## PART 8: Ayurvedic Pharmacology and Materia Medica (Dravya-Guna-Vigyana)

The Ayurvedic study of medicinal herbs is called "*Dravya-guna-karma Vigyana*", which literally means the science (*vigyana*) of substances (*dravya*) and their qualities (*guna*) and actions (*karma*). *Dravya* includes both food and herbs, nourished by the elements. Every tree, plant, shrub, herb, fruit and seed possesses the life-giving essence or *rasa*, undergoing a process of refinement since the beginning of life itself. There are over 2,000 medicinal plants and herbs classified in the Indian Materia Medica.

This part will focus on all aspects of Ayurvedic herbs, and wherever possible comparing this tradition with western and Chinese herbal traditions. The concepts of phyto-chemistry, pharmacology, pharmacognosy, herb-herb and herb-drug interactions will be covered in more detail in separate modules on pharmacology and phytochemistry.

It will:

1. Discuss the identification, collection and storage of Ayurvedic herbs.
2. Discuss the usage, contra-indications and precautions of commonly used Ayurvedic herbs.
3. Describe the processes and issues of Quality Assurance in relation to herbal medicines.
4. Discuss the issues related to legislation relating to the labelling and dispensing of herbal medicines.
5. Describe the prescription of herbal medicines according to different doshic imbalances and common disorders.
6. Explain the rationale for the combination of herbs in certain prescriptions, giving examples of incompatibilities and synergistic enhancement.
7. Describe the properties and uses of common Ayurvedic compound medicines.
8. Compare and contrast the traditional uses of western and Chinese herbs with that of Ayurvedic herbs.

It will include:

1. Definition, Scope and Background.
2. Identification, Harvesting and Storage.
3. Absorption, distribution, and excretion of herbs.
4. Metabolism of herbs.
5. Herb-herb interactions.
6. Herb-drug interactions.
7. Utilisation of Ayurvedic herbs.
8. *Dravya Gana-varga-Misraka-gana* (Grouping of herbs).
9. Groups of Morphological, quantitative and pharmacological similarities within commonly used Ayurvedic herbs.

## MATERIA MEDICA

1. Classification of herbs.
2. Herbal Energetics
  - a. Rasa - Taste
  - b. Guna - Quality
  - c. Veerya - Strength
  - d. Vipaka - Post-digestive effect
  - e. Prabhava - Specific affinity
3. Mutual Relationship of Energetics
4. Karma - Principles of Drug Action
5. Constituents (Hydrocarbons and Derivatives; Carbohydrates; Phenols and Phenolic Glycosides; Volative Oils and Resins; Saponins and Steroids; Isoprenoids; Glycosides and Glucosiolate Compounds; Alkaloids). These will be covered in more detail in other modules.
6. Therapeutic Uses.
7. Purification of Toxic Herbs
8. Contra-indication and Precautions

The actions of herbs are to be studied according to Charaka's Classification. Representative herbs are to be covered within the following categories. (For a detailed list see **Appendix 1**):

1. Jivaniya (Vitalising)
2. Brmhaniya (Bulk-promoting)
3. Lekhaniya (Emaciating)
4. Bhedaniya (Laxative)
5. Sandhaniya (Healing)
6. Dipaniya (Appetite stimulant)
7. Balya (Tonic)
8. Varnya (Complexion-promoting)
9. Kanthya (Beneficial for throat)
10. Hrdya (Cordial)
11. Trptighna (Thirst-quenching)
12. Arsoghna (Anti-haemorrhoidal)
13. Kusthaghna (Anti-dermatosis)
14. Kandughna (Anti-pruritic)
15. Krimighna (Anthelmintic)
16. Visaghna (Anti-poison)
17. Stanya-janana (Galactagogue)
18. Stanya-sodhana (Galacto-depurant)
19. Sukra-janana (Semen promoting)
20. Sukra-sodhana (Semen depurant)

21. Snehopaga (Moisturising)
22. Swedopaga (Diaphoretic)
23. Vamanopaga (Emetic)
24. Virecanopaga (Purgative)
25. Asthapanopaga (Corrective enemata)
26. Anuvasanopaga (Unctuous enemata)
27. Sirovirecanopaga (Errhines)
28. Chardi-nigrahana (Anti-emetic)
29. Trsna-nigrahana (Anti-dyspeptic)
30. Hikka-nigrahana (Anti-hiccough)
31. Purisa–samgrahaniya (Intestinal astringent)
32. Purisa-virajaniya (Faecal depigmenter)
33. Mutra-sangrahaniya (Anti-diuretic)
34. Mutra-virajaniya (Urinary depigmentor)
35. Mutra-virecaniya (Diuretic)
36. Kasa-hara (Antitussive)
37. Swasa-hara (Anti-dyspneic)
38. Swayathu-hara (Anti-phlogistic)
39. Jwara-hara (Anti-pyretic)
40. Srama-hara (Energy compensator)
41. Daha-prasamana (Refrigerent)
42. Sita-prasamana (Calefacient)
43. Udara-prasamana (Anti-allergic)
44. Angamarda-prasamana (Pain relieving)
45. Sula-prasamana (Intestinal antispasmodic)
46. Sonita-sthapana (Haemostatic)
47. Vedana-sthapana (Analgesic)
48. Sanjna-sthapana (Energising)
49. Praja-sthapana (Anti-abortionificient)
50. Vayah-sthapana (Rejuvenating)

## PART 9: Ayurvedic Formulae and Preparations

1. Nama-Rupa-Jhana.
  - a. Classification
  - b. Storage
  - c. Shelf-life
  - d. Dispensing
  - e. Weights and measures
2. Pharmaceutical Processing.
  - a. Purification.
  - b. Detoxification.
  - c. Compounding.
  - d. Incompatibilities.
3. Pharmaceutical Preparations.
  - a. Kasayas.
  - b. Fatty preparations.
  - c. Fermented preparations.
  - d. Other preparations.
4. Administration of drugs.
  - a. Mode of administration.
  - b. Time of administration
  - c. Posology.
  - d. Anupana.
  - e. Observation.

### Common Preparations, Main Ingredients and Main Indications

These are to be studied according to the following classification (for details see **Appendix 2**):

- (1) Avalehas
- (2) Gutika / vati
- (3) Churnas
- (4) Ghritas
- (5) Guggulu
- (6) Taila
- (7) Kwatha
- (8) Asava & arishta
- (9) Kalka

## Means of Assessment

Continuous Assessment, including both Formative and Summative assessments, is recommended. It is suggested that methods be chosen from the following:

1. Portfolio-based formative assessment
2. Theory examination
3. Practical examination
4. Case studies
5. Clinical portfolios
6. Essays
7. Dissertation
8. Viva-voce examination based on case studies

## Recommended Allocation of Time

Following the recommendations of the EHPA, the total minimum course length should be 2560 hours. A minimum of one third of this should be teacher/student contact time.

**Clinical practice** should be no less than 400 hours, of which at least 200 hours should be spent on supervised clinical practice in proximity to patients (which incorporates the diagnosis and treatment of patients and planning of treatment strategies in the clinic). The remainder could consist of case discussions and supervision of students outside the immediate clinical setting, researching treatments, writing up cases and other clinically relevant activities.

It is recommended that clinical practice should combine clinical rotation within the United Kingdom and hospital rotations based on a *guru-sishya* (teacher-student) scholarly interaction, in India and/or Sri Lanka, or at an alternative approved location.

The objective of the sishya-guru interaction is to provide a platform for the student to deepen the study and practise of Ayurveda in a traditional Ayurvedic medical setting. This activity could be carried out in any country where experienced Ayurvedic physicians and researchers offer training. These training centres need to be attached to a clinical base or hospital dedicated to inpatient care based on the principles of Ayurveda, permitting trainees to engage in a wide variety of clinical experience.

## Indicative Reading

Srikantha Murthy, K.R. (1996) Vagbhata's Astanga Hedaya Samhita. Vol. 1, Krishnadas Academy.

Sharma, R.K. and Bhagwan Dash (1997) Caraka Samhita. Vol. 1 Chaukhamba Sanskrit Series.

Bhishagratne, K.L. (1968) Sushruta Samhita. Vol. 1-3. Chaukhamba Orientalia.

Athique, M.M. (2000) Promoting Health through Ayurveda (Unpublished) College of Ayurveda (UK) Ltd.

Sharma, P.V. (1994) Cakradatta: A Treatise on Principles and Practice of Ayurvedic Medicine. Chaukhambha Orientalia.

Nadkarni, A.K. (1996) Indian Materia Medica. Vol. 1&2. Popular Preakashan Prt. Ltd.

Pandey, G. (1998) Dravyaguna Vijnana. Vol. 1&2. Krishnadas Academy.

Reddy, K.R. (1998) Bhaisajya Kalpana Vijnanam. Chaukhambha Sanskrit Bhawan.

Srikantha Murthy, K.R. (1987) Madhava Nidhanam. Chaukamba Orientalia