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Review article

A glimpse of Ayurveda – The forgotten history and principles of Indian traditional medicine



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ABSTRACT

Ayurveda is considered as one of the oldest of the traditional systems of medicine (TSMs) accepted worldwide. The ancient wisdom in this traditional system of medicine is still not exhaustively explored. The junction of the rich knowledge from different traditional systems of medicine can lead to new avenues in herbal drug discovery process. The lack of the understanding of the differences and similarities between the theoretical doctrines of these systems is the major hurdle towards their convergence apart from the other impediments in the discovery of plant based medicines. This review aims to bring into limelight the age old history and the basic principles of Ayurveda. This would help the budding scholars, researchers and practitioners gain deeper perspicuity of traditional systems of medicine, facilitate strengthening of the commonalities and overcome the challenges towards their global acceptance and harmonization of such medicinal systems.

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1. Introduction

Ayurveda is one of the most renowned traditional systems of medicine that has survived and flourished from ages till date. With the enormous knowledge of nature based medicine, the relationship of human body constitution and function to nature and the elements of the universe that act in coordination and affect the living beings, this system will continue to flourish in ages still to come. There are many avenues still to be explored by the researchers, practitioners and experts in the field who carry the responsibility of keeping the traditional systems of medicine (TSMs) alive and contributing to their growth in the future. However, due to many barriers such as lack of literature sources in different languages and insufficiency of awareness about the basic principles and histories of the systems from different ethnic origins, there is a lacuna of exchange of information from systems around the globe.

Knowledge of systems from different ethnic origins would bring about interchange of knowledge and increase the understanding of different systems, and this can ultimately contribute to integration and advancement of herbal drug research when accompanied by collaborative work of researchers from different countries. These futuristic goals can be accomplished when one gains insights about the systems, the principles and histories and works upon the strengthening aspects common between the various TSMs. In this review, we have made an attempt to put forth the basic principles of doctrine and history of Ayurveda to contribute to the above said perspectives.

To date, there have been several reviews detailing Ayurveda. However, very few reviews detail the modalities of the basic principles and history of Ayurveda.¹ Through this review the authors wish to provide the readers an understanding of the age old history and the basic principles of Ayurveda.

2. History of Ayurveda

Ayurveda has an age old history since the 2nd Century BC. Ayurveda has its foundations laid by the ancient schools of Hindu Philosophical teachings named *Vaisheshika* and the school of logic named as *Nyaya*. It is also related to the manifestation framework,

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well-known as *Samkhya*, and it was established in the same period when schools of *Nyaya* and *Vaisheshika* flourished.

The *Vaisheshika* School preached about inferences and perceptions that should be obtained about a patient's pathological condition for treatment. Whereas, *Nyaya* school propagated its teachings on the basis that one should have an extensive knowledge of the patient's condition, and the disease condition before proceeding for treatment. The school of *Vaisheshika*, classifies the attributes of any object into six types: substance, particularity, activity, generality, inherence and quality called as *Dravya*, *Vishesh*, *Karma*, *Samanya*, *Samavaya* and *Guna* respectively, in Sanskrit language.^{2,3} Later, *Vaisheshika* and *Nyaya* schools worked together and jointly founded the *nyāya–vaiśeṣika* school. The *nyāya–vaiśeṣika* school, in the later years brought glory to the ancient knowledge and helped in disseminating the knowledge about Ayurveda. Even before these schools were established and also today, the origin of Ayurveda is considered to be divine, from the Hindu God, Brahma who is called as the creator of the universe.^{4,5} It is believed that the creator of the universe passed on this holistic knowledge of healing onto the sages for the well-being of mankind. From the sages the knowledge of traditional medicines was passed on to the disciples and then to the common man by various writings and oral narrations. The information about the healing properties of the herbs was composed in the form of poems, called "*Shlokas*". These were used by sages to describe the use of medicinal plants. The Hindu system of healing is believed to be based on four eminent compilations of knowledge (*Vedas*) called as *Yajur Veda*, *Rig Veda*, *Sam Veda*, and *Atharva Veda*. The *Rig Veda* is the most well-known of all the four Vedas and describes 67 plants and 1028 Shlokas. The *Atharva Veda* and *Yajur Veda* describe 293 and 81 medicinally useful plants. The practice of Ayurveda is based upon the knowledge gained from these Vedas. The writings in *Rig Veda* and *Atharva Veda* are attributed to "*Atreya*" who is believed to have been conferred with this knowledge from Lord *Indra*, who initially received it from Lord *Brahma*.^{6,7} *Agnivesha* compiled the knowledge from the Vedas, and it was edited by Charaka and some other scholars and is presently called as "*Charaka Samhita*". *Charaka Samhita* describes all aspects of Ayurvedic medicine and *Sushruta Samhita* describes the Science of Surgery.^{8–11} Both these legendary compilations are still used by practitioners of traditional medicine. These ancient texts are available in various translations and languages like Tibetan, Greek, Chinese, Arabic and Persian.¹² There are several other allied minor compilations like *Nighantu Granthas*, *Madhava Nidana* and *Bhava Prakasha* from the contributions of various scholars, however *Charaka Samhita* is the most respected of all the records.^{13,14}

3. Basic doctrine principles of Ayurveda

Ayurveda believes that the entire universe is composed of five elements: Vayu (Air), Jala (Water), Akash (Space or ether), Prithvi (Earth) and Teja (Fire). These five elements (referred to as *Pancha Mahabhoota* in Ayurveda) are believed to form the three basic humors of human body in varying combinations. The three humors; *Vata dosha*, *Pitta dosha* and *Kapha dosha* are collectively called as "*Tridoshas*" and they control the basic physiological functions of the body along with five sub-doshas for each of the principal doshas. Ayurveda believes that the human body consists of *Saptadhatu* (seven tissues) *Rasa* (tissue fluids), *Meda* (fat and connective tissue), *Rakta* (blood), *Asthi* (bones), *Majja* (marrow), *Mamsa* (muscle), and *Shukra* (semen) and three *Malas* (waste products) of the body, viz. *Purisha* (faeces), *Mutra* (urine) and *Sweda* (sweat). *Vata dosha* maintains the cellular transport, electrolyte balance, elimination of waste products and its effect is increased by dryness. *Pitta dosha* regulates the body temperature, optic nerve coordination and

hunger and thirst management. Heat conditions of the body aggravate *Pitta*. *Kapha dosha* is increased due to sweet and fatty food and it provides lubrication to the joints for proper functioning. The catabolism of the body is believed to be governed by *Vata*, metabolism by *Pitta* and anabolism by *Kapha*.¹⁵ For a healthy state of health, a balance between the three doshas and other factors should be maintained. Any imbalance between the three causes a state of illness or disease.¹⁶ In Ayurveda it is believed, that a perfect balance between the nature elements and the Tridoshas of the human body should be maintained for a healthy state of living by following the principles of divine wisdom.¹⁷ The body is believed to be composed of seven types of tissues called as "*Sapta Dhatus*". These seven tissues work in coordination with each for proper physiological functioning of the human body. The *Rakta Dhātu* resembles the blood and regulates the circulation of blood cells and provision of blood components to the body. The *Mamsa Dhātu* (Muscle tissue) provides supports in the form of skeletal muscles for the *Meda Dhātu* (adipose fat). The *Asthi Dhātu* comprises the bones of the body and the *Majja Dhātu* is made up of the bone marrow and fluids required for the oleation of the bones and their functioning. The *Shukra Dhātu* is responsible for functions of the reproductive organs of the body.

Apart from the Doshas and the Dhatus, the other important factors considered in the doctrine of Ayurveda are the *Tri Malas* and *Trayo Dosa Agni*. *Tri Malas* are the three types of waste products formed in the body due to metabolic and digestive functions of the body. They comprise of the *Mutra* (urine), *Purisha* (faeces), and *Sweda* (sweat). Ayurveda explains that if the balance between Tridosha is not maintained the waste products of the body are not effectively eliminated and these lead to further complications like diarrhea, constipation, asthma, rheumatoid arthritis and such other complications. If the *Mutra Mala* (urine) is not removed from the body, it can lead to urinary tract infections, cystitis and gastric pain. If the *Sweda Mala* is not cleared from the body, it can lead to skin irritation problems, and improper fluid balance. As per the principles of Ayurveda the biological fire of the body for all the metabolic function is called as "*Agni*". There are thirteen categories of *Agni* in a human body and the most important is the one responsible for digestive fire, called as *Jatharagni*. *Jatharagni* has a close relation with *Pitta* and ultimately *Vatta* of the body. If the digestive fire of the body is increased in the body by increase in acidity conditions, the elevation in *Pitta* levels and its relative symptoms are observed. Digestive fire is important in controlling the normal microflora, proper digestive functions and provision of energy to the entire body. Any disturbances in its balance, creates discomfort to the gastro-intestinal tract and results in pathological complications like ulcers, diarrhea and constipation.¹⁸

Considering the bodily constitution, pathological history, the Dosha characteristics, life style and environmental conditions in an individual's routine life style, Ayurveda has many treatment strategies for promoting well-being to individuals.^{19,20}

Ayurveda employs the "*Pancha karma*" method in its therapies. *Pancha karma* therapy applies various processes for the rejuvenation of the body, cleansing and enhancing longevity. The *Pancha karma* is composed of five karmas (actions) that are used for removal of toxins from the body tissues. They are the *Virechan* (purgation through use powders, pastes or decoction), *Vaman* (forced therapeutic emesis by use of some medicines), *Basti* (use of enemas prepared from medicated oils), *Rakta moksha* (detoxification of blood) and *Nasya* (administration of medicines like decoctions, oils and fumes through nasal route).

Primarily, *Pancha karma* consists of 3 steps viz. *Poorva karma* (preparatory process of the body for the therapy), *Pradhan karma* (the main process of therapy) and the *Paschat karma* (consisting of regimens to be followed to restore digestive and other absorptive

procedures of the body, back to the normal state). Clarified butter and medicated oils are used in the oleation process. Swedan (sweating) is brought about by exposure to steam for particular areas of treatment of the body. Forced emesis or *vamana* is brought about by administration of decoction of liquorice, honey with a few hours of prior administration of curd and rice. These substances are believed to cause elevation in the emesis effect. The Virechana, or laxative therapy is carried out by administration of herbs and liquids like senna, cow milk, psyllium seed, and castor oil. The enemas used in Pancha karma can be prepared from medicated oils or decoction of herbs like sesame or anise.

In practice, Ayurveda has eight disciplines called as “*Āshtanga Ayurveda*”. They are *Kayachikitsa* (internal medicine treatment), *Bhootavidya* (treatment of psychological disorders), *Kaumar Bhritya* (pediatric treatment), *Rasayana* (study of geriatrics), *Vajikarana* (treatment through aphrodisiacs and eugenics), *Shalya* (surgical treatment), *Shalakya* (otorhinolaryngological and ophthalmological treatment), *Agada Tantra* (toxicological studies).

With a rich knowledge of plants, minerals and animal based products, and the above based principles of doctrine, Ayurveda has achieved its widespread acceptance globally.^{21,22}

4. Allied systems of medicine in Ayurveda – a brief overview

India has a rich history of traditional system of medicine based upon six systems, out of which Ayurveda stands to be the most ancient, most widely accepted, practiced and flourished indigenous system of medicine. The other allied systems of medicine in India are Unani, Siddha, Homeopathy, Yoga and Naturopathy.²³ Ayurveda is the most dominant system amongst the other Indian systems of medicine and finds its prevalence globally since centuries. In this paper, we have restricted the detailed discussion of various aspects of Indian systems of Medicine (ISM) to Ayurveda alone, and only a comprehensive overview of the other systems is provided in the text. After Ayurveda, the Siddha, Homeopathy and Unani system of medicine are widely used. Naturopathy is still developing and in future it may emerge as a flourished system of medicine. Yoga, is a system of allied medicine that deals with physical, mental and spiritual state of an individual.

The *Siddha* system of medicine is based upon the principle similar to Ayurveda considering that the human body is constituted from the five elements of the Universe like the pancha mahabhootas. Along with these elements Siddha system considers that the physical, moral and physiological well-being of an individual is governed by 96 factors. These 96 factors include perception, speech, diagnosis of pulse etc. Perception is commonly used determinant for treatment of psychosomatic system with the help of minerals, metals and to a lesser extent some plant products. Siddha system uses many preparations of plant and mineral origin in powder form, prepared through various procedures including calcinations.²³

Unani system of medicine originated in Greece and was introduced by Hippocrates; a famous philosopher and physician during the 460–366 BC period. Hippocrates laid down the “humoral theory” for treatment of diseases and describes the wet and dry characteristic of each humor that constitutes the human body. This system of medicine was introduced in India by the Arabs and it grew stronger when some scholars and physicians of Unani system fled to India after invasion of Persia by the Mongols. Since then, this system of medicine has made a firm footing in India and is recognized by the Indian government for clinical practice and research funding. The plants based formulations like oils, tinctures, powders and ointments are used in treatment.²³

Homeopathy was brought into practice by Dr. Samuel Hahnemann, who was a German physician in the mid-17th and 18th

century.⁹ Homeopathy is based upon the laws of “immunological memory” and “memory of water” and the similarities in the pharmacological aspects of the drug and the disease. It utilizes medicines which produce symptoms similar to that of the disease for treatment of the pathological condition initially by producing or aggravating the pathological conditions and then treating it. For more than a century this system is been practiced in India and has formed an integral part of the Indian traditional system of medicine. It is recognized by the government of India and there are various institutions, research centers and regulatory bodies that help propagation of this system.²⁴ In homeopathy the mother tinctures or aqueous extracts of the drugs (plants, animal origin substances, venoms and minerals) are diluted and succussed (specific method of mixing or shaking) as per Pharmacopoeial methods to prepare the formulations of very low potencies.

Yoga originated in India in ancient times. Through its therapies and diagnosis based on pulse and analysis of *Tridosha* state of an individual, it suggests meditative exercises and life style management to obtain tranquility and improve health.^{25–27} The Asanas (postures) of Yoga are applied in various clinical and nonclinical conditions for curing various physical and emotional conditions.

Naturopathy, also termed as naturopathic medicine originated in Germany in the 19th century and today it is practiced in several countries. It is not an ancient system of medicine but some practitioners who practice traditional medicine sometimes use Naturopathy in combination to the major system. The Naturopathic system is based upon using the curative power of nature in combination with the traditional and modern techniques to help restore good health. Homeopathy, herbal formulations, hydrotherapy are some of the treatment methods used by this system.²⁸

5. Current status of Ayurveda and perspectives for its future applications

In the recent decades, Ayurveda has experienced a considerable shift in its paradigm and a significant change in the outlook of researchers, towards its applications has occurred. The therapeutic principles of Ayurveda focus on *prakriti* and *tridoshas*, and these principles explain that every individual has his unique constitution called as *prakriti*. *Prakriti* determines the characteristic response of each individual to medications, environmental conditions and dietary factors. ‘Ayurgenomics’ a recently introduced research field, bridges this gap between genomics and Ayurveda and serves as an aid in understanding of inter-individual differences in responses to therapies in various diseases.²⁹ It especially emphasizes on studying inter-individual variances in patients from identical ethnic backgrounds. TSMs are now been looked upon for recourse to some limitations faced by western medicine, such as the need for individualized therapies, potential side effects and lack of desired therapeutic efficacy.³⁰

Rotti et al, have published several studies correlating the concept of *prakriti* in Ayurveda to present-day science. A report indicating the correlation of dominant *prakriti* with the Body Mass Index (BMI) and place of birth in individuals was published.³¹ Studies involving subjects of various *prakriti* types viz. Vata, Pitta and Kapha, were carried out to identify molecular differences that affect susceptibility and responses of individuals to various environmental or disease conditions. A classification method for human population, with respect to DNA methylation signatures is reported based upon traditional Ayurveda concept of *prakriti*.³² In a study involving genome-wide SNP (single nucleotide polymorphism) in 262 male individuals from three different *prakritis*, it was found that *PGM1* gene is associated with energy production. *PGM1* was found to be more homogeneous in Pitta *prakriti*, than the Kapha and Vata *prakriti*.³³

An integration of the knowledge of modern analytical techniques with a broader perspective for applications of Ayurveda principles can help in its wider acceptance globally. There is an increasing need of proving and fostering the scientific basis of the principles of Ayurveda, to keep this age old valuable system of medicine, as a living tradition in future.

6. Summary

Ayurveda has a rich history; however there were certain drawbacks in approaches towards it, which inhibited its growth like the western system of medicine. The active components of the herbal drugs prescribed were not known, and even today many drugs still need further exploration for their active constituent characterization and elucidation of the mechanism of action. Even after decades of applying advanced analytical techniques for drug analysis, herbal drugs still face some drawbacks. The administration of combinations of several drugs adds to the complexity of study of the activity of these medications. A merit of traditional medicine systems as discussed earlier is that, they consider every individual as the prime focus of treatment rather than the disease. But this factor also possesses a hurdle to the applicability of medications on a general population basis. Several issues like, the variation in the potency due to difference in species, absence of an integrated coding for every species used commonly in TSMs, varying geographical location of growth, and incorrect identification and adulteration of drugs, non-uniform quality control standards, differences in processing methods, direct an alarming need towards comparative study of drugs used in both these system of medicine.

Conflicts of interest

None.

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