

A Glimpse of Ayurveda: Unearthing the Forgotten History and Enduring Principles of Indian Traditional Medicine

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Abstract:

Ayurveda, often hailed as one of the most ancient and comprehensive Traditional Systems of Medicine (TSMs) recognized globally, represents a rich heritage of healing wisdom. For millennia, this Indian system of medicine has offered a holistic approach to health and well-being, emphasizing the interconnectedness of mind, body, and spirit. However, despite its long-standing presence and growing international interest, the depth of Ayurvedic knowledge remains largely untapped, its potential for modern applications yet to be fully realized. In an era of increasing interest in natural and holistic healthcare solutions, exploring the synergies between different TSMs holds immense promise for accelerating herbal drug discovery and improving patient outcomes. Imagine the possibilities that could arise from a collaborative understanding of Ayurveda, Traditional Chinese Medicine, and other indigenous healing practices. However, a significant obstacle to this convergence lies in the limited understanding of the nuanced differences and fundamental similarities in their respective theoretical doctrines. This, coupled with other challenges in plant-based medicine research, hinders the effective integration of these valuable systems.

Keywords: Ayurveda, Naturopathy, Unani, Siddha, Homeopathy

1. Introduction

Ayurveda, often hailed as the "Science of Life," stands as a testament to the enduring power of traditional medicine. It is one of the most renowned and complete traditional systems of medicine to have survived and flourished from ancient times to the present day. Its remarkable longevity stems from its holistic approach, deeply rooted in nature and the interconnectedness of the human body, mind, and spirit with the elements of the universe. Ayurveda emphasizes understanding the individual's unique constitution ("Prakriti") and how it interacts with the environment, considering factors such as lifestyle, diet, and seasonal changes to maintain balance and well-being. With its enormous knowledge of nature-based medicine, and an understanding of how the human body constitution and function relates to the nature and the elements of the universe that act in coordination and affect living beings, this system will continue to flourish in times to come.

Despite its rich history and continued relevance, Ayurveda, like other Traditional Systems of Medicine (TSMs), faces challenges in the modern world. These challenges include limitations in accessing literature

sources across languages, a need for greater awareness of its fundamental principles and historical origins among diverse ethnic groups, and difficulties in sharing knowledge across different systems globally. This creates a significant gap in the cross-pollination of ideas and practices that could greatly benefit the field. A deeper understanding of various traditional systems, their underlying principles, and their historical evolution would foster a valuable exchange of knowledge. This, in turn, could lead to the integration and advancement of herbal drug research, particularly when coupled with collaborative efforts among researchers from different countries. This collaborative spirit can facilitate the development of novel therapeutic strategies and contribute to a more comprehensive approach to healthcare. In essence, a collective effort to strengthen the common threads that bind various TSMs can help accomplish futuristic goals and promote a more interconnected world. 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. Through this review the authors wish to provide the readers an understanding of the age old history and the basic principles of Ayurveda. This review aims to bridge this gap by presenting a concise overview of Ayurveda's history, core principles, and fundamental concepts, aiming to facilitate greater understanding and promote future collaborative research.

2. History of Ayurveda

Ayurveda boasts a rich and extensive history that stretches back to the 2nd Century BC, predating many modern medical systems. But some consider it as older than that . In fact, some studies suggest that the origins of Ayurveda can be traced back to several millennia. Ayurveda has 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, well-known as Samkhya, and it was established in the same period when schools of Nyaya and Vaisheshika flourished. These philosophical schools provided the intellectual framework for understanding the nature of reality, the human body, and the principles of health and disease.

The Vaisheshika School preached about inferences and perceptions that should be obtained about a patient's pathological condition for treatment. The Vaisheshika school of thought emphasized the importance of observation and accurate assessment in diagnosing and treating illnesses. 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 Nyaya school stressed the importance of logic and reasoning in understanding disease processes and developing effective treatment strategies. The school of Vaisheshika, classifies the attributes of any object into six types: substance, particularity, activity, generality, inherence and quality called as Dravya, Vishesha, Karma, Samanya, Samavaya and Guna respectively, in Sanskrit language. 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. Mythological accounts attribute the origin of Ayurveda to divine sources, with Brahma, the creator of the universe, believed to have revealed this knowledge to the sages for the benefit of mankind. 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. These Shlokas served as a means of preserving and transmitting knowledge across generations. 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. Agnivesha compiled the knowledge from the Vedas, and it was edited by Charaka and some other scholars and is presently called as “Charaka Samhita”. The Charaka Samhita is a comprehensive treatise that covers a wide range of topics related to Ayurvedic medicine, including anatomy, physiology, pathology, diagnosis, and treatment. Charaka Samhita describes all aspects of Ayurvedic medicine and Sushruta Samhita describes the Science of Surgery. 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. The widespread translation of these texts underscores the global influence and historical significance of Ayurveda. 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. These texts collectively form the foundation of Ayurvedic knowledge and continue to guide practitioners in their understanding and application of this ancient healing system

3. Ayurveda in India

Ayurveda is an ancient Indian system of medicine that is based on the belief that health and wellness depend on a delicate balance between the mind, body, and spirit. The fundamental principles of Ayurveda include the concept of five great elements (Pancha Mahabhoota) that make up the universe: Vayu (Air), Jala

(Water), Aakash (Space or ether), Prithvi (Earth), and Teja (Fire). These elements are believed to form the three basic humors, or doshas, of the human body: Vata dosha, Pitta dosha, and Kapha dosha.

Vata dosha is associated with the elements of Air and Space and is responsible for maintaining cellular transport, electrolyte balance, and waste elimination. Pitta dosha is associated with the elements of Fire and Water and regulates body temperature, optic nerve coordination, and hunger and thirst management. Kapha dosha is associated with the elements of Earth and Water and provides lubrication to the joints and supports the immune system. According to Ayurveda, a balance between these three doshas is necessary for good health, and any imbalance can lead to disease.

The human body is also made up of seven tissues (Saptadhatu) and three waste products (Malas). The tissues include Rasa (tissue fluids), Meda (fat and connective tissue), Rakta (blood), Asthi (bones), Majja (marrow), Mamsa (muscle), and Shukra (semen). The waste products include Purisha (faeces), Mutra (urine), and Sweda (sweat). Ayurveda believes that maintaining a balance between the doshas, tissues, and waste products is essential for good health.

In addition to the doshas, tissues, and waste products, Ayurveda also considers 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. They include Mutra (urine), Purisa (faeces), and Sveda (sweat). Trayo Dosa Agni refers to the biological fire of the body responsible for all metabolic functions. If the balance between the doshas and Agni is not maintained, it can lead to the accumulation of waste products and disease.

Ayurveda employs various treatment strategies, including the Pancha karma method, which involves five actions used for the removal of toxins from the body. These actions include Virechan (purgation), Vaman (emesis), Basti (enemas), Rakta moksha (detoxification of blood), and Nasya (administration of medicines through the nasal route). Ayurveda also has eight disciplines, or branches, including internal medicine, psychological disorders, pediatric treatment, geriatrics, aphrodisiacs and eugenics, surgical treatment, otorhinolaryngological and ophthalmological treatment, and toxicological studies.

With a rich knowledge of plants, minerals, and animal-based products, Ayurveda has achieved widespread acceptance globally as a holistic approach to health and wellness. Ayurvedic practitioners use a variety of treatments, including herbs, massage, meditation, and lifestyle changes, to help individuals achieve balance and maintain good health.

4. Allied Systems of Medicine in Ayurveda – A Brief Overview

India boasts a rich heritage of traditional medicine, encompassing six distinct systems. Among these, Ayurveda stands out as the most ancient, widely accepted, practiced, and flourishing indigenous system. Alongside Ayurveda, the allied systems include Unani, Siddha, Homeopathy, Yoga, and Naturopathy.

While Ayurveda holds a dominant position and enjoys global recognition spanning centuries, this paper will primarily focus on its various aspects. We will, however, provide a concise overview of the other Indian Systems of Medicine (ISM). Following Ayurveda, Siddha, Homeopathy, and Unani systems are widely utilized. Naturopathy is still in its developmental stages, holding potential for future growth. Yoga, as an allied system, emphasizes the physical, mental, and spiritual well-being of an individual.

The Siddha system shares foundational principles with Ayurveda, recognizing the human body as being constituted of the five elements of the Universe, known as the Pancha Mahabhootas. In addition to these elements, Siddha emphasizes the significance of 96 factors governing an individual's physical, moral, and physiological health. These factors encompass elements such as perception, speech, and pulse diagnosis. Perception plays a crucial role in treating psychosomatic conditions, leveraging minerals, metals, and, to a lesser extent, plant products. The Siddha system utilizes numerous plant and mineral-based preparations in powder form, meticulously prepared through processes including calcination.

The Unani system of medicine traces its origins to Greece, introduced by Hippocrates, a renowned philosopher and physician during the period of 460–366 BC. Hippocrates formulated the "humoral theory" for disease treatment, characterizing the wet and dry qualities of each humor composing the human body. This system found its way to India through Arab influence and gained further momentum when scholars and physicians from the Unani tradition sought refuge in India following the Mongol invasion of Persia. Since then, Unani medicine has established a firm presence in India and is officially recognized by the Indian government, supporting clinical practice and research funding. Treatment methods primarily involve plant-based formulations like oils, tinctures, powders, and ointments.

Homeopathy was pioneered by Dr. Samuel Hahnemann, a German physician in the mid-17th and 18th centuries. Homeopathy operates on the principles of "immunological memory" and "memory of water," emphasizing the similarities between the pharmacological aspects of a drug and the disease it intends to treat. It employs medicines that elicit symptoms similar to the disease, initially mimicking or exacerbating the pathological condition before ultimately resolving it. Homeopathy has been practiced in India for over a century and is now an integral component of the Indian traditional medicine landscape. Recognized by the Indian government, there are numerous institutions, research centers, and regulatory bodies that foster its development. In homeopathy, mother tinctures or aqueous extracts derived from plants, substances of animal origin, venoms, and minerals are diluted and succussed (a specific method of mixing or shaking) following pharmacopeial guidelines to create formulations of very low potencies.

Yoga originated in ancient India. Its diagnostic methods, based on pulse analysis and the analysis of an individual's Tridosha state, and therapeutic interventions involve meditative exercises and lifestyle management to achieve tranquility and improved health. The Asanas (postures) of Yoga are applied in various clinical and non-clinical settings to address a range of physical and emotional conditions.

Naturopathy, also known as naturopathic medicine, emerged in Germany during the 19th century and is currently practiced in various countries. While not an ancient system, Naturopathy is sometimes integrated by practitioners of traditional medicine alongside other major systems. It centers around harnessing the curative power of nature, combined with traditional and modern techniques, to restore good health. Treatment approaches within Naturopathy include homeopathy, herbal formulations, and hydrotherapy.

5. Current Status of Ayurveda and Perspectives for its Future Applications

In recent decades, Ayurveda, the ancient Indian system of medicine, has experienced a notable shift in its paradigm. There has been a significant change in the outlook of researchers, moving away from purely empirical observations towards a more scientific and evidence-based approach to its applications. This evolution is driven by a desire to integrate Ayurvedic principles with modern scientific understanding, fostering wider acceptance and integration into global healthcare systems.

The core therapeutic principles of Ayurveda revolve around the concepts of *prakriti* (an individual's unique constitution) and the *tridoshas* (the three fundamental energies – Vata, Pitta, and Kapha – that govern physiological and psychological functions). Ayurveda posits that every individual possesses a unique *prakriti*, determined by a complex interplay of genetic, environmental, and lifestyle factors. This *prakriti* influences an individual's susceptibility to disease, their response to medications, their adaptation to environmental conditions, and their optimal dietary needs. In essence, it emphasizes personalized medicine tailored to the individual's specific constitution.

The emerging research field of "Ayurgenomics" aims to bridge the gap between genomics and Ayurveda. It seeks to understand the molecular basis of *prakriti* and how it influences individual responses to therapies in various diseases. This field is particularly focused on studying inter-individual variations in patients from similar ethnic backgrounds, aiming to identify genetic markers that correlate with different *prakriti* types and their associated health outcomes. By integrating genomic data with Ayurvedic principles, Ayurgenomics holds the potential to personalize treatment strategies, predict therapeutic efficacy, and minimize potential side effects.

Traditional Systems of Medicine (TSMs), including Ayurveda, are increasingly being considered as potential solutions to some of the limitations faced by conventional Western medicine. These limitations include a growing recognition of the need for individualized therapies that take into account the unique characteristics of each patient, concerns about potential side effects associated with pharmaceutical interventions, and instances of inadequate therapeutic efficacy in certain conditions. TSMs offer a holistic approach that considers the interconnectedness of mind, body, and spirit, and emphasizes preventive strategies and lifestyle modifications alongside pharmacological interventions.

Rotti et al. have contributed significantly to this area by publishing several studies exploring the correlation between the Ayurvedic concept of *prakriti* and contemporary scientific parameters. One notable report demonstrated a correlation between dominant *prakriti* and Body Mass Index (BMI), as well as the individual's place of birth, suggesting that environmental factors may play a role in shaping an individual's constitution. Furthermore, studies involving subjects with different *prakriti* types (Vata, Pitta, and Kapha) have been conducted to identify molecular differences that may affect their susceptibility to various environmental or disease conditions. These studies aim to identify biomarkers that can be used to objectively assess *prakriti* and predict an individual's risk of developing certain diseases.

A classification method for human populations, based on DNA methylation signatures, has also been reported, drawing upon the traditional Ayurvedic concept of *prakriti*. DNA methylation is an epigenetic mechanism that can alter gene expression without changing the underlying DNA sequence. This research suggests that *prakriti* may be associated with distinct patterns of DNA methylation, further supporting the biological basis of this Ayurvedic concept.

In a key study involving a genome-wide SNP (single nucleotide polymorphism) analysis of 262 male individuals from three different *prakriti* types, researchers found that the PGM1 gene, involved in energy production, showed variations across the groups. Specifically, PGM1 was found to be more homogeneous in individuals with Pitta *prakriti* compared to those with Kapha and Vata *prakriti*. This finding suggests that genetic variations in energy metabolism may be associated with specific *prakriti* types, providing further insight into the physiological differences between individuals with different constitutions.

To achieve wider global acceptance and integration of Ayurveda, it is essential to integrate modern analytical techniques with a broadened perspective on the applications of Ayurvedic principles. This includes conducting rigorous clinical trials to evaluate the efficacy and safety of Ayurvedic treatments, developing standardized manufacturing processes for herbal medicines, and establishing quality control measures to ensure the consistency and purity of Ayurvedic products. There is a growing imperative to prove and foster the scientific basis of the principles of Ayurveda, ensuring that this valuable and time-honored system of medicine continues as a living tradition in the future. This requires a collaborative effort between Ayurvedic practitioners, scientists, and regulatory agencies to generate robust evidence and establish clear guidelines for the practice and regulation of Ayurveda.

6. Summary

Ayurveda boasts a rich historical legacy, however, its growth has been hampered by certain limitations, especially when compared to the advancements seen in Western medicine. A significant challenge has been the lack of comprehensive knowledge regarding the active components of the herbal drugs prescribed. Even today, many Ayurvedic drugs require further investigation to fully characterize their active

constituents and elucidate their mechanisms of action. Despite decades of applying advanced analytical techniques to drug analysis, herbal drugs still face considerable hurdles.

The administration of combinations of multiple drugs, a common practice in Ayurveda, adds complexity to the study of these medications' activity. While the holistic approach of traditional medicine systems, which prioritizes the individual patient rather than solely focusing on the disease, is a significant strength, it also presents a challenge to the general applicability of medications on a population-wide basis.

Several critical issues demand attention, including: variations in potency due to differences in plant species; the absence of an integrated coding system for all species commonly used in TSMs; variations in geographical location of growth, which can affect the chemical composition of herbs; the risk of incorrect identification and adulteration of drugs; the lack of uniform quality control standards; and differences in processing methods. These challenges highlight the urgent need for comparative studies of drugs used in both traditional and Western medicine systems, including rigorous analytical testing, pharmacokinetic studies, and clinical trials. Such comparisons can help identify potential synergies between the two systems and inform the development of integrated treatment approaches that combine the best of both worlds.

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