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THE FAILING SHIELD

An Ayurvedic Perspective on the Global Antibiotic Crisis

Children's Eye Health

A Growing Public Health Concern

WHO Delhi Declaration

Charting the Global Mainstreaming of TCIM

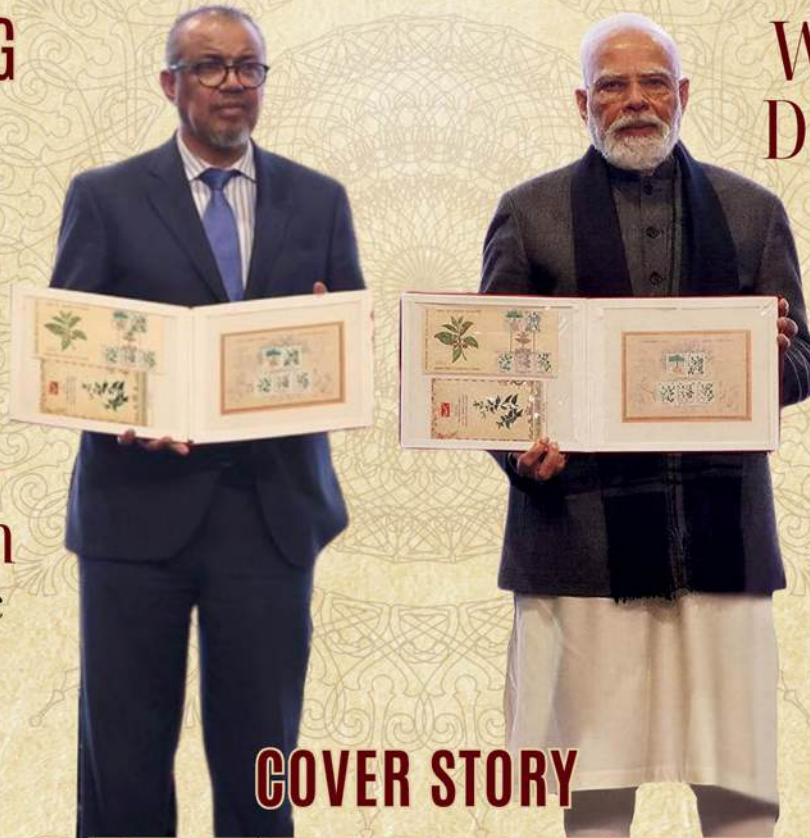
RE-ENVISIONING AYURVEDA EDUCATION

Integrating Classical Pedagogy with Contemporary Learning Theories

COVER STORY

ASHWAGANDHA

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Om Sree Gurubhyo Namaha.



The year 2026 began on a high note for *Ayur World*. The overwhelming appreciation, acceptance, and assurances of support that our inaugural issue received – from readers and unexpected quarters alike – have opened up new avenues of opportunity. We thank every reader and well-wisher for the encouragement and insightful ideas shared with us.

Such feedback is both motivating and humbling. While it inspires us to do better each time, it also brings with it a greater sense of responsibility. We remain firmly committed to strengthening *Ayur World* as a credible communication platform that reaches near and far, contributing meaningfully to a shift in how Ayurveda is perceived and understood.

This issue is especially gratifying, as stalwarts of the Ayurveda sector have come forward to share their knowledge through these pages. On behalf of our readers, I extend my sincere gratitude to all our distinguished contributors.


The Second WHO Global Summit on Traditional Medicine, held recently in New Delhi, provided an important global context for this issue. While the event has been well documented by WHO, we present the Delhi Declaration for its historic relevance and current significance. The Summit also inspired our Cover Story on Ashwagandha, along with perspectives on its recent ban in Denmark from eminent voices.

Antimicrobial resistance (AMR) is emerging as a ‘silent pandemic’ in modern healthcare. In his article, Dr Pawan Kumar Godatwar examines the issue threadbare from an Ayurvedic perspective and advocates ‘Fusion Medicine’ to outsmart harmful microbes. *Ayur World* will continue to track developments in this critical area and keep our readers updated.

Dr Rammanohar, in his thought-provoking article on re-envisioning Ayurveda education, argues for integrating the rich pedagogical insights inherent in classical Ayurvedic texts to address gaps in contemporary learning frameworks.

Eye disorders, particularly among children, have reached alarming proportions globally and now constitute a major public health concern. Unfortunately, awareness about Ayurvedic approaches to paediatric eye care remains limited. Dr Ittoozhi Unnikrishnan Namboodiri sheds light on this lesser-known yet vital dimension of Ayurveda.

Our R&D feature delves into Ashwagandha’s potential role in breast cancer research, and the book *Genome to Om* is reviewed as a compelling read for thoughtful readers.

We look forward to your valuable feedback and continued engagement. 

Thank you and Namaste!
Editorially yours, Eashwar

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Ashwagandha



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From Tradition to Technology: Ayush Republic Day Tableau Showcases India's Holistic Health Vision

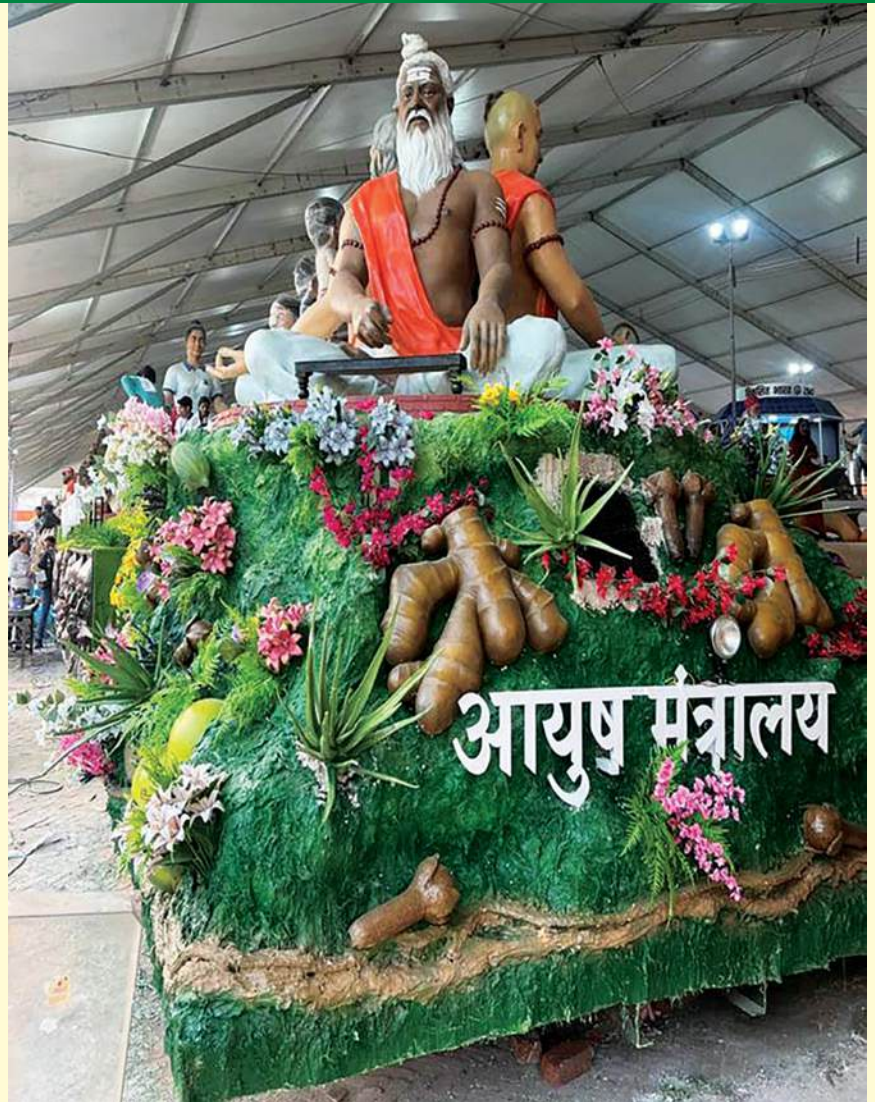
The Ayush tableau at the Republic Day Parade 2026 presented a compelling narrative of India's timeless health knowledge seamlessly integrated with contemporary public healthcare, under the theme *Ayush ka Tantra, Swasthya ka Mantra*. Rooted in the vision of *Aatmanirbhar Bharat*, the tableau highlights the National Ayush Mission's (NAM) role in strengthening traditional systems of medicine and embedding them within the national health framework.

At the heart of the presentation was a symbolic confluence of traditional knowledge and nature, depicted through a tri-sculptural representation of Acharya Charak, Acharya Patanjali, and Acharya Agastya, seated around a verdant mound of medicinal plants. This powerful imagery reflects the foundational philosophy of Ayush emerging from harmony between human life and the natural world.

The tableau conceptualised by the Ministry of Ayush symbolises India's journey of nation-building through health, self-reliance, and civilisational knowledge. By showcasing the integration of India's traditional systems of medicine into contemporary public healthcare, the tableau reflects how holistic well-being has been intrinsic to the idea of Vande Bharat – from ancient India to a confident, future-ready nation. It underscores health as a

foundational pillar of national strength, celebrating India's enduring commitment to nurturing a resilient, inclusive, and self-reliant society rooted in its heritage while addressing modern healthcare needs.

Highlighting Ayush's growing role in nation-building and global health, Shri Prataprao Jadhav, Union Minister of State (IC), Ministry of Ayush, underscored, 'Ayush represents India's holistic approach to health – one that nurtures balance, prevention, and well-being. The Republic Day tableau showcases how our traditional systems, guided by the vision of Aatmanirbhar



Bharat, are empowering communities, strengthening public healthcare, and offering credible solutions to modern lifestyle challenges. Ayush today stands as a symbol of India's confidence in its heritage and its leadership in shaping a healthier future for the world. The tableau symbolises India's commitment to evidence-based, people-centric and preventive healthcare, positioning Ayush as a vital pillar of national wellness.'

Reflecting on the policy and institutional foundations of the

Ayush today stands as a symbol of India's confidence in its heritage and its leadership in shaping a healthier future for the world.

- Shri Prataprao Jadhav, Union Minister of State (IC), Ministry of Ayush



The Republic Day tableau reflects how Ayush has moved from vision to implementation, with traditional systems being systematically integrated into India's public health framework.

- Vaidya Rajesh Kotecha, Secretary, Ministry of Ayush



tableau, Vaidya Rajesh Kotecha, Secretary, Ministry of Ayush, remarked, 'The Republic Day tableau reflects how Ayush has moved from vision to implementation, with traditional systems being systematically integrated into India's public health framework. Through the National Ayush Mission, quality assurance, education, research and digital platforms are strengthening accessibility and credibility.'

Highlighting the broader vision behind the tableau and its alignment with India's public health priorities, Dr. Kavita Jain, Joint Secretary, Ministry of Ayush, emphasised that 'The Ministry of Ayush tableau at the Republic Day Parade 2026 reflects India's holistic health journey—where traditional knowledge, nature and modern technology converge to serve public well-being. Guided by the National Ayush Mission and the vision of Aatmanirbhar Bharat, Ayush is strengthening preventive, promotive, curative and community-based healthcare through credible institutions and digital innovation. This tableau is a tribute to India's living health traditions and their growing role in building a healthier, self-reliant, and wellness-oriented nation.'

The narrative progresses to India's emergence as a digitally empowered wellness leader, with visual elements highlighting NAM's technology-driven platforms that expand access, transparency, and outreach. Flagship initiatives such

as *Supraja* for neonatal care, *Vayomitra* for elderly well-being, and Ayurveda, which introduces Ayush concepts at the school level, underline a life-cycle approach to healthcare.

An artistic depiction of *Arishadvarga* – the six inner enemies – through expressive puppetry illustrates how Ayush practices promote inner balance, mental clarity, and holistic well-being. Community-based healthcare delivery was showcased through Ayushman Arogya Mandir (Ayush), complemented by visuals of Yoga, commonly used Ayush medicines, and a meditative form symbolising body–mind–spirit harmony.

The tableau also celebrates India's diverse therapeutic traditions with three-dimensional murals of Marma, Shirodhara, and Cupping, alongside tributes to pioneers of major Ayush systems across the world. Enhancing citizen engagement, interactive mascot elements represent key Ayush digital applications – Y-Break Pro, WHO mYoga, Namaste Yoga, and Prakriti Parikshan – highlighting the growing role of technology in promoting preventive, participatory, and accessible healthcare.

The presentation concludes with a depiction of a Government Ayurveda Medical College, symbolising institutional continuity, education and excellence, reinforcing Ayush as a living, evolving pillar of India's public health and global wellness leadership. www.youtube.com/watch?v=7Qv8Qv8Qv8Q

AyushMark: Redefining Quality Assurance in Ayush Products



Prime Minister of India, Shri Narendra Modi, unveils the AyushMark logo in the presence of Dr Tedros Adhanom Ghebreyesus, Director-General of WHO; Shri J P Nadda, Minister of Health, Government of India; and Shri Prataprao Jadhav, Minister of Ayush, Government of India, at the valedictory session of the second WHO Global Summit on Traditional Medicine held in New Delhi during 17–19 December 2025

AyushMark is a quality assurance and certification initiative of the Government of India designed to enhance the credibility, safety, and global acceptance of Ayush products. Conceived as a trust mark, AyushMark assures consumers, regulators, and international markets that certified products meet prescribed quality standards, good manufacturing practices, and regulatory requirements laid down by the Ministry of Ayush.

The initiative covers products from Ayurveda, Yoga, Unani, Siddha, and Homoeopathy systems, with a primary focus on Ayurvedic medicines and health supplements. AyushMark certification is granted after a rigorous evaluation process that includes inspection of manufacturing facilities, verification of raw material sourcing, testing of formulations, and compliance with pharmacopoeia standards. Independent conformity assessment bodies accredited by

national accreditation agencies conduct these evaluations, ensuring transparency and credibility.

AyushMark serves multiple objectives. For consumers, it provides confidence regarding product quality, safety, and authenticity. For manufacturers, it offers a recognized benchmark that differentiates compliant products in both domestic and international markets. For regulators and global partners, it acts as a reliable signal of India's commitment to harmonizing traditional medicine with modern quality systems.

In the broader context of globalizing Ayurveda and other Ayush systems, AyushMark plays a strategic role. It bridges traditional knowledge with contemporary regulatory expectations, supports exports, and strengthens India's position as a responsible leader in traditional medicine on the global stage. www.ayurworld.org

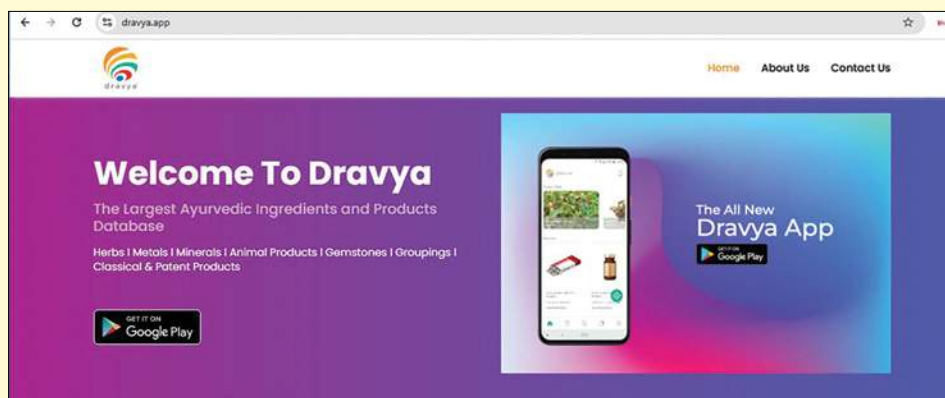
Dravya: the Digital Gateway to Ayurveda

In the digital age, ancient wisdom is finding new life through smart technology. Dravya stands out as one of the most promising examples. Dravya is a mobile and web application dedicated to Ayurveda's vast universe of medicinal ingredients and products. It is a unique database that brings classical wisdom and modern scientific understanding together in one searchable platform.

At its core, Dravya is designed to be the largest Ayurvedic ingredients and products database available to users anywhere. It is a one-stop reference hub that has detailed information on many substances from herbs, metals, and minerals to animal products, gemstones, and classical formulations. It is all derived from traditional Ayurvedic texts and contemporary scientific literature and field research.

To make the experience even richer, Dravya offers two versions: the Essential Pack, which is free, and the Professional Pack, a premium upgrade that unlocks advanced features such as multi-search filters, high-resolution images, detailed usage information, and deeper clinical and pharmacological insights.

Importantly, Dravya complements wider digitisation efforts in traditional medicine, which aims to catalogue authentic medicinal knowledge in structured, AI-ready



formats for research, policy, and global collaboration. It is an ever-growing database, which is regularly updated with new substances, products, and search enhancements to keep the content relevant and comprehensive.

Ingredient names and information are listed in **more than 20 Indian and international languages**, with technical terms paired with simple English explanations to improve understanding.

Dravya's strength lies in its accessibility and scope. As a digital repository, it eliminates the barriers of traditional reference materials and provides authentic, up-to-date Ayurvedic knowledge instantly. Whether you're learning foundational concepts, engaging in research, or applying Ayurvedic principles in practice, Dravya is shaping up to be an indispensable digital companion for the holistic health community. [औद्योगिक](#)

WHO–Ayush Meeting: Bridging Traditional Medicine with Global Health Standards

In a significant step towards integrating traditional healthcare into global health frameworks, WHO and the Ministry of Ayush held a key Technical Project Meeting in New Delhi. The goal was to work together on standards that can help traditional medicine be understood and used widely in international healthcare.

The workshop focused on building a dedicated module for traditional systems such as Ayurveda, Siddha, and Unani



Participants of the WHO–Ayush Technical Meeting from different parts of the world

(ASU) within the International Classification of Health Interventions (ICHI), which is the global standard used to classify and record health procedures.



Signing of an agreement with WHO

This initiative builds on a memorandum of understanding (MoU) and donor agreement signed between WHO and the Ministry of Ayush, Government of India, on 24 May 2025. Under this agreement, India is supporting both the financial and technical work needed to develop the new traditional medicine module.

Aligning with India's broader health diplomacy goals, the meeting echoed the vision of Prime Minister Shri Narendra Modi, who has emphasised that standardised frameworks will help Ayush systems reach wider populations in a scientific manner.

The technical session was chaired by Ms Kavita Garg, Joint Secretary, Ministry of Ayush, who led a team of leading experts in developing National Health Intervention Codes for ASU systems.

The meeting drew participation from all six WHO regions – AFRO, comprising 47 countries, primarily in Sub-Saharan Africa; AMRO, region of the Americas, comprising 35 member states; EMRO, comprising diverse countries in



WHO–Ayush Technical Meeting in progress

North Africa, West Asia, the Horn of Africa, and Central Asia; EURO, comprising 21 nations in Europe; SEARO, South-East Asia region comprising 10 member countries; and WPRO, Western Pacific Region comprising 37 countries. There were representatives from countries, including Bhutan, Brazil, Iran, Malaysia, Nepal, South Africa, Sri Lanka, the Philippines, the UK, and the US providing inputs to harmonise intervention descriptions.

The meeting reflects a growing global interest in traditional medicine as a complement to modern healthcare. Earlier in December 2025, the second WHO Global Summit on Traditional Medicine highlighted similar goals of evidence-based practice and international cooperation.

By working with WHO, India is helping make traditional systems more visible and usable in global health planning. This marks an important step towards broader acceptance and integration of centuries-old healing traditions in global healthcare standards. [\[2\]](#)

India and Germany to Strengthen Academic and Research Ties in Ayurveda

India and Germany recently held the **3rd Joint Working Group Meeting on Alternative Medicine** in Berlin. The meeting focused on building cooperation in traditional medicine and healthcare systems.



The discussions centred on expanding cooperation across three strategic pillars: integration of traditional medicine into mainstream health systems, defining reimbursement pathways for traditional and integrative therapies, and strengthening regulatory approval frameworks for traditional medicine products and practices.

A key outcome was an agreement to pursue a memorandum of understanding (MoU) at the institution-to-institution level between All India Institute of Ayurveda (AIIA) and Charité Universitätsmedizin Berlin. This collaboration aims to strengthen academic and research ties in Ayurveda, creating opportunities for joint scientific studies, training programmes and knowledge sharing between Indian and German institutions.

The discussions also highlighted India's regulatory framework and clinical care networks. Both sides agreed that standardised research and shared guidelines can strengthen trust in traditional medicine globally.

This meeting reflects a larger trend. Countries are increasingly recognising the value of traditional medicine. For instance, global forums like the second WHO Global Summit on Traditional Medicine brought together policymakers, researchers, and practitioners from many nations. They deliberated on evidence-based approaches and shared standards for safety and quality.

India's role is growing. Through meetings, research partnerships, and institutional agreements, the country is helping to build bridges between traditional medicine systems and international healthcare networks. [आर्य](#)

Back to the Operation Table: Andhra Pradesh's Bold Move on Ayurvedic Surgery

In a significant policy move with national implications, Andhra Pradesh, a southern state of India, has formally permitted surgical procedures to be practised under Ayurveda, reaffirming the classical scope of the ancient medical system. The decision by the Government of Andhra Pradesh recognises *Shalya Tantra* and *Shalakya Tantra*, the surgical and para-surgical branches of Ayurveda, as integral, codified disciplines described in authoritative texts such as the *Sushruta Samhita*, often regarded as one of the world's earliest surgical treatises.

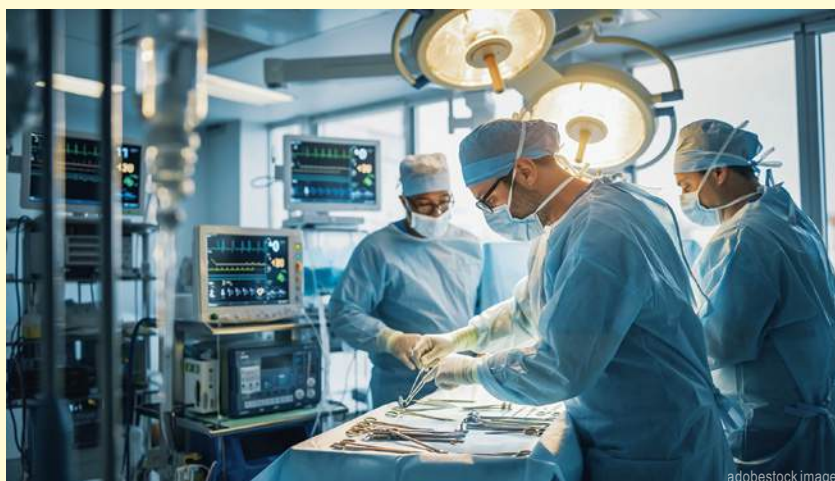
The move enables qualified Ayurvedic post-graduate practitioners trained in these specialties to perform procedures that are well within their curriculum and clinical competence. The existing national regulations and standards of training prescribed by statutory bodies support this move.

The decision is a long-overdue acknowledgment of Ayurveda's comprehensive medical framework, which historically included detailed descriptions of surgical instruments, techniques, wound management, and post-operative care. Integrating these practices within the formal healthcare system can expand access to care,

especially in rural and underserved areas.

However, the move has also sparked debate, with sections of the modern medical fraternity expressing concerns around patient safety and regulatory clarity. The state government maintains that strict oversight, defined scope of practice, and standardized training will guide implementation.

The World Ayurveda Foundation and *Ayur World* congratulate the Government of Andhra Pradesh for this benchmark initiative. [आर्य](#)



WHO Delhi Declaration: Charting the Global Mainstreaming of TCIM

The Second World Health Organization (WHO) Global Summit on Traditional Medicine held in New Delhi during 17–19 December 2025 assembled health ministers, scientists, indigenous knowledge holders, and policy-makers from over 100 countries. The three days of deliberations culminated in the Delhi Declaration. This Declaration is a landmark consensus document designed to accelerate the global integration of traditional, complementary, and integrative medicine (TCIM) into national health systems. The participants made four major commitments, which are captured below.

Commitment 1: Strengthen the evidence base for traditional medicine

- Implement the WHO Traditional Medicine Research Priorities Global Roadmap (2025–2034).
- Expand investments in traditional medicine research infrastructure, workforce, and scientifically robust, pluralistic and ethical research methods which incorporate whole-systems research, real-world evidence, and indigenous and community-based methodologies.
- Generate evidence focusing on public-health priorities and rights-based research governance to safeguard biodiversity, cultural resources, data sovereignty and community rights, and the responsible use of digital technologies, artificial intelligence, and scientific advances.



- Advance the WHO Global Traditional Medicine Library as a trusted, ethically governed global knowledge repository that supports intellectual property protection, equitable access and benefit-sharing, and evidence-informed policy, practice and education.

Commitment 2: Support equitable access to safe and effective traditional medicine through appropriate regulatory mechanisms

- Strengthen coherent governance and regulatory systems for traditional medicine products, practices and practitioners to ensure safety, quality, effectiveness, accountability, accessibility and public trust, while respecting system diversity and biodiversity.
- Advance regulatory science and risk-based approaches.
- Strengthen pharmacovigilance and regulatory cooperation.
- Promote fair and equitable benefit-sharing aligned with indigenous rights and international agreements.



Commitment 3: Integrate safe and effective traditional medicine into health systems

- Integrate safe and effective traditional medicine into national health systems, particularly through primary health care in line with WHO conceptual framework for integration towards universal health coverage, in culturally respectful and people-centred ways.
- Prioritize quality assurance, patient safety, education and accreditation, clinical practice guidelines, workforce development and interprofessional collaboration, supported by transparent, evidence-informed policy and financing decisions.
- Strengthen standardized data systems for traditional medicine, including use of the WHO International Classification of Diseases (ICD-11) traditional medicine modules, the International Classification of Health Interventions (ICHI), and a global reference list of indicators towards the development of minimum data set for traditional medicine.
- Recognize the important role of WHO as a data hub for systematic data collection, monitoring, evaluation

and accountability at national, regional, and global levels.

Commitment 4: Optimize cross-sector value through data, collaboration, and empowered communities

- Promote meaningful leadership and participation of communities and indigenous peoples, recognizing traditional medicine as part of holistic ecosystems linking the health and well-being of people, communities, and the environment.
- Ensure that community knowledge and scientific evidence jointly inform decision-making processes.
- Coordinate on international, regional, and cross-sectoral action to address global gaps in traditional medicine investment, regulation, innovation-to-market pathways, and equitable access and benefit-sharing.
- Explore collaborative mechanisms such as a global consortium on traditional medicine to galvanize investment, innovation, and inclusive benefits. <https://iris.who.int/bitstream/handle/10665/274331/Delhi-Declaration.pdf>

For more details, visit <https://iris.who.int/bitstream/handle/10665/274331/Delhi-Declaration.pdf>

The Failing Shield: An Ayurvedic Perspective on the Global Antibiotic Crisis



adobestock image



*Long before the term ‘antimicrobial resistance’ (AMR) entered medical vocabulary, Ayurveda cautioned that human excess could invite invisible enemies no medicine might ultimately defeat. Today, as antibiotics falter worldwide and millions succumb to drug-resistant infections, that warning feels uncannily prophetic. Modern science describes AMR as a silent pandemic; Ayurveda frames it as Janapadodhwansa– the breakdown of communities arising from ecological imbalance, intellectual error, and weakened biological resilience. Viewed through this lens, the antibiotic crisis is not merely a failure of pharmaceutical innovation, but of health stewardship itself. In this article, **Dr Pawan Kumar Godatwar, Ayurveda professor** at the National Institute of Ayurveda, Jaipur, examines AMR through an Ayurvedic framework and argues for an integrative ‘Fusion Medicine’ approach to safeguard global health.*

The recent warnings from global health experts, as reported in various media outlets, paint a sobering picture of our medical landscape: antibiotics are failing faster than new ones are being developed. With nearly 1.27 million annual deaths globally attributable to antimicrobial resistance (AMR) – a figure projected to rise to 8 million by 2050 – humanity faces a ‘silent pandemic’.

From an Ayurvedic perspective, this crisis is not merely a failure of pharmaceutical innovation; it is a profound manifestation of *Janapadodhwansa* (the destruction of communities) and a systemic collapse of *Vyadhikshamatva* (biological resistance).

As modern medicine grapples with ‘superbugs’ that have evolved to bypass our strongest chemical defences, the 5000-year-

We must stop viewing health as something that can be bought in a pill, but start viewing it as a state of balance.

old wisdom of Ayurveda offers a paradigm shift. Rather than viewing the crisis as a war against external pathogens that we are losing, Ayurveda invites us to examine the ‘inner terrain’ of the host and the collective ethical conduct of society.

The Concept of Janapadodhwansa: When Society Loses its Balance

In *Charaka Samhita*, one of the foundational texts of Ayurveda, the phenomenon of large-scale epidemics and the destruction of populations is described as *Janapadodhwansa*. Interestingly, the text identifies four factors common to all inhabitants – Vayu (air), Jala (water), Desha (land), and Kala (time/seasons) – the corruption of which leads to mass illness.

Media reports note that hospital-acquired infections and environmental contamination (such as drug waste in rivers like the Ganga) are major drivers of AMR. Ayurveda attributes such environmental degradation to Adharma (unrighteousness or ethical failure) fuelled by *Prajnaparadha* – the ‘intellectual blasphemy’ or ‘error of the intellect’.

In the context of AMR, *Prajnaparadha* is the indiscriminate and irresponsible use of antibiotics, driven by a desire for ‘quick fixes’ and corporate greed, ignoring the long-term ecological and biological consequences. When we disrupt the natural order through the misuse of powerful substances, the environment (Desha and Jala) becomes a breeding ground for resistant ‘invisible organisms’ (*Krimi*).

Moving Beyond the ‘Magic Bullet’: the Theory of Krimi

In modern medicine, the focus has long been on the ‘seed’ (the bacteria). If a seed is harmful, we invent a chemical to kill it. However, the bacteria have proven to be evolutionary masters, adapting to every new ‘poison’ we throw at them.

Ayurveda approaches infection through the lens of *Krimi Chikitsa* (the management of parasites/microbes), which

focuses as much on the ‘soil’ as the ‘seed’. The management involves three distinct steps:

1. *Apakarshana* (Removal): Physically removing the pathogens and toxins through purification (*Panchakarma*).
2. *Prakriti Vighata* (Changing the Environment): Altering the internal environment of the body so that it is no longer hospitable to the pathogen.
3. *Nidana Parivarjana* (Avoidance of Causes): Eliminating the diet and lifestyle habits that allow microbes to flourish.

The antibiotic crisis is essentially a failure of the ‘attack-only’ strategy. By focusing solely on killing the microbe, we have neglected to strengthen the host’s internal environment. When we overuse antibiotics, we often destroy the Agni (digestive fire) and the beneficial microflora (*Sahaja Krimi*), leaving the body’s ‘soil’ weakened and prone to more virulent, resistant strains.

Strengthening Vyadhikshamatva and Ojas

In the *India Today* article on AMR, it emphasizes that ‘the problem cannot be solved by science alone’ and that India must prioritize prevention. This aligns perfectly with the Ayurvedic concept of *Vyadhikshamatva* – the capacity of the body to resist the onset of disease or to suppress its intensity.

At the heart of this immunity is *Ojas*, the vital essence of all bodily tissues. Modern antibiotics, while life-saving in emergencies, are often *Ruksha* (drying) and *Tikshna* (sharp/penetrating) in nature. Chronic use can deplete *Ojas*, leading to a state of *Kshaya* (depletion) where the body loses its natural resilience.

To combat AMR, Ayurveda suggests a return to *Rasayana* therapy. Herbs like Guduchi (*Tinospora cordifolia*), Amalaki (*Emblica officinalis*), and Ashwagandha (*Withania somnifera*)

Mann Ki Baat by Prime Minister Narendra Modi

In his last 'Mann Ki Baat' address of 2025, Prime Minister Narendra Modi raised serious concerns about the rising threat of Antimicrobial Resistance (AMR) in India, citing findings from the Indian Council of Medical Research (ICMR). He emphasized that the misuse and overuse of antibiotics – often taken without medical supervision – are making common infections, such as pneumonia and urinary tract infections, harder to treat.

Key Aspects of Modi's Message on AMR

- 'Antibiotics Require Doctors': Modi warned that antibiotics are not a 'quick fix' for every ailment and should only be taken when prescribed by a qualified doctor.
- Danger of Self-Medication: He highlighted that indiscriminate use of antibiotics allows microbes to adapt and become resistant, rendering life-saving medicines ineffective.
- Public Health Alert: He described AMR as a 'silent pandemic' that could make routine infections and surgeries life-threatening.
- National Commitment: The Prime Minister emphasized the need for responsible antibiotic use, better hygiene, and public awareness as part of the National Action Plan (NAP) 2.0 to combat AMR.



are not antibiotics in the traditional sense; they are immuno-modulators. They work by enhancing the body's own defense mechanisms, making the 'soil' so robust that the 'seed' of the resistant bacteria cannot take root.

The Role of 'Fusion Medicine'

The way forward is not to abandon modern medicine, but to integrate it with Ayurvedic principles to create a 'stewardship of health'.

Synergistic Action: Research into *Agada Tantra* (toxicology) and herbal bioactives suggests that certain Ayurvedic herbs can act as 'efflux pump inhibitors', essentially breaking down the resistance mechanisms of bacteria and making modern antibiotics effective again at lower doses.

Naimittika Rasayana: Using specific rejuvenative therapies during and after an antibiotic course can protect the *Agni* and *Ojas*, preventing the secondary infections that often drive further antibiotic use.

Dietary Discipline: Ayurveda emphasizes *Aahara* (diet) as the first medicine. Reducing the intake of *Abhishyandi* foods (those that cause blockage and dampness, like excessive sugar and processed dairy) reduces *Kleda* (excessive moisture/waste), which is the primary breeding ground for *Krimi*.


Conclusion: a Call for Intellectual Wisdom

Media reports warn that society must take action now to reduce this growing threat. From an Ayurvedic viewpoint,

In the battle against AMR, the ultimate shield is not a new drug, but the ancient wisdom of living in accordance with the laws of nature.

this action must start with correcting *Prajnaparadha*. We must stop viewing health as something that can be bought in a pill, but start viewing it as a state of balance (*Sama Dosha*, *Sama Agni*).

The global antibiotic crisis is a signal that our current war on microbes is unsustainable. By shifting from a purely 'bactericidal' mindset to one of 'biological harmony', we can use Ayurveda to fortify the human host. If we restore the balance of our internal and external environments, we may find that the 'superbugs' of tomorrow no longer find us to be a welcoming home.

In the battle against AMR, the ultimate shield is not a new drug, but the ancient wisdom of living in accordance with the laws of nature. As the *Charaka Samhita* reminds us, even in the face of *Janapadodhwansa*, those who maintain their *Sattva* (mental clarity), follow a righteous path, and protect their *Agni* can survive the storm. 

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Re-envisioning Ayurveda Education: Integrating Classical Pedagogy with Contemporary Learning Theories



*As health professions education embraces learner-centred methods and structured teacher training, Ayurveda finds itself at a crossroads. While contemporary Ayurveda teaching increasingly draws on modern educational theories – pedagogy, andragogy, and lifelong learning – it often remains disconnected from the rich pedagogical insights embedded in its own classical texts. This disconnect risks producing educators who are methodologically current yet epistemically incomplete. In this article, **Dr Rammanohar** argues that Ayurveda education must consciously integrate its indigenous frameworks of learning with contemporary educational science. Re-envisioning Ayurveda pedagogy, he suggests, is essential not only for training competent teachers and clinicians, but also for positioning Ayurveda as a meaningful contributor to global discourse on education.*

Contemporary discourse on health professions education increasingly emphasizes structured teacher training, learner-centred methodologies, and differentiated approaches to learning across the lifespan. In this context, Ayurveda education occupies a paradoxical position. While modern Ayurveda teacher training programmes – particularly those aligned with the National Teacher Eligibility Test (NTET) – demonstrate substantial engagement with contemporary educational theories such as pedagogy, andragogy, and learner-centred instructional design, they remain largely disconnected from the classical pedagogical frameworks intrinsic to Ayurveda itself. The result is an educational model that is methodologically modern, yet epistemically incomplete, insufficiently grounded in Ayurveda's own understanding of how knowledge is acquired, internalized, and applied.

Modern educational theory distinguishes between pedagogy (learning guided by a teacher, often associated with early stages of education), andragogy (adult learning characterized by self-direction and experiential grounding), and heutagogy (self-determined, lifelong learning). These distinctions are useful in designing curricula and assessments. However, Ayurveda did

not conceptualize learning in segmented or age-bound terms. Instead, it articulated learning as a continuous, lifelong, and multi-source process, integrating guidance, self-effort, social learning, and experiential maturation.

This vision is succinctly expressed in the classical formulation:

ācāryāt pādām ādatte, pādām śiṣyaḥ svamedhayā|
pādām sabrahmacāribhyaḥ, pādām kālakrameṇa ca||

Rather than mapping directly onto modern categories, this verse presents an ecology of learning. 'Ācāryāt pādām ādatte' emphasizes structured learning from the teacher. This mode resembles pedagogical learning in that the teacher provides orientation, discipline, and epistemic authority. Importantly, the ācārya is not merely a transmitter of information but a cultivator of reasoning, ethics, and clinical sensibility.

'Pādām śiṣyaḥ svamedhayā' highlights the learner's own intellectual effort – reflection, inference, and internal assimilation. While this may resonate with adult learning principles, it should not be simplistically equated with modern andragogy. In the Ayurvedic context, self-learning is embedded within tradition and textual discipline, not detached autonomy.



Re-envisioning Ayurveda education is a necessary step towards cultivating reflective teachers, competent clinicians, and adaptive scholars capable of lifelong learning.

pādaṃ sabrahmacāribhyaḥ' draws attention to learning through peers—dialogue, debate, comparison of interpretations, and shared inquiry. This dimension of education, foundational in classical gurukula settings, aligns with what modern theory now recognizes as collaborative and social learning, yet remains underutilized in contemporary Ayurveda classrooms.

Finally, 'pādaṃ kālakrameṇa ca' acknowledges that some understanding arises only through time – through repeated clinical exposure, ethical challenges, and the slow maturation of judgment. This anticipates modern ideas of lifelong and self-determined learning without formalizing them as separate stages. Knowledge, in this view, continues to evolve with the learner.

Ayurveda also offers nuanced insights into how knowledge deepens cognitively. Modern pedagogy often describes learning as progressing from remembering, to understanding, to reflection and critical engagement. A closely aligned framework appears in the learning approaches described in the Caraka Saṃhitā: vākyaśaḥ (learning textual statements accurately), vākyaṛthaśaḥ (comprehending their meaning), and arthāyavaśaḥ (analysing components, implications, and interconnections).

These are not sequential steps to be mechanically completed, but complementary modes of engagement with knowledge. Vākyaśaḥ ensures fidelity to authoritative teaching; vākyaṛthaśaḥ cultivates interpretive understanding; arthāyavaśaḥ develops analytical reasoning and synthesis. Together, they correspond to remembering, understanding, and reflective analysis, while remaining firmly rooted in Ayurveda's epistemology.


While Caraka's framework emphasizes cognitive depth, Vāgbhaṭa presents a complementary, praxis-oriented model in the Aṣṭāṅga Hṛdaya through pāṭha, avabodha, and anuṣṭhāna. Here, learning culminates not merely in comprehension but in competent application. Study (pāṭha) must lead to clear understanding (avabodha), which, in turn, must manifest

as disciplined practice (anuṣṭhāna). This triad provides a robust foundation for clinical education, competency-based assessment, and ethical medical practice.

Taken together, these frameworks demonstrate that Ayurveda did not rely on a single pedagogical philosophy. Instead, it articulated multiple, interlocking models of learning, addressing cognition, application, social interaction, and temporal maturation. It must be emphasized that the Ayurvedic tradition offers many additional pedagogical and epistemological frameworks—addressing areas such as reasoning (yukti), debate (vāda), clinical judgment, ethical formation, and experiential validation—which lie beyond the scope of this brief discussion. This plurality allows Ayurveda education not merely to adopt modern pedagogical, andragogical, and heutagogical methods, but to contextualize and enrich them within its own conceptual universe.

Despite this rich legacy, classical Ayurvedic pedagogy remains largely absent from formal teacher training curricula and evaluation systems. While modern educational theories are well represented in NTET syllabi, Ayurveda's indigenous theories of learning, teaching, and knowledge maturation are seldom articulated, assessed, or operationalized in faculty development programmes.

Addressing this gap does not require abandoning contemporary educational science. Rather, it calls for intentional integration. Classical Ayurvedic pedagogical concepts should be explicitly included in Ayush teacher training programmes and formally incorporated into the NTET syllabus. Such integration would ensure that Ayurveda educators are trained not only in what to teach and how to teach in general, but in how Ayurveda itself understands the process of learning.

Re-envisioning Ayurveda education in this manner is not an exercise in nostalgia. It is a necessary step towards cultivating reflective teachers, competent clinicians, and adaptive scholars capable of lifelong learning. In doing so, Ayurveda has the potential to contribute not only to healthcare, but to global conversations on education itself. 

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Vijnana Bharati: the Journey Thus Far



Bharat has long been a torchbearer of civilization in world history. Until around 1757, when the British took control of the Bengal Presidency, Bharat's contribution to global GDP ranged between 20% and 30% for nearly two millennia. Such sustained economic achievement would have been impossible without continuous innovation. From manufacturing and agriculture to architecture, education, and the pursuit of knowledge, Bharat made significant contributions from ancient through modern times.

However, this rich legacy was not adequately reflected in the education system in the early decades after Independence, particularly in science education. It was during this period, in the 1980s, that Prof. K I Vasu, then a faculty member at the Indian Institute of Science (IISc), Bengaluru, began exploring the depth of India's scientific heritage, the role of classical languages such as Sanskrit, and the need to use Indian languages in science education, research, and dissemination. This initiative took the form of annual lectures held on 7 November at IISc, which came to be known as *Swadeshi Science Day*.

Gradually, these efforts gained momentum, leading to the emergence of the Swadeshi Science Movement in Kerala. It was registered as a society in 1989. Similar initiatives were also taking shape in other parts of the country. In 1991, all these efforts culminated in the formation of Vijnana Bharati, the Swadeshi Science Movement of Bharat. It was formally established on 21 October at a gathering of like-minded intellectuals from across the country in Nagpur.

What is Swadeshi Science? Simply put, while science is universal, it acquires distinct characteristics rooted in its place of origin. Yoga is a compelling example. Though practised

worldwide today, it retains its uniquely Bharatiya character because of its origins in Bharat. Ayurveda reflects a similar civilizational continuity.

Today, Vijnana Bharati has grown into the largest voluntary platform of scientists and technocrats in the country. It has units across all states and union territories and operates through 21 verticals. These include the World Ayurveda Foundation, which organizes the World Ayurveda Congress; the National Association of Students and Youth of Ayurveda (NASYA); the National Energy and Environment Mission (NEED Mission); the International Institute of Waste Management; and Shakti. Its major initiatives include the *Vidyarthi Vigyan Manthan* (Science Talent Search Examination), the India International Science Festival, the Bharatiya Vigyan Sammelan, and the Viswa Veda Vigyan Sammelan.

Vijnana Bharati has also played a key role in disseminating India's achievements in space science in collaboration with ISRO. Through its *Space on Wheels* mobile exhibition, it has reached millions of students across the country, explaining scientific concepts in local languages.

Its international outreach is carried forward through platforms such as the Global Indian Scientists and Technocrats Forum (GIST Forum), with a registered unit in the United States, and organisations like the Science India Forum (SIF) across several West Asian countries.

Through its extensive network of units and verticals, Vijnana Bharati continues to propagate messages of India's scientific heritage – from ancient to modern times – promoting science in Bharatiya languages, fostering dialogue between science and spirituality, and advancing science for society.

Ashwagandha

Rooted in Ayurveda,
Contested in the West



*For centuries, Ashwagandha has stood as one of Ayurveda's most trusted pillars – quietly effective, deeply studied, and widely used. Its recent entanglement with regulatory scepticism in parts of the West, therefore, raises questions that go far beyond a single herb. This cover story by **Eashwar K P** examines not only the science, the markets, and the contested evidence surrounding Ashwagandha, but also the deeper fault lines in how Ayurvedic healthcare knowledge system is evaluated in a globalised healthcare regime. At stake is a larger conversation about fairness, evidence, and the future of integrative medicine itself.*

Ashwagandha (*Withania somnifera*) has been revered in India for thousands of years for its medicinal properties. Deeply embedded in classical Ayurvedic texts and practice, it is widely used for its adaptogenic, restorative, and rejuvenative benefits. In several European countries, however, Ashwagandha has recently come under regulatory scrutiny, facing significant hurdles for a variety of reasons.

The trigger for this shift can be traced to a 2020 report by the Technical University of Denmark (DTU) titled *Risk Assessment of the Root of Withania somnifera*. For Ayurveda practitioners and manufacturers, the developments came as a bolt from the blue.

The response from the Ministry of Ayush, Government of India, has been measured yet marked by clarity of intent and institutional maturity. Through its premier R&D body, the

Central Council for Research in Ayurvedic Sciences (CCRAS), the Ministry issued a point-by-point rebuttal in a detailed dossier titled *Safety of Ashwagandha: Report of the Expert Committee*. The publication systematically addressed each concern raised by the DTU. More recently, CCRAS released *Ashwagandha: Safety Dossier 2.0*, further strengthening the scientific arguments in favour of the herb. Such official responses speak for themselves.

Meanwhile, scientific evidence supporting Ashwagandha continues to accumulate. PubMed, the free online database of biomedical and life sciences literature, currently hosts more than 1900 research publications related to Ashwagandha. If you search *Withania*, more than 2000 articles are found. In Web of Science, another database, more than 3400 articles are found.

During the Covid-19 pandemic, global consumption of Ashwagandha rose sharply, particularly in Europe, where it was increasingly marketed as a food supplement for its adaptogenic and immune-supporting properties.

Significantly, a dedicated session on Ashwagandha was held on 15 December 2025 at the 2nd WHO Global Summit on Traditional Medicine, where eminent experts deliberated on the subject. The very inclusion of such a session sent a strong and unmistakable signal to the global community.

Despite the debate and regulatory actions in parts of Europe, *Ayur World* finds that a large section of the general public remains unaware of the issue. Even among students and young professionals within the Ayurveda fraternity, understanding is often peripheral – despite the fact that the long-term implications of these developments will affect them most directly.

Against this backdrop, *Ayur World* makes an earnest attempt to present the facts as they stand today, with the objective of bringing all stakeholders onto the same page. What follows is a concise overview of the background, the core issues, the responses thus far, and the way forward.

Background

References to the medicinal use of Ashwagandha abound in classical Ayurvedic literature as well as in contemporary global sources. Ancient Indian medical wisdom consistently prescribes only the *root* of Ashwagandha for therapeutic formulations – a principle of critical significance that recurs throughout this narrative.

During the Covid-19 pandemic, global consumption of Ashwagandha rose sharply, particularly in Europe, where it was increasingly marketed as a food supplement for its adaptogenic and immune-supporting properties. While the pandemic familiarised the world with the concept of immunity, the term *adaptogen* remains less understood. Simply put, adaptogens help the body cope with stress, reduce anxiety, improve sleep and insomnia-related conditions, and support physical performance and recovery.

Market data reflects this surge in popularity. Studies project the European Ashwagandha market to reach USD 21.40 million by 2029, growing at a compound annual growth rate (CAGR) of over 11% between 2022 and 2029. Products currently in circulation include root-based formulations, leaf-based products, and combinations of root and leaf. This distinction is crucial, as classical Ayurvedic texts clearly recommend only the root for medicinal (internal) use. The leaves were used topically only, not internally.

The North American market presents an even more striking picture. In 2024, its size was estimated at USD 721.5 million, with projections placing it at USD 1.53 billion by 2033, at a CAGR of 8.8%, as per American Herbal Pharmacopoeia. These figures originate from a market survey conducted by Nutrition Business Journal.

The commercial success of Ashwagandha worldwide may have triggered resistance in certain quarters. At least, that's what a few people that *Ayur World* spoke to in the Ayurveda sector speculate. While such speculation cannot be entirely dismissed, *Ayur World* treats it as conjectural rather than evidence-based.



The DTU report is a classic case of 'citation distortion'. By applying the toxicity of berries and leaves to the medicinal root, they have ignored three millennia of safe human use. Our response through Dossier 2.0 is not just defensive; it is a scientific imperative to correct the record.

- Dr Bhushan Patwardhan, Ayush Chair

These observations do not negate the need for rigorous scientific scrutiny of traditional medicines. They do, however, underline the importance of consistency and balance in regulatory approaches – issues that merit the attention of healthcare regulators worldwide.

Issues Raised by DTU and Immediate Reactions

In 2020, DTU raised five primary safety concerns regarding Ashwagandha, which ultimately led to its ban in Denmark in 2023. These concerns were:

1. Potential negative impacts on sex hormones in men and women, including the risk of inducing abortion
2. Stimulation of the thyroid gland, potentially leading to thyrotoxicosis in extreme cases
3. Potential adverse effects on the immune system
4. Possible liver injury
5. Potential impacts on the central nervous system

Caught off guard by the DTU report, India's Ministry of Ayush, the World Ashwagandha Council, and several scientific experts responded strongly, raising serious objections to the report's methodology and conclusions. Key criticisms included:

- Heavy reliance on animal and in vitro studies, with conclusions drawn largely from studies on leaves, stems, and berries rather than the root
- Inadequate search strategy, selective reporting, limited databases and search terms, and disproportionate emphasis on negative findings
- Disregard for substantial clinical evidence and centuries of documented traditional use
- Misinterpretation of several studies
- Absence of a rigorous peer-review process
- Exclusive focus on risks, with complete omission of documented benefits

The counter-dossier observed that banning Ashwagandha roots based on the toxicity of leaves or berries is akin to banning apples because their seeds contain amygdalin, a precursor to cyanide. Viewed dispassionately, the analogy is not without merit.

Beyond these methodological critiques, hundreds of scientific papers published before and after 2020 have addressed and countered the DTU's claims point by point. It's all in the public domain and one can easily get the details on the Internet. Rather than revisiting those specifics, this story seeks to highlight a larger, more systemic issue affecting Ayurveda



When regulation ignores evidence, it deprives the public of safe remedies. The Danish ban lacks proportionality; we do not ban all fruit because some seeds contain cyanide. We must move toward an integrative framework where 'modern' and 'traditional' are not opposing forces.

- Dr Antonio Morandi, Ayurvedic Point, Italy

and other traditional medicine systems worldwide – the absence of a genuine level-playing field.

The Elusive Level-Playing Field

The dominance of what is commonly termed 'modern medicine' is undeniable, as reflected in market data. The global pharmaceutical industry is projected to grow from USD 1.7 trillion in 2024 to USD 2.3 trillion by 2030. In contrast, the global Ayush industry, though growing at a healthy pace, is expected to reach about USD 200 billion by 2030 from

approximately USD 50 billion today. Ayurveda accounts for roughly 72% of the Ayush sector. The data is taken from Statista <https://www.statista.com>; <https://www.ibef.org>; and <http://www.mor-dorintelligence.com>.

Even the term modern medicine is a relatively recent construct. The gradual shift from the label 'allopathy' to 'modern medicine' has been viewed by many as a carefully calibrated repositioning in an increasingly technology-driven world.

In this context, a remark by Dr Mohanan Kunnummal, radiologist and Vice-Chancellor of the Kerala University of Health Sciences and the University of Kerala, is noteworthy. Speaking at the 10th World Ayurveda Congress in Dehradun in 2024, he observed that *any medical system that employs modern healthcare technologies qualifies as modern medicine*. By that definition, Ayurveda too qualifies, given its adoption of contemporary tools and its engagement with developments in physics, chemistry, biosciences, and emerging fields such as artificial intelligence.

The question of a level-playing field surfaces repeatedly when regulatory actions are examined. The contrast in responses is striking:

- In the United States, leading experts have highlighted systemic issues in modern medicine itself, including high mortality linked to medical errors and adverse drug reactions.
- In a recent Indian case involving deaths linked to a contaminated cough syrup, regulatory action was swift and targeted against the specific manufacturer and product. The entire category of cough syrups was not banned.
- Antimicrobial resistance (AMR) poses one of the gravest challenges to modern medicine today, yet the response remains evolutionary rather than prohibitive. No regulator has proposed banning antibiotics altogether.



PM Modi Releases Ashwaganda Stamp

During the valedictory session of the 2nd WHO Global Summit on Traditional Medicine on 19 December 2025, Prime Minister Narendra Modi released a commemorative postal stamp on Ashwagandha, one of Ayurveda's most iconic medicinal plants. The moment was rich in symbolism, but its significance extended far beyond the ceremonial.

If viewed in the context of Ashwagandha (*Withania somnifera*) facing growing regulatory scrutiny in parts of the West in recent years, the release of the stamp carried a quiet yet powerful assertion: India stands firmly behind its traditional knowledge systems and the botanicals that have sustained them for centuries.

The timing of the announcement, at a WHO summit dedicated to traditional medicine, underscored India's commitment to evidence-based integration of traditional systems into global healthcare frameworks. It reaffirmed that India is not merely preserving Ayurveda as heritage, but actively advocating for its rightful place in modern public health discourse, supported by research, regulation, and global cooperation.

For Ayurveda practitioners, researchers, manufacturers, and policymakers, the stamp served as a reassurance and a rallying point. It signalled national resolve to protect, promote, and scientifically validate Ayurveda on the world stage, while engaging constructively with global regulatory and scientific institutions.



Such latitude, however, is rarely extended to traditional medicine systems. In the case of Ashwagandha, a blanket ban based on disputed evidence stands in sharp contrast to how risks in modern medicine are addressed.

There are countless such instances, many of which never become subjects of sustained debate. Ashwagandha, however, has been thrust into the spotlight.

One is compelled to ask: is a level-playing field for Ayurveda merely elusive—or is it being denied by design?

Conclusion: Where Do We Go from Here?

Present evidence. Then present more evidence. And then, still more. For now, that remains the only path available – often before regulatory bodies where a genuinely level playing field either does not exist or, if it is claimed to, is not visibly apparent in practice. This is the reality Ayurveda confronts today.

Does this demoralise or demotivate those who believe in Ayurveda's efficacy and relevance in contemporary healthcare? To an extent, yes. Honesty demands that this be acknowledged. Yet, paradoxically, these very challenges have also strengthened the resolve of Ayurveda's global community, reinforcing its determination to stand firm for what it knows, practises, and experiences every single day.

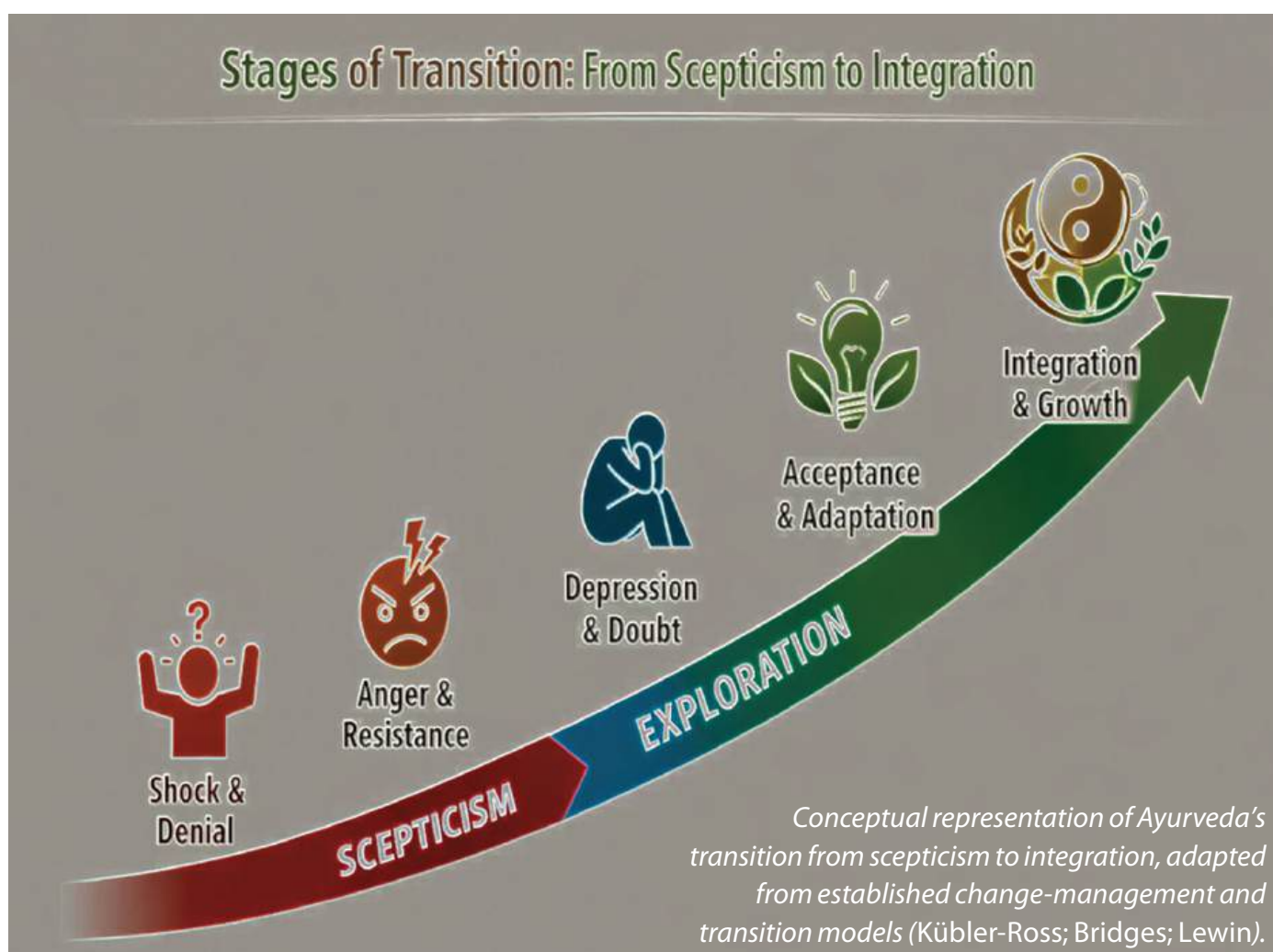
Do such developments provoke Ayurveda practitioners into going hammer and tongs against practitioners of modern medicine? Absolutely not. On the contrary, the dominant belief within the Ayurveda ecosystem is that both systems can – and should – coexist, and more importantly, complement each other for the greater good of public health. For an ailing patient seeking relief and recovery, healing remains paramount; the labels attached to systems of medicine matter far less in that moment of need.

Is there, nevertheless, a quiet fear within the Ayurveda fraternity that other prominent medicinal plants could face similar vilification in the near future? The answer is an unequivocal yes. There is a palpable anxiety that Ashwagandha may not be an isolated case. Conversations with senior industry leaders, clinicians, and researchers reveal a subdued but persistent concern that other widely used medicinal plants could also come under regulatory fire. While rarely articulated in public forums, this apprehension was candidly expressed by several stalwarts of the Ayurveda sector during discussions with *Ayur World*.

At the same time, the entire episode mirrors a familiar framework from change management theory. Ayurveda's contemporary journey closely follows the classic stages of transition. While enduring the stages of scepticism by

Transparency is the antidote to scepticism. We focus on root-only, full-spectrum extracts because that is what the science and the texts dictate. Quality control from seed to shelf is the only way to ensure Ashwagandha remains a staple in global wellness.

- Mr Karthikeya Baldwa, CEO, Ixoreal Biomed/KSM-66



responding to repeated regulatory setbacks, Ayurveda today has firmly stepped on to the stage of acceptance. This acceptance is anchored in the growing recognition – by people across cultures and geographies – of Ayurveda's efficacy, resilience, and enduring relevance as a living, evolving healthcare tradition.

The next stage of true integration into the modern global healthcare landscape no longer appears distant or unattainable.

With sustained evidence-building, transparent dialogue, and equitable regulatory engagement, integration is not a question of *if*, but *when*.

And when that moment arrives, it may well redefine not just the future of Ayurveda, but the very idea of integrative healthcare worldwide. [aw](#)

Ashwagandha Research: A Three-Decade Scientific Journey

Ashwagandha's increasing presence in clinical research, nutraceutical markets, and public health discourse has brought new geopolitical and regulatory challenges.

Prof. Bhushan Patwardhan, PhD, FNASc, FAMS
National Research Professor-Ayush, Savitribai Phule Pune University



Systematic research on *Withania somnifera* (Ashwagandha) from the perspective of Ayurveda has evolved steadily over several decades, alongside parallel efforts by multiple groups across the world. This particular research journey of our group began in the early 1990s with a comparative pharmacology of Ashwagandha and ginseng.

Published in 1994, the study, as part of an M.Pharm dissertation, demonstrated that Ashwagandha possessed immunomodulatory activity comparable to ginseng. In addition, it has significant anti-inflammatory effects, making it a better drug of choice. Over subsequent years, multiple generations of research students systematically expanded this work, examining immunomodulatory mechanisms, stress-response pathways, anti-inflammatory actions, and safety profiles.

A major phase of this programme during the next decade unfolded several collaborative studies that contributed to positioning Ashwagandha at a global stage. Scientific publications arising from such work demonstrated that Ayurvedic botanicals could be evaluated with methodological rigor comparable to that applied to conventional therapeutics.

In 2004, Ashwagandha became a core component of the CSIR–NMITLI Herbal Drug Research Programme, which aimed to develop evidence-based herbal formulations through structured public–private partnerships. Within this initiative, Ashwagandha-based formulations were evaluated for inflammatory and degenerative conditions, including arthritis, reinforcing their relevance to chronic disease management. This phase marked a transition from single-target drug studies to synergistic, multi-target formulation science guided by the reverse pharmacology approach, consistent with both Ayurvedic principles and modern systems biology.

This continuity of inquiry enabled steady progression from pharmacological observations to mechanistic insights, drug repurposing, and translational relevance. The research followed a deliberate, hypothesis-driven trajectory, informed by classical Ayurvedic knowledge and examined using experimental biomedical frameworks.

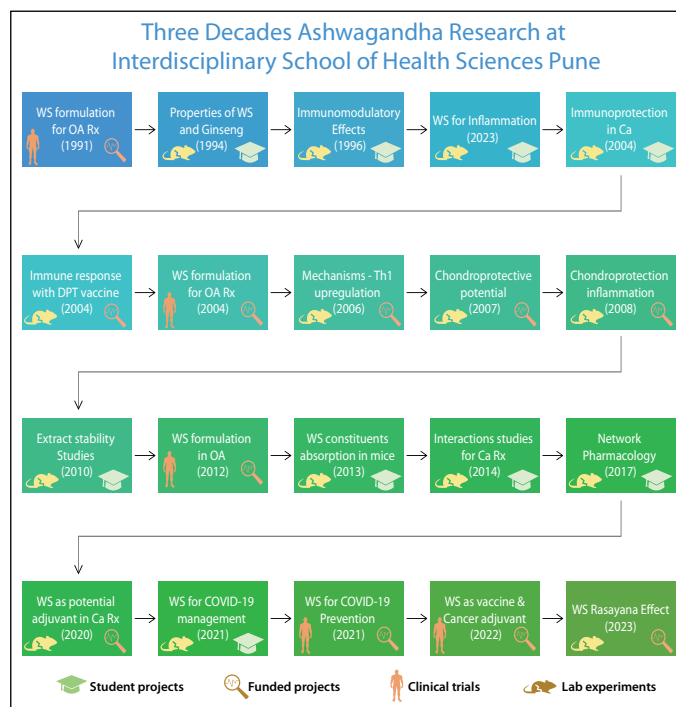
The COVID-19 pandemic provided an unanticipated but important test of decades of foundational research. Building on existing evidence of immunomodulatory and anti-inflam-



matory effects, Ashwagandha emerged as a plausible candidate for prophylactic and supportive care. Comparative analyses during this period suggested advantages over widely discussed agents such as hydroxychloroquine, particularly with respect to safety and biological plausibility. More recently, a large multicentric, randomized, double-blind, placebo-controlled trial was completed to evaluate the effect of Ashwagandha on the immunogenicity of COVID-19 vaccines. These developments were possible only because of cumulative, systematic research conducted over many years.

The impact of this sustained effort extends beyond academia with the involvement of leading universities, research laboratories, and industries. As a result, the market presence of Ashwagandha has grown globally, expected to reach \$1

This three-decade journey illustrates how traditional knowledge, when investigated patiently, rigorously, and transparently, can generate robust and enduring scientific evidence.



billion. Its increasing presence in clinical research, nutraceutical markets, and public health discourse reflects scientific credibility built through long-term investigation rather than short-term commercial trends.

At the same time, this growing prominence has brought new geopolitical and regulatory challenges. A unilateral ban imposed by the Danish government, based on a flawed assessment by the Danish Technological University, illustrates how regulatory decisions may be influenced by reasons other than science. An editorial published in the *Journal of Ayurveda and Integrative Medicine* critically examined and exposed the methodological limitations of this assessment. However, the adoption of similar restrictions by other countries without independent scientific evaluation risks limiting public access to a widely used and well-studied herbal medicine.

Over the years, Ashwagandha has thus emerged as a credible drug candidate in the global health landscape. This three-decade journey illustrates how traditional knowledge, when investigated patiently, rigorously, and transparently, can generate robust and enduring scientific evidence (see Figure).

It also underscores a broader lesson: many other medicinal plants from Ayurveda now require similarly sustained and systematic research. In recognition of this need, the Ministry of Ayush is pursuing evidence-based initiatives aimed at strengthening the scientific credibility of Ayurveda at the global level.

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Beyond the Molecule: Solving the Regulatory Paradox of Ashwagandha



Dr Geetha Krishnan Gopalakrishna Pillai

WHO's TMC Unit Head for Research, Data, and Innovation

The recent regulatory scrutiny of Ashwagandha in parts of Europe reveals a fundamental conflict in modern healthcare: the mismatch between complex natural systems and reductionist regulatory models. As highlighted during the recent session at the Second WHO Global Summit on Traditional Medicine, we are currently witnessing a 'safety paradox' where safe, time-tested remedies are being flagged as dangerous because we are applying the wrong tools to assess them.

The core error lies in treating medicinal plants as if they were novel synthetic drugs. Conventional regulation focuses on 'single-molecule assessment', looking for isolated toxicity without regard for the whole. This approach is akin to the factory worker in *Modern Times*, mindlessly applying the same spanner to every machine regardless of fit. When regulators ban Ashwagandha based on the toxicity of specific compounds

found in the leaf or in highly concentrated extracts, they commit a scientific fallacy: they ignore that safety is defined by context.

As noted in recent scientific critiques, condemning the traditional use of Ashwagandha roots based on data from leaves or stems is scientifically unsound. It is comparable to the 'Mango Lesson': we know the mango fruit is safe and nourishing, yet its stalk can cause severe skin burns. Banning the fruit because of the stalk's properties would be nonsensical, yet this is precisely the logic currently applied to Ashwagandha. The editorial in the *Journal of Ayurveda and Integrative Medicine* reinforces this, noting that such bans are like prohibiting apples because their seeds contain cyanide precursors.

The path forward, as advocated in WHO-commissioned perspectives, is Contextual Safety Assessment. We must recognize that the safety of a herbal medicine hinges on four variables: (a) the Part used, (b) the Preparation method, (c) the Dose, and (d) the Duration of use.

To resolve this, we require a 'Multifaceted Framework' that triangulates three pillars of data:

1. Traditional knowledge: Documented evidence of safe use (e.g., root powder as a tonic).
2. Real-world evidence: Post-marketing surveillance and patient outcomes.
3. Modern science: Pre-clinical data that respects the complexity of the whole formulation rather than isolating single targets.

Countries like India and China have already established models where historical evidence simplifies testing requirements for established formulas. It is time for the global community to adopt 'Regulatory Science' that is nuanced enough to respect this heritage. We must move beyond 'one-size fits-all' model to a model that preserves the benefits of traditional medicine while using modern digital enablers to vigilantly monitor safety in the real world. Only then can we ensure a level-playing field that protects public health without denying access to time-tested solutions. <https://www.who.int/news-room/detail/2022/05/12-ayurveda>

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Systems, Not Molecules, a Fair Test for Ayurveda

Ashwagandha is not a generic supplement ingredient. In Ayurveda – one of the world's oldest continuously practised medical systems, with a millenary clinical tradition – it is a keystone rasāyana: a rejuvenative medicine embedded in hundreds of classical formulations and used within a precise therapeutic logic refined over centuries of observation, teaching, and practice. That logic is not 'take the herb and hope for the best'. It includes the correct plant part (classically, the root), the preparation (powder, decoction, medicated ghee, fermented forms, compound formulas), the dose and timing, the vehicle (anupāna, such as milk, ghee, honey, or warm water), and, crucially, the patient context: constitution (prakṛti), current imbalance (vikṛti), digestive capacity (agni), and the overall clinical pattern. In other words, Ashwagandha is not simply a botanical; it is a component within a systems-based medical framework governed by Dravyaguṇa-vijñāna – Ayurveda's own pharmacology – conceptually different from modern pharmacology because it models substances as contextual patterns of qualities and effects, not as isolated molecules.

For this reason, when a regulator imposes a blanket ban based on methodologically disputed evidence, the impact is far greater than 'one ingredient removed from the shelf'. The real consequence is the silent disabling of an entire pharmacopeia and, indirectly, a restriction on access to a long-established medical tradition. Ashwagandha appears across a wide spectrum of formulations used for stress-related depletion, sleep disturbance, convalescence, neuroendocrine imbalance, musculoskeletal weakness, and age-related decline. Restrict a keystone herb and you do not just limit a product category – you disrupt the integrity of Ayurveda's therapeutic repertoire. That is what 'structural bias' looks like in practice: a regulatory architecture that may appear neutral, yet systematically disadvantages a different epistemology by forcing it into evaluation models it was never designed to fit.

The Ashwagandha debate exposes a methodological gap. Modern regulation is largely optimized for single molecules, single targets, and standardized dosing in relatively homogeneous populations. It is most comfortable when the therapeutic object is one chemically defined entity and the causal chain is linear. Ayurveda does not operate that way. It is a systems-based medicine built around multi-factorial reasoning, multi-component interventions, and context-dependent outcomes. Its unit of analysis is not only the molecule, but the interaction between



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substance qualities and the living system – how a remedy behaves within a particular physiological and clinical landscape.

This is exactly where CoMS (Collaborative Medicine and Science) becomes useful, not as a dilution of Ayurveda, but as a translation bridge. CoMS helps express Ayurvedic variables in a language that modern scientific institutions already recognize: complexity science, systems biology, and network pharmacology. Instead of debating whether one isolated constituent 'explains' Ashwagandha, we can frame Ashwagandha in terms of multi-target modulation, network effects, dose–context relationships, and the difference between traditional root-based preparations and modern concentrated extracts. This approach does not ask regulators to abandon safety. It asks for methodological fairness: evaluate risk and benefit with tools appropriate for complex therapeutics, distinguish traditional use from novel product forms, and apply proportionate regulation grounded in context, quality standards, and pharmacovigilance.

If we do that, the conversation changes. Ashwagandha is no longer a controversial 'supplement ingredient' caught in a regulatory tug-of-war. It becomes what it has always been in Ayurveda: a clinically contextualized rasāyana whose evidence can be assessed rigorously – without forcing Ayurveda's millenary knowledge to masquerade as a single-molecule model, and without forcing modern regulation to ignore the realities of systems-based medicine. www.ayurvedicpoint.it

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Regulatory Challenges for Ashwaganda in the EU



Mari Lyyra, Regulatory Affairs Manager,
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In the EU, Ashwagandha (*Withania somnifera*) is not classified as a traditional medicine. It is sold as food supplements, and its use is governed by EU General Food Law and the Food Supplements Directive. The primary objective of EU food legislation is to ensure that all food products, including food supplements, are safe for consumers.

Due to the publication of several case reports on Ashwagandha use, regulatory challenges for Ashwagandha have increased significantly in the EU over the past few years. The adverse effect reports, such as those concerning liver toxicity, include several confounding factors. These factors include concomitant medication and the use of food supplements in which Ashwagandha is just one of many ingredients, including other botanicals. Furthermore, some case reports present adulterated Ashwagandha products with leaf extracts.

In Europe, following national safety assessments and concerns, the Heads of Food Safety Agencies (HoA) identified Ashwagandha requiring regulatory attention due to its significant health risk. In 2024, the HoA requested the European Commission (EC), the EU risk management body, for a formal safety assessment of Ashwagandha. The EC will mandate the European Food Safety Authority

(EFSA) to conduct a safety evaluation of Ashwagandha when used in foods. If EFSA confirms the risks highlighted by the HoA, the EC may ban or restrict Ashwagandha in food supplements in the EU.

The timetable for EFSA risk assessment is currently unknown, and the process may take several years. When the assessment begins, EFSA will issue a call for data, inviting food business operators to submit safety information on Ashwagandha. EFSA will rigorously evaluate all submitted data for quality and compliance with its standards, which are the strictest globally. Typically, in its risk assessments, EFSA is often hampered by the lack of high-quality safety data.

It is obvious that new safety studies on Ashwagandha products are needed to guarantee Ashwagandha's marketing in the EU also in the future. It is essential to provide safety data separately for different *Withania somnifera* plant parts, especially root and its extracts, to differentiate it from leaf and stem products. Based on the data, these different products may be assessed and regulated separately.

It is crucial to generate proper characterisation and specification for Ashwagandha root extracts with high-quality safety data on Ashwagandha root products for EFSA's assessment. It is obvious that the current published data on ashwagandha do not meet EFSA's criteria. EFSA's safety assessment criteria emphasize detailed product identification (plant part, production process), comprehensive characterization using validated and accredited methods in accredited laboratories, and robust toxicological studies, e.g. GLP & OECD subchronic toxicity studies. Full reports including raw data are required. Toxicological studies are needed to generate health-based guidance values, i.e., safe daily use levels for Ashwagandha root and its extracts. Human clinical trials may support the assessment but cannot alone prove safety. Medfiles' experts may assist in all this work. Meanwhile, individual EU Member States may take their own actions. [\[5\]](#)

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Promoting Ayurveda Globally: Ashwagandha as a Road In

Ayurveda is the oldest system of health care and medicine on earth. This distinction of health care and medicine is critical as health care is the very thing missing from modern medicine, at least as represented in the American system that focuses primarily on disease care. The results of this one-sided disease-care-only model, at least in America, is abundantly clear. In virtually all metrics of societal wellness, the US falls far behind virtually all other similarly developed nations.

The most significant measure of societal health is reflected in the health of how children are cared for. Children when reaching adulthood, are either healthy or unhealthy, which, in turn, evolves into a healthy or unhealthy society. In all metrics of childhood wellness – pre-term babies, neonatal, infant, and maternal mortality, and childhood obesity – the US is far behind, ranking 36th out of 38th in childhood well-being in the world. This, in great part, explains the current poor US health statistics.

Ashwagandha is one of the most respected herbs in Ayurveda. It is used both for the treatment of disease and promotion of wellness, including specifically for prenatal and childhood wellbeing. This alone makes it one of the most important herbs we have. Its use was cited in the foundational text of Ayurveda, the *Caraka Samhita*, which means it has been in continued use for at least 1200 years. Ashwagandha was introduced into the US as early as 1885 in the *American Journal of Pharmacy*, which reported its use for respiratory disorders including chronic bronchitis, asthma, pulmonary tuberculosis, and to allay flatulence caused by cow's milk. The journal noted that if taken for three months, a cure is certain...taken in this way, ashwagandha worked when other remedies failed and ashwagandha was described as 'a valuable drug'.

The American Herbal Pharmacopoeia (AHP) recognized the importance of ashwagandha in Ayurveda and published its first *Monograph & Therapeutic Compendium* in 2000. This provided North America with a comprehensive review of all aspects of the botanical that included historical use, identity and quality standards, information on cultivation, harvest, and processing, and a critical review of therapeutic and safety information. It was the first publication of an ayurvedic herb



Roy Upton, President,
American Herbal Pharmacopoeia

in a western pharmacopoeia and the only monograph in the West on ashwagandha.

Since the publication of the AHP monograph, ashwagandha has steadily increased in the North American market, primarily due to marketing of companies dedicated to ashwagandha, ranking #34 of the top 40 best-selling herbal products in 2018 to #4 in 2023. Covid and the desire by consumers for

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There is tremendous potential for Ayurveda to spread worldwide in a manner similar to the spread of traditional Chinese medicine.

immune and stress support further fueled the demand for ashwagandha. Almost every herb company either has a single-ingredient or combination product containing ashwagandha.

The US and global market for herbs in general and ashwagandha is growing exponentially with double-digit growth predicted over the next 5–10 years. Specific areas of consumer and researcher interest include for adaptogenic, antistress, anti-inflammatory, anti-anxiety activity as well as improved athletic performance and adjunctive cancer care. This growth is occurring despite a significant amount of antagonism and bias against herbal medicines, in the US especially but also globally.

There is a continued myth that western drugs are superior to traditional medicines and this is often not accurate, especially when it comes to health and wellness as there is no pharmaceutical medication for promoting health, vitality, and longevity like ashwagandha. Additionally, the World Health Organization (WHO) in its two Global Summits on Traditional Medicine and as articulated in the Gujarat and Delhi Declarations, clearly note that traditional medicine is critical in human health and primary health care.

There is also some specific caution regarding Ayurvedic products with a number of academic papers and reports from leading North American medical authorities expressing distrust of ayurveda in general and, legitimately, the presence of heavy metals in herbal products manufactured in India that requires addressing at the highest level of Ayurvedic medical authorities. Recently, AHP and its partners at the American Botanical Council and National Center for Natural Products Research issues Botanical Adulteration Prevention (BAPP) bulletins and Laboratory Guidance Documents for ashwagandha that are freely available through the American Botanical Council.

Another challenge is the presence of ashwagandha leaf in extract products when traditionally, only the root was used internally. In recent years, a number of case reports of potential liver toxicity have been made. There is no historical record of negative liver effects and there is some modern research demonstrating a liver protective effect. It is not known if the preparations associated with these case reports contained leaf and requires further attention.

Other safety concerns have been made by European authorities including potential negative effects on the thyroid, hormonal activity, and a claimed abortive activity that has led to restrictions against the sales of ashwagandha products in some European countries. Recent formal safety reviews conducted by AHP, the Committee of Revision of the Botanical Safety Handbook, as well as others, find no evidence that ashwagandha contains any inherent toxicity or abortifacient activity. The Ministry of Ayush, Government of India, rightfully issued a rapid response *Ashwagandha Safety Dossier* to help allay these concerns and further work is needed.

There is tremendous potential for Ayurveda to spread worldwide in a manner similar to the spread of traditional Chinese medicine, which is allowed in all 50 US states and in many other countries. Increasing the scientific foundation of ashwagandha, such as creating a dedicated journal to ashwagandha in the same way that has been done for Korean Red Ginseng in a Government–Industry partnership, is one way. This may be a future consideration for the World Ashwagandha Council. Introducing the benefits and practice of Pancha Karma, Marma Therapy, and Shirodhara to the West are other considerations perhaps for the Ministry of Ayush to lead.

AHP will release a revision of its ashwagandha monograph in the first quarter of 2026. The work is being developed in cooperation with Professor Pulok Mukherjee and his research team at the University of Kolkata. AHP also welcomes partnerships and collaborations on other Ayurvedic herbal monographs.

It is worthwhile to remind ourselves of the teachings of the Chandogya Upanishad (I.1.2)

- सर्वेषां भूतानां सारं पृथिवी अस्ति। पृथिव्याः सारं जलम् एव । जलस्य सारं वनस्पतयः सन्ति। वनस्पतयः सारः मानवः एव...."
- Esam bhutanam prthivi rasha, prthivya apo raso-pam osadhayo rasa, osadhinam puruso rasah...
- The essence of all beings is Earth. The essence of the Earth is Water. The essence of Water is Plants. The Essence of Plants is the Human Being. [\[37\]](#)

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Ayurveda First



The legends of Ashtavaidya



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Children's Eye Health: a Growing Public Health Concern



As childhood is a critical period for visual system maturation, early awareness, screening, and preventive care are essential. In this context, Ayurvedic eye care offers a preventive framework, emphasizing daily visual hygiene (dinacharya), nutritional balance, lifestyle moderation, and classical practices such as Netra Tarpana and Trataka. Dr Itoozhi Unnikrishnan Namboothiri, a leading Ayurvedic eye specialist, provides an Ayurvedic 'Vision' for lifelong sight.

Introduction

Childhood eye health has emerged as a major global public health concern, with far-reaching consequences for learning, development, and quality of life. Today, an increasing number of eye disorders are being observed among children below the age of 15.

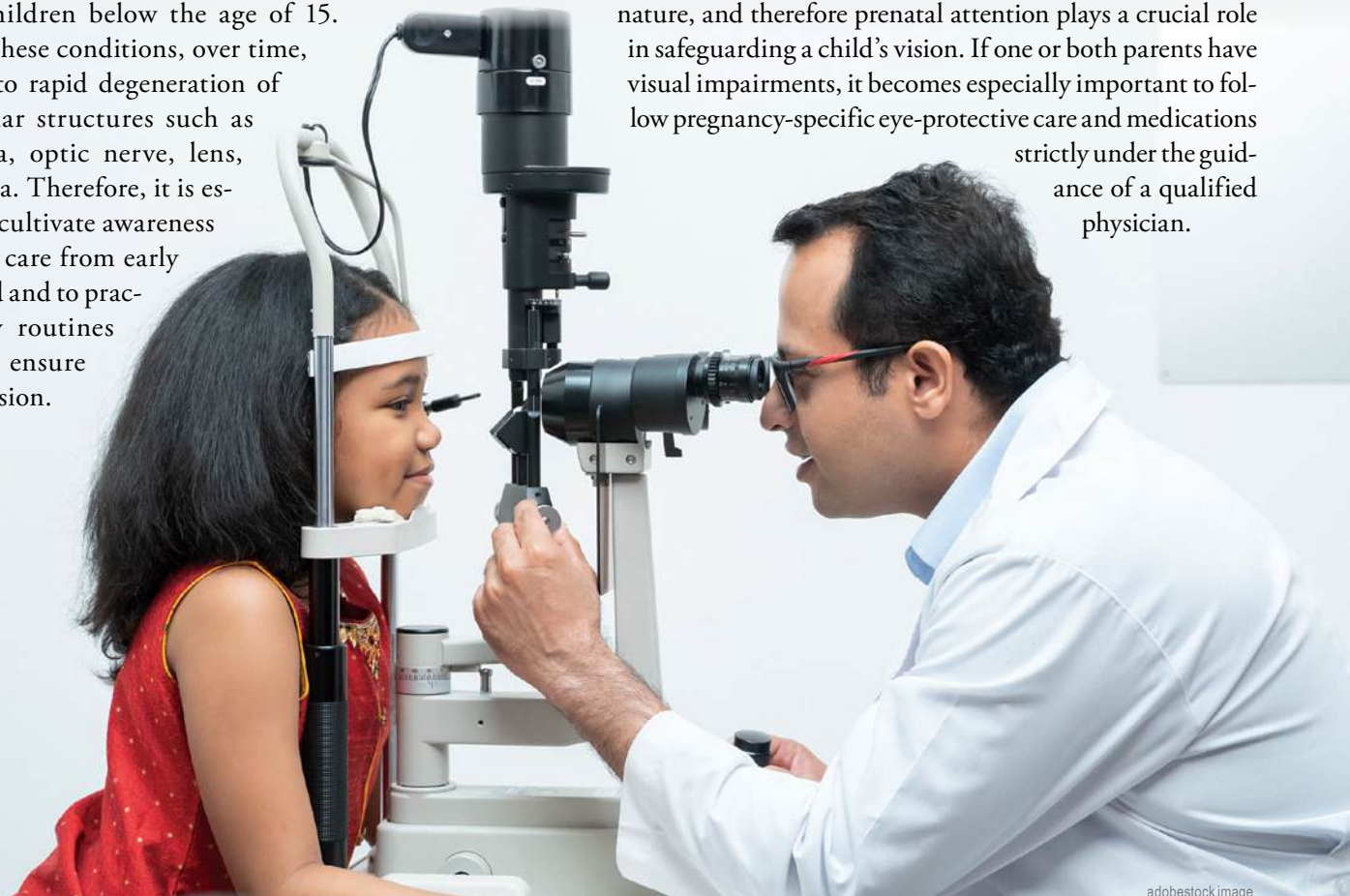
Many of these conditions, over time, can lead to rapid degeneration of vital ocular structures such as the retina, optic nerve, lens, and cornea. Therefore, it is essential to cultivate awareness about eye care from early childhood and to practice daily routines that help ensure healthy vision.

Eye Care Begins Early

Protecting Children's Vision from the Very Start

When it comes to preventing eye disorders in children, care should ideally begin even before birth – right from the mother's pregnancy. Several childhood eye diseases are congenital in nature, and therefore prenatal attention plays a crucial role in safeguarding a child's vision. If one or both parents have visual impairments, it becomes especially important to follow pregnancy-specific eye-protective care and medications

strictly under the guidance of a qualified physician.



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Ayurveda recommends therapies such as Thala Pothichil and Tarpana to slow disease progression and enhance visual strength.

A mother's diet, daily routine, emotional state, physical stress, and overall lifestyle during pregnancy can significantly influence the visual development of the unborn child. Thoughtful and well-planned prenatal care thus becomes a powerful tool in ensuring healthy eyesight for the baby.

Congenital Eye Disorders: a Silent Threat to Vision

Several congenital conditions contribute significantly to visual problems in children. These include congenital cataract, night blindness, color blindness, congenital glaucoma, malignant tumors such as retinoblastoma, nystagmus (uncontrolled movement of the eyes horizontally, vertically, or in a rotary manner), and myopia, a common condition characterized by difficulty in seeing distant objects clearly.

Such genetic or congenital abnormalities may lead to blindness or near-blindness if not addressed appropriately. In these conditions, *chakshushya rasayanas* (Ayurvedic rejuvenative therapies beneficial for the eyes) should be incorporated into daily life to preserve remaining vision and prevent further deterioration. Depending on the specific disease condition, the use of medicated ghee, herbal butter preparations, and specialized applications can bring about notable improvements, especially in neurological eye disorders.

The Wisdom of Kerala's Ayurvedic Ophthalmology

Kerala's rich tradition of Ayurvedic eye care offers unique and time-tested solutions. One such formulation, Dashamoola Navaneetam – a medicated herbal butter – has demonstrated remarkable potential in preserving visual acuity in children affected by congenital eye diseases. Based on extensive clinical experience, this formulation serves as a valuable support in genetically influenced visual impairments.

Equally noteworthy is Thala Pothichil, a distinctive therapeutic head-wrapping procedure described centuries ago in classical texts like *Chikitsa Manjari*. This therapy has been traditionally employed in conditions such as congenital ptosis and other neuromuscular ophthalmic disorders. Today, it is practised with precise standardization

in specialized Ayurvedic centres across Kerala, yielding encouraging outcomes.

Managing Pediatric Vision Disorders: the Role of Specialized Therapies

Severe refractive errors, particularly high myopia, can compromise retinal health and may eventually progress towards blindness. Ayurveda recommends therapies such as Thala Pothichil and Tarpana to slow disease progression and enhance visual strength.

Thala Pothichil involves applying freshly prepared herbal pastes over the scalp, followed by gentle oil retention and therapeutic wrapping with banana leaves. This deeply nourishing therapy strengthens sensory organs and enhances neurological balance, offering immense scope for further scientific research.

Tarpana is a specialized eye treatment in which medicated ghee is retained around the eyes for a specific duration. It is especially effective in refractive errors like myopia and astigmatism, helping improve visual clarity while protecting delicate ocular tissues.

Daily Eye Care Rituals for Children

Application of Kajal (Kanamshi): Traditionally, daily application of herbal kajal was practised not only for cosmetic purposes but also for eye protection. Kajal prepared using ingredients such as *poovamkurunnila* (*Desmodium triflorum*) and *tulsi* helps stimulate tear glands, prevent dryness caused by prolonged use of electronic devices like mobile phones and computers, reduce allergic eye conditions, and regulate ocular secretions. This practice falls under the Ayurvedic concept of Anjana, and extensive research studies on various forms of anjana is currently available in several universities.

Abhyanga (Oil Massage): Daily oil massage followed by bathing – starting from the head, ears, and feet and extending to the entire body – supports eye health by promoting sensory nourishment (*indriya prasada*). It effectively relieves eye strain and fatigue commonly seen in children.

Triphala addresses internal imbalances while reinforcing the intimate connection between gut health and eye health.

Mindful Nutrition: Teaching children to eat wholesome food in moderation is fundamental to eye health. Meals should be aligned with digestive capacity and include all six tastes (Shad Rasa): sweet, sour, salty, pungent, bitter, and astringent. Modern research echoes Ayurvedic wisdom, warning against eating while watching screens, as it disrupts gut health. Seasonal dietary adjustments, consumption of locally available fruits and vegetables, and mindful hydration enhance digestive fire (Agni), ensure efficient nutrient absorption, and ultimately nourish vision.

Daily practices such as *Trataka* (focused gazing) are also excellent eye exercises that can be easily incorporated into a child's routine.

Triphala: Ayurveda's Gift to Vision

Among all Ayurvedic formulations, Triphala stands out as a timeless remedy for eye care. Regular night time intake of Triphala powder mixed with cow's ghee and honey is traditionally recommended to maintain visual health. With lifestyle-related issues such as chronic constipation becoming increasingly common among children, Triphala addresses internal imbalances while reinforcing the intimate connection between gut health and eye health.

Numbers That Blur the 'Vision'

- About 2.2 billion people worldwide live with vision impairment or blindness (World Report on Vision 2019, WHO)
- Around 19 million children worldwide live with some form of visual impairment; nearly 450 million children have treatable eye conditions, and about 90 million experience vision loss before adulthood (Global epidemiological analyses published in peer-reviewed journals)
- About 40% of children and adolescents globally may develop myopia by 2050 (British Journal of Ophthalmology and other leading journals)
- 3.7% of children aged 6–15 years in North India affected by myopia, with nearly half remaining uncorrected due to limited screening and access to eye care (a large community-based study published in the Indian Journal of Ophthalmology)
- The overall prevalence of myopia in children aged 5–15 years estimated at approximately 7.5%, with urban studies reporting even higher rates (based on meta-analyses of Indian paediatric ophthalmology studies)

Additionally, gently washing the eyes with a decoction prepared from Triphala helps maintain ocular hygiene and protects against infections.


Chakshushya Foods and Rasayanas to Nourish the Eyes

Ayurveda recommends incorporating vision-enhancing foods into a child's daily diet. These include fruits like pomegranate, raisins, dates, guava, and Indian gooseberry (amla), along with vegetables such as carrot, beetroot, drumstick leaves, snake gourd, Holostemma, and leafy greens. Milk, ghee, green gram, and grains like wheat and ragi further support ocular nourishment.

Rejuvenative formulations such as Amalaki Rasayana, Jeevantiyadi Ghrita, and Chyavanaprasha may be used under expert Ayurvedic guidance. Among all Rasayana therapies, classical texts unanimously exalt Triphala as the foremost remedy for preserving and enhancing vision.

Conclusion

From a public health standpoint, childhood eye health is no longer a purely clinical concern but a societal priority with implications for education, productivity, and lifelong well-being. As the burden of paediatric visual disorders grows – driven by genetics, lifestyle changes, and excessive screen exposure – there is an urgent need to move beyond corrective care towards prevention and early intervention.

Ayurveda offers a complementary, population-level framework that aligns closely with modern public health goals: early awareness, prenatal care, routine screening, healthy daily practices, and nutrition-based prevention. By integrating time-tested Ayurvedic principles such as dinacharya, chakshushya nutrition, and simple preventive therapies into school health programmes, maternal care, and community outreach, childhood vision loss can be significantly reduced. Seen in this light, Ayurvedic eye care is not merely a traditional system of treatment, but a scalable, preventive public health strategy for safeguarding vision across the lifespan. 

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Can Ashwagandha Help in the Fight Against Breast Cancer? New Study Offers Fresh Insights

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*As breast cancer research moves toward multi-target and systems-based approaches, traditional medicinal plants are being re-examined through modern scientific tools. Ashwagandha (*Withania somnifera*), a cornerstone of Ayurveda, is now the subject of a new computational study published in an international journal, offering fresh insights into how its bioactive compounds may interact with key molecular pathways involved in breast cancer. **Dr Amrutha Ashok** brings to you the gist of this study. Read on...*

A medicinal plant that has been part of Indian households for centuries is now drawing the attention of scientists globally for its potential role in cancer care. Ashwagandha (*Withania somnifera*), long used in Ayurveda for vitality and immunity, may hold promise in the fight against breast cancer, according to a new computational study published in an international scientific journal.

The study, indexed on PubMed (PMID: 41380441) and published in *Computers in Biology and Medicine*, was conducted by Deepika Dhillon, Monika Jain, Amit Kumar Singh, and

Jayaraman Muthukumaran. Using advanced computer-based techniques, the researchers explored how bioactive compounds from Ashwagandha interact with molecular targets involved in breast cancer.

A Modern Look at an Ancient Herb

Breast cancer remains one of the most commonly diagnosed cancers among women worldwide. While conventional treatments such as surgery, chemotherapy, and radiotherapy

The researchers analyzed 30 phytochemicals present in Ashwagandha and mapped their potential interactions with thousands of genes associated with breast cancer.

have significantly improved survival rates, they often come with side effects and long-term complications. This has driven growing interest in complementary and plant-based approaches that may support cancer care.

Ashwagandha, often referred to as ‘Indian ginseng,’ contains a range of biologically active compounds called withanolides. These compounds have previously shown anti-inflammatory, antioxidant, and immune-modulating effects. The latest study takes this research further by examining Ashwagandha at a systems level, recognizing that cancer involves multiple genes and pathways rather than a single target.

What the Study Found

The researchers analyzed 30 phytochemicals present in Ashwagandha and mapped their potential interactions with thousands of genes associated with breast cancer. Their analysis revealed 157 overlapping molecular targets, many of which are known to play key roles in cancer growth, inflammation, and resistance to therapy.

Several well-known cancer-related proteins – including AKT1, EGFR, STAT3, MYC, and MAPK14 – emerged as central players in the interaction network. These proteins are often implicated in tumour progression and poor treatment outcomes.

Among all the compounds studied, two molecules stood out: *Viscosalactone B* and *Withasomniferol C*. These compounds showed strong and stable interactions with MAPK14, a protein linked to stress signalling and cancer cell survival. According to the researchers, such stable interactions suggest real biological relevance and warrant further investigation.

Why this Research Matters

Cancer research is increasingly shifting towards multi-target therapies, as drugs aimed at a single molecule often lose ef-

The research paper can be accessed at
<https://pubmed.ncbi.nlm.nih.gov/41380441/>.
 Dhillon D, Jain M, Singh AK, Muthukumaran J. Systems-level exploration of *Withania somnifera*-derived phytochemicals against breast cancer: A network pharmacology and molecular modeling approach. *Computers in Biology and Medicine*, Volume 200, 1 January 2026, 111367 [PubMed ID: 41380441].

fectiveness over time. The findings suggest that Ashwagandha compounds may naturally align with this approach by influencing multiple cancer-related pathways simultaneously.

However, the researchers caution against over-interpretation. ‘This study does not suggest Ashwagandha as a standalone treatment for breast cancer,’ the authors note. Instead, it provides a scientific basis for further laboratory and clinical research to explore its potential as a supportive or adjunct therapy.


Bridging Traditional Medicine and Modern Science

One of the most significant aspects of this research is how it bridges Ayurveda and modern biomedical science. By applying network pharmacology and molecular modelling – tools commonly used in drug discovery – the study demonstrates how traditional medicinal plants can be evaluated using rigorous scientific methods.

Experts believe such integrative research could pave the way for safer, more holistic treatment strategies in the future, particularly in chronic and complex diseases like cancer.

What Comes Next

While the results are promising, the authors emphasize the need for experimental validation, including cell-based studies, animal models, and eventually clinical trials. Only then can the therapeutic relevance, safety, and dosage of Ashwagandha-derived compounds be fully understood.

For now, the study adds to the growing body of evidence that ancient medicinal plants do have much to offer to modern healthcare science, especially when examined through the lens of modern science. 

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GENOME to OM: Evolving Journey of Modern Science to Meta Science

Authors: Prof. Bhushan Patwardhan, Ms Indu Ramchandani

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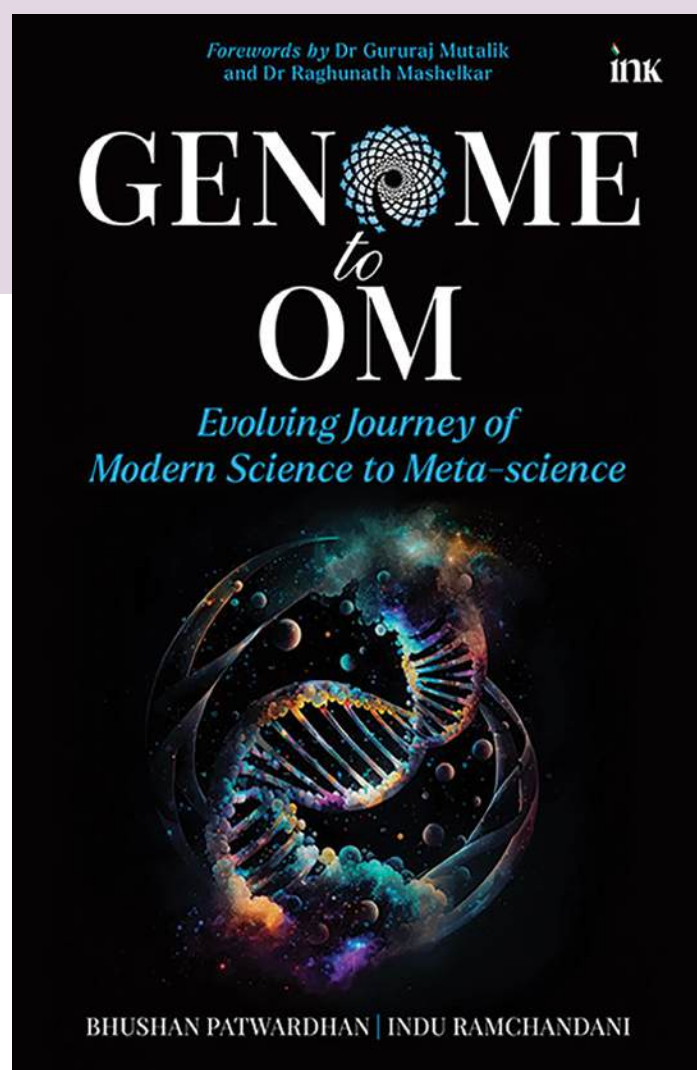
Website: <https://www.bluone.ink/books/genome-to-om-evolving-journey-of-modern-science-to-meta-science-9789365478235>

(Available on Amazon)

G*enome to Om: Evolving Journey of Modern Science to Meta Science*, authored by Prof. Bhushan Patwardhan and Ms Indu Ramchandani, is a thoughtful and timely exploration of a mystery that defines our age: the visible triumph of science and technology in the Anthropocene on the one side and the enduring spiritual orientation of societies such as India on the other. The scenario gets increasingly complex when spirituality is often misunderstood or dismissed as superstition by modern discourse.

Rather than positioning science and spirituality as oppositional forces, the book undertakes an inward journey, that of self-introspection, to examine the epistemological roots of knowledge systems, both ancient and modern. It asks fundamental questions: *What is science? How does modern science differ from ancient science? What do we mean by tradition, wisdom, and philosophy?* These questions are not merely academic; they go to the heart of how societies understand progress and purpose.

The authors remind readers that language shapes perception. While English – through which Western scientific ideas are largely communicated – offers terms such as science and technology, Indian knowledge systems recognise more nuanced distinctions: Dnyan (knowledge), Tatvadnyan (philosophy), Vidnyan (science), Tantradnyan (technology), and Vikriti (ethical deviation). These conceptual categories reveal a civilisational understanding in which empirical inquiry, moral reasoning, and ethical restraint coexist.



The book situates science and technology – ancient or modern – as inherently empirical and evidence-based, while philosophy provides the ethical framework that guides their application. Values, the authors argue, emerge from long-standing

Scientific and technological progress has delivered comfort, but not necessarily happiness; wisdom determines how knowledge serves humanity.
— Genome to Om

traditions shaped by sages, seers, and social norms, becoming what anthropologists describe as the hard core of culture – deeply ingrained patterns of thought resistant to change. By contrast, material culture and technology transform rapidly, often without corresponding ethical evolution.

Through historical and cultural illustrations – ranging from the technological prowess of figures in the *Ramayana* and *Mahabharata* to the modern-day paradox of technologically skilled yet ethically violent extremism – the book demonstrates that technological advancement does not automatically translate into moral progress. Power, when detached from wisdom, can become destructive.

A particularly engaging section traces human biological and cultural evolution – from the domestication of fire and food processing to brain development, agriculture, surplus economies, and organised power structures. Drawing connections between Darwinian evolution, genetics, and ancient Indian concepts such as *Anu*, *Renu*, and *Prakriti*, the authors illustrate how different civilizations attempted to understand human diversity long before modern biology formalised it.

Yet the central concern of *Genome to Om* lies in the present. Despite unprecedented scientific and technological progress, humanity faces ecological imbalance, climate change, and deep social inequities. Unbridled consumerism has replaced harmony with exploitation – echoing Mahatma Gandhi’s timeless warning that the world has enough for everyone’s need, but not for everyone’s greed. As the authors write, the current ‘humanity-versus-nature’ crisis presents an existential ultimatum: *coexist in harmony or face extinction*.

The phrase *Genome to Om* functions as a powerful metaphor, signifying a journey from molecular understanding to meta-scientific wisdom. While modern science has delivered remarkable innovations, its industrial and profit-driven applications have often failed to deliver happiness or equity. In contrast, the book highlights how Yoga, meditation, and



spiritual counselling – now recognised globally through initiatives such as International Yoga Day and World Meditation Day – offer secular, universally accessible tools for well-being.

In bringing together scientific reasoning, philosophical inquiry, and civilisational wisdom within a single narrative, the authors perform a valuable service. *Genome to Om* invites scientists, policymakers, and lay thinkers alike to reflect on the direction of human progress and its consequences for future generations.

The book deserves wide readership, discussion across disciplines, and translation into regional languages. In a world searching for balance between knowledge and wisdom, *Genome to Om* positions India’s philosophical traditions as a possible compass for humanity’s future. [50](#)

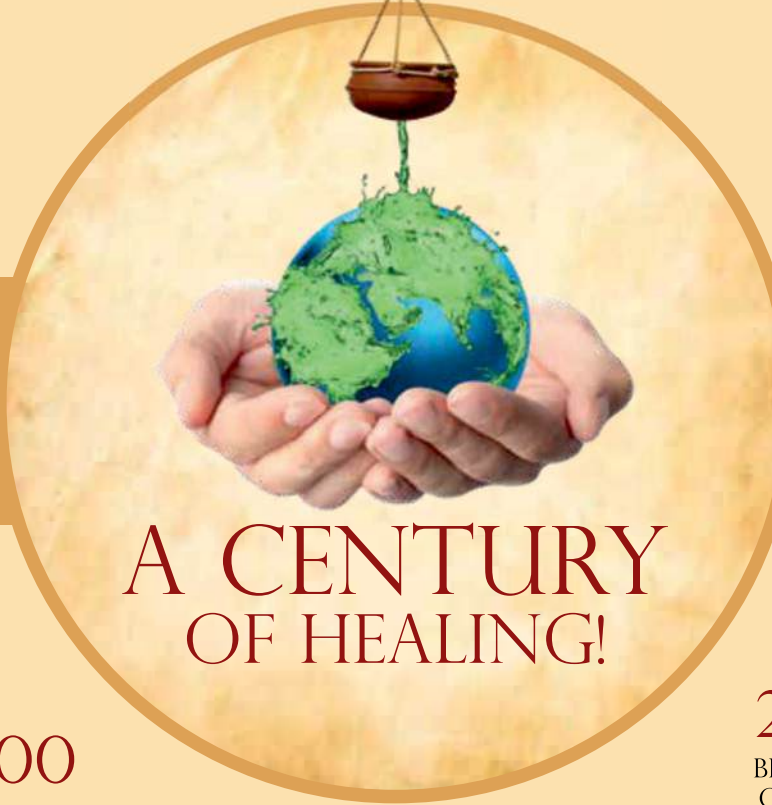
Prof. R K Mutatkar

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