

Integration of Indian Knowledge Systems into Pharmaceutical Marketing: A Holistic Approach to Promoting Indian Systems of Medicine

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Abstract

India's traditional medical systems, collectively recognized as AYUSH which means Ayurveda, Yoga and Naturopathy, Unani, Siddha and Homeopathy constitute a venerable heritage of holistic healing. Rooted in indigenous wisdom and sustained by cultural acceptance, affordability and accessibility, these systems have increasingly converged with contemporary pharmaceutical science and global wellness paradigms. The Indian pharmaceutical industry, a preeminent player in generics and vaccines, is now witnessing a swift expansion in herbal medicines, nutraceuticals and natural personal care products, bolstered by favorable policies and international collaborations. Advancements in biotechnology, synthetic biology, bioinformatics, and computational drug discovery are expediting the standardization, validation, and scalable production of phytopharmaceuticals while fostering sustainability. Despite this robust growth, challenges such as limited clinical trials, insufficient standardization, and sluggish export growth hinder broader global adoption. Nevertheless, with governmental initiatives, digital integration, and burgeoning consumer demand for safe, plant-based alternatives, India finds itself at a pivotal juncture, poised to establish itself as a global leader in integrative, technology-enabled, and sustainable healthcare.

Keywords: Indian Knowledge Systems, Pharmaceutical Marketing, Indian Systems of Medicine, AYUSH, Indian Traditional Medicine, Herbal Medicine

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Introduction

Background

Indian Systems of Medicine (ISM)

India is recognized for its six prominent systems of medicine, often referred to as the AYUSH systems India Ayurveda, Yog and Naturopathy, Unani, Siddha and Homeopathy. These medicinal traditions are deeply rooted in the rich heritage of Indian healing knowledge and contribute significantly to holistic living and well-being (Ravishankar & Shukla, 2007). (Srikanth, Bhat, Singh, & Singh, 2015) India's traditional medical systems have persisted for generations due to their affordability, accessibility, and safety. Licensed pharmacies, registered practitioners, and research institutes are all part of India's extensive traditional healthcare network. In addition to allopathic medicine, the Indian healthcare system is distinctive in that it broadly embraces and uses homoeopathic medicine and other medical systems including Ayurveda, Yoga, Siddha, and Unani. Complementary or alternative medicine is likewise becoming more and more popular in many other nations.

(Ministry of Ayush, Government of India, 2018) Ayurveda, signifying "The Science of Life," has its origins in the ancient practices of Indian folk medicine, with its principles meticulously codified around 1500 BC. It encompasses a holistic approach to an individual's physical, psychological, philosophical, ethical, and spiritual well-being. This has well document in variety of sources that foundation of Ayurveda rests upon the idea that

"The five elemental constituents of the universe (macrocosm) and the human anatomy (microcosm) encompass Prithvi (Earth), Jala (Water), Teja (Fire), Vayu (Air), and Akash (Space). Collectively, these elements give rise to "Tridoshas," which initiate psychological processes within the body: Vata, Pitta, and Kapha. When these doshas achieve equilibrium, it is referred as health."

(Ravishankar & Shukla, 2007) Ayurveda, often referred to as Ashtanga Ayurveda, encompasses eight principal divisions, each offering a holistic approach to health and wellness, with a distinct focus on specific areas. The eight branches are : Kayachikitsa (Internal Medicine), which is dedicated to the treatment of a many of ailments; Kaumarbhritya (Pediatrics), which attends to the health of children from prenatal stages through adolescence; Shalya Chikitsa (Surgery), which encompasses a range of surgical interventions; Shalakya Tantra (ENT and Ophthalmology), which addresses disorders of the

head, including the ears, nose, throat, and eyes; Bhut Vidya (Psychiatry), which focuses on mental, emotional, and spiritual well-being; Agad Tantra (Toxicology), which investigates poisons and their antidotes; Rasayana (Rejuvenation and Geriatrics), which aspires to enhance longevity and mitigate the aging process; and Vajikarana (Sexual Health and Procreation), which pertains to fertility and reproductive health.

(Ravishankar & Shukla, 2007) in their research articles elucidated that, the Siddha system of medicine is primarily practiced in the South Indian state of Tamil Nadu and is closely identified with the Tamil civilization. The term Siddha is derived from the word “Sidhi,” signifying achievement. A hallmark of Siddha medicine is its extensive incorporation of mineral and metal-based formulations. The Siddha medical system is characterized by its utilization of Thadhu, or inorganic substances, encompassing metals and minerals. These materials, which are regarded as more potent and possessing a longer shelf life than herbal remedies, undergo a meticulous detoxification process known as Suddhi. Through this transformative procedure, toxic elements are converted into non-toxic, therapeutically efficacious compounds such as Parpam (calcined white powder) and Chenduram (red powder). These powerful preparations are administered in minuscule doses to rectify imbalances within the body’s humors and tissues, particularly in the treatment of chronic and degenerative ailments.

(Ravishankar & Shukla, 2007) The Unani system of medicine, which traces its origins to ancient Greece, is fundamentally predicated on the humoral theory—a concept initially established by Hippocrates and subsequently refined by later Arab physicians. This theory posits that health represents a state of equilibrium among four bodily fluids or humors: Dam (blood), Balgham (phlegm), Safra (yellow bile), and Sauda (black bile). Each humor is associated with distinct qualities (e.g., hot/cold, moist/dry) and corresponds to a unique temperament (Mizaj). Illness is perceived as a disruption of this delicate balance. Consequently, Unani practitioners endeavor to restore the body's intrinsic harmony through a variety of treatments, including dietary modifications, lifestyle adjustments, and medications.

(Central Council for Research in Unani Medicine) showed that The Unani system of medicine was introduced to India by Arab physicians around 1350 AD and flourished under the auspices of Islamic rulers. Prominent figures in its Indian narrative include Hakim Ajmal

Khan, who played a pivotal role in establishing the Unani and Ayurvedic College in Delhi, and Hakim Kabeeruddin, renowned for his translations of numerous Unani texts. Following India's independence in 1947, the government actively championed the revival of this medical tradition, culminating in the establishment of institutions such as the Central Council for Research in Unani Medicine (CCRUM) and the National Institute of Unani Medicine in Bangalore, aimed at fostering academic and research advancement. Currently, the same is included in the definition of AYUSH and in the list of government initiative to promote this system under Indian System of Medicine (Central Council for Research in Unani Medicine, 2022).

(Das, 2021) Homeopathy, a system of medicine conceived by the German physician Samuel Hahnemann in 1796, is predicated on the principle of "like cures like" (*similia similibus curentur*). This practice entails the treatment of ailments with highly diluted natural substances that would elicit analogous symptoms in a healthy individual. Introduced to India in the early 19th century, homeopathy was formally acknowledged as a national system of medicine by the Indian government in 1973, which subsequently facilitated the establishment of regulatory bodies such as the Central Council of Homeopathy (CCH). While it has ascended to become the third most prevalent medical system in India, its efficacy remains a topic of persistent debate within the broader scientific community, which frequently attributes its perceived benefits to the placebo effect.

(Ravishankar & Shukla, 2007) Yoga and Naturopathy represent two of the six esteemed Indian Systems of Medicine. Yoga is an ancient discipline encompassing physical, mental, and spiritual dimensions that originated in India. Naturopathy, which underscores the body's intrinsic self-healing capabilities, also draws from ancient Indian traditions. Both practices have garnered considerable traction in India and are regulated by the Central Council for Research in Naturopathy and Yoga (CCRNY). On a global scale, they have witnessed a remarkable surge in popularity, with an increasing number of practitioners, studios, and educational institutions emerging across the world.

(Yoga AYUSH Portal, 2025) Yoga, Ministry of Ayush Government of India, Yoga has spiritual heritage in India, its origins stretching back over 5,000 years to the Indus-Saraswati Valley civilization. The practice is referenced in the ancient sacred text, the Rigveda, and further evolved within the Upanishads. The Classical period (500 BCE - 800 CE) is regarded as the era, during which Maharshi Patanjali codified the practice in his seminal work, the

Yoga Sutras. This text delineates the “eight-limbed path” (Ashtanga Yoga), encompassing ethical precepts, physical postures (asanas), and breathing techniques (pranayama). While contemporary yoga frequently prioritizes physical fitness and postures, its original intent was rooted in meditation and the pursuit of spiritual liberation.

The term AYUSH is an acronym representing Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homoeopathy, which are officially acknowledged as “Indian Systems of Medicine”. The resurgence and formal recognition of these traditional healthcare modalities commenced following India's independence in 1947. This initiated the establishment of the Department of AYUSH in 2003, which was subsequently elevated to the Ministry of AYUSH in 2014. This ministry functions as the principal governmental authority tasked with the promotion, regulation, and standardization of these systems, thereby bolstering education, research, and public health initiatives.

Pharmaceutical Marketing and Indian System of Medicine

Integration of Pharmaceutical Marketing with the Indian System of Medicine can be characterized as the merger of traditional Indian healing knowledge with contemporary health practices, accompanied by the strategic promotion of these products and insights through sophisticated marketing methodologies. This approach will facilitate the global dissemination of the advantages inherent in the Indian system of medicine, offering an alternative pathway for enhanced care and well-being. Worldwide, pharmaceutical companies are increasingly inclined to the consumer shift towards alternative therapies as a complement to allopathic medicine, primarily due to their reduced risk profiles and minimal side effects. Consequently, these companies are embarking on the development and marketing of herbal products.

(Ndhlala, Stafford, Finnie, & Staden, 2011) Out of the roughly 250 medications necessary for basic medical treatment, about 11% are derived from plants. Herbal medicines are defined by the World Health Organisation

“As preparations and/or final goods made from whole plants, plant parts, or other plant materials, such as leaves, bark, berries, flowers, and roots, and/or their extracts as active ingredients meant for therapeutic use in humans or occasionally in animals. Herbal remedies, sometimes referred to as botanical remedies, utilize therapeutic herbs associated

with indigenous and local populations' traditional knowledge, which directs the creation of new products to address certain illnesses”.

(Sonwane & Pandey, 2024) The Indian pharmaceutical industry has grown significantly, transforming from import-dependent to a global powerhouse. Key factors in this transformation include:

Policy Shifts: The Indian Patent Act of 1970 facilitated domestic manufacturing by focusing on process patents. The Drug Price Control Order (DPCO) further reduced the market share of multinational corporations.

Industry Value and Growth: The sector was valued at approximately \$50 billion in FY 2023-24, with projections to reach \$130 billion by 2030. The domestic market alone was valued at around \$41 billion in FY 2022-23.

Global Position: India is the world's largest provider of generic medicines by volume, holding a 20% share of global pharmaceutical exports. The country also supplies over 60% of all vaccines worldwide.

Exports: In the fiscal year 2022-23, India's pharmaceutical exports were valued at \$25.3 billion. The top export destinations for Indian pharmaceutical products included the USA, Belgium, South Africa, the UK, and Brazil. The USA was the largest importer, accounting for 29.72% of the total exports at \$7.54 billion.

(Markets and Data, 2024) The Indian traditional medicine market was valued at USD 27.53 billion in FY2023 and is estimated to grow by USD 73.19 billion by FY2031, such exhibiting a compound annual growth rate (CAGR) of 13%. This extraordinary expansion is driven by a convergence of economic, cultural, and safety considerations. The rising prevalence of chronic diseases in India further amplifies the demand for traditional medicinal practices. Additionally, Governmental initiative such as the Memorandum of Understanding between the Ministry of Ayush and the Indian Council of Medical Research (ICMR) aimed at promoting integrative health research, as well as the establishment of the WHO Global Center for Traditional Medicine in Jamnagar, Gujarat. Ayurveda asserts a preeminent position within the market, bolstered by an increasing demand for authentic Ayurveda products, which are characterized by their minimal risk of severe adverse effects.

Herbal products constitute a substantial segment of India's traditional medicine market, with prominent pharmaceutical companies venturing into this realm to address the burgeoning consumer inclination toward natural remedies. The appetite for herbal dietary supplements has particularly escalated since the onset of the 2020 global pandemic, as individuals have increasingly sought organic solutions for stress alleviation and bolstering immune function. A noteworthy illustration is Himalaya Wellness, which, in May 2023, unveiled a novel Ashwagandha+ supplement range. This includes Ashwagandha+ Focus, meticulously formulated with ashwagandha, bacopa, rosemary, and green tea to enhance cognitive performance and concentration.

(Grand View Research, Inc, 2025) Global Herbal Medicine Market is expected to reach USD 328.72 Billion by 2030 with expected growth of CAGR 20.91% from 2024 to 2030. Indian is the second largest exporter of Herbal Medicine after China. Currently Europe is the biggest market of Herbal products in terms of revenue. The market for herbal medicines is anticipated to grow at the fastest rate in the e-sales segment. This is because technology has been incorporated to make it simpler for customers to access information on products and herbs.

(Bareetseng, 2021) While countries like France, Germany, Italy, and the United Kingdom are the current leaders in the herbal medicine market, emerging economies such as Brazil, China, and India are expected to see a more rapid increase in both the production and consumption of these medicines in coming years.

Review of Literature

(Spudich, 2023) suggests the need to revive single-plant remedies from Indian folk and Ayurvedic traditions as a means of treating minor health conditions while reducing dependence on biomedicines such as antibiotics and steroids, which may have adverse long-term effects. The article brings together historical records, practitioner insights and modern health concerns like antimicrobial resistance. It further recommends outcome-focused research and awareness programs for both the public and healthcare professionals to facilitate the integration of these remedies into mainstream healthcare.

(Newton, 2024) suggests Ayurveda as a valuable complementary approach in the management of brain cancer. Preclinical studies provide strong support for the anticancer

properties of plants such as *Withania somnifera* (*Ashwagandha*) and *Curcuma longa* (*Haldi*). Although clinical research remains scarce, Ayurvedic practices show promise in enhancing the quality of life and possibly affecting tumour progression. To firmly establish its role in integrative neuro-oncology, well-designed clinical trials and standardized treatment protocols are essential. Furthermore, the author also emphasized that the lack of standardized formulations and dosages, as well as limited clinical trials with small patient cohorts, pose challenges to the adoption of traditional medicines as an alternative therapy.

(Rajput et al., 2022) The ancient practitioners of Ayurveda demonstrated an understanding comparable to materiovigilance, acknowledging the risks associated with both the composition of materials (such as the toxic effects of lead) and the incorrect use of instruments. Sushruta documented 26 surgical and diagnostic tools, several of which closely resemble modern surgical instruments. Additionally, classical texts describe pharmaceutical equipment like mortars, crucibles and sieves, along with Panchakarma devices such as basti yantras, fomentation tubes and cauterization rods, as well as household items including utensils, water storage vessels and tongue cleaners.

(Viale & Vicol, 2023) in their research study mentioned that medicine is seen as need need-driven commodity, unlike retail and consumer goods, which are demand driven. The development or commodification of different Ayurvedic preparations for different diseases makes it to be readily available over the counter, but Ayurvedic physicians are the primary experts who understand the pharmacological properties of traditional formulations. After diagnosing a patient's aggravated doshas, they prescribe these single or multi-herbal remedies in specific combinations and proportions, using their knowledge of the formulations inherent gunas (qualities) to ensure proper treatment.

(Kumar & Arya, 2024) elucidated that the integration of advanced technologies is a critical factor for enhancing healthcare services. Technology is essential for promoting health, preventing and diagnosing diseases, making healthcare more accessible and affordable and ultimately ensuring the sustainability of the healthcare system. This conference was mainly organized to address the lack of understanding regarding the integration of modern technologies and Ayurveda. The primary goal was to explore how technology can be used as a supplement to Ayurveda, rather than a replacement, to improve healthcare services and promote holistic health. The central theme of the article is the essential need for a balanced

integration of Ayurveda with modern technology. While technology can enhance various aspects of Ayurveda, such as diagnosis, drug standardization and drug delivery, the article emphasizes the importance of preserving the fundamental principles of Ayurveda, which cannot be adequately addressed by technology alone. The conference brought together experts from both fields who agreed that technology should supplement, not supplant, Ayurveda to achieve a technology-mediated, comprehensive and evidence-based healthcare system.

Discussion

(Rohilla & Gupta, 2023) The Indian herbal medicine market is divided into three principal segments: Ayurvedic pharmaceuticals, Ayurvedic nutraceuticals and dietary supplements, and natural personal care products. The Ayurvedic medicine sector is projected to grow to INR 1,824 billion by 2028, reflecting a robust compound annual growth rate (CAGR) of 19.51%. Ayurvedic nutraceuticals and dietary supplements constitute the expanding segment, with the overall Indian nutraceutical market valued at over \$4 billion and advancing at a CAGR exceeding 18%. This segment is predominantly characterized by dietary supplements, which account for more than 60% of the market share. The natural personal care products market in India, fueled by consumer demand for formulations devoid of synthetic chemicals, was valued at approximately \$1.5 billion in 2020 and is anticipated to thrive at a CAGR of 9.6%. Furthermore, the market for plant-based baby care products is emerging as a promising parallel sector.

(Nasim, Sandeep, & Mohanty, 2022) Nature has abundance of bio active compounds, with phyto pharmaceuticals emerging as a compelling alternative to conventional single-target pharmaceuticals. Grounded in the principles of ethnopharmacology, these multi-target therapies resonate with the increasing interest in polypharmacology. Advances in systems biology, computational methodologies, and analytical techniques are propelling the identification and validation of phytogenic compounds. Coupled with enhanced drug delivery systems and biopharming technologies, these innovations underpin the efficient and sustainable production of plant-derived biologics, thereby narrating the future landscape of modern medicine.

(Chaachouay & Zidane, 2024) Modern pharmaceutical research is increasingly centered on plant-derived compounds owing to their remarkable therapeutic potential. Advances in

biotechnology and synthetic biology now facilitate the controlled, large-scale production of these bioactive substances, thereby enhancing both safety and sustainability by mitigating dependency on wild plant harvesting. Techniques such as metabolic and pathway engineering further augment yield and consistency. Concurrently, methodologies including high-throughput screening, molecular modeling, virtual screening, and bioinformatics expedite drug discovery by identifying active compounds, predicting their biological interactions, and elucidating biosynthetic pathways. This integrated paradigm not only accelerates the development of innovative therapies but also fosters a more environmentally sustainable and efficient pharmaceutical pipeline.

Pharmaceutical companies today are exhibiting a pronounced interest in herbal and plant-based products. This burgeoning interest has arisen in response to consumer demand for herbal medicines, which are perceived to entail lower risks and minimal side effects. Furthermore, these remedies are not only cost-effective but also serve as viable alternatives to conventional medical practices. Contemporary drug development methodologies are increasingly concentrating on plant-based alternatives for therapeutic purposes, drawing inspiration from the traditional knowledge of communities and the practice of indigenous medicinal systems. The integration of herbal and plant-derived pharmaceuticals into modern healing practices is the focal point of ongoing research and development efforts.

Challenges and Opportunities

(India Brand Equity Foundation, 2025) mentioned that, the AYUSH market represents a significant growth sector, estimated at \$43.4 billion, with a projected compound annual growth rate (CAGR) of 17% from 2024 to 2032. This expansion is propelled by a increasing public interest in natural and holistic healthcare solutions. The government is proactively fostering this growth by establishing the Ministry of AYUSH, augmenting its budget, and integrating AYUSH treatments into health insurance frameworks. Furthermore, the sector is embracing digital transformation through telemedicine and mobile applications. Globally, there is an escalating fascination with alternative medicine, complemented by government initiatives such as the AYUSH visa, which promotes wellness tourism. This has developed in a notable rise in AYUSH - related Micro, Small, and Medium Enterprises (MSMEs). Despite the industry grapples with challenges, including sluggish export growth in recent years and the pressing need for enhanced standardization and scientific validation to bolster its credibility.

Conclusion

India's AYUSH systems—Ayurveda, Yoga & Naturopathy, Unani, Siddha, and Homeopathy—represent a heritage of holistic healing now merging with modern pharma and biotech. Rising global demand, government support, and wellness trends are fueling growth, with India emerging as a leading herbal medicine hub. Advances in synthetic biology, computational drug discovery, eco-friendly phytopharmaceuticals, while companies expand into nutraceutical and natural care products. Key hurdles remain—standardization gaps, limited clinical validation, and export constraints—but integrating traditional wisdom with scientific expertise offers a path to sustainable, globally competitive healthcare system in India.

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