

Experts Call for AI-Enabled Farm-Gate Quality and Traceability to Strengthen India's Medicinal Plant Supply Chain

IIT Delhi hosts National Seminar on Advancing Farm-Gate Quality Assessment of Medicinal Plants

Charts Digital Roadmap for Global Competitiveness of Ayush Raw Materials

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Experts across the Ministry of Ayush institutions including National Medicinal Plant Board (NMPB) has called for Artificial intelligence (AI) and related technologies to monitor, verify, and document the quality and journey of medicinal plants right from the farm (the "farm-gate") through the entire supply chain, in a two-day National Seminar on "*Design and Development of Tools for Quality Assessment of Medicinal Plants at Farm Gates*". The seminar held on 8–9 January 2026 at the Indian Institute of Technology (IIT) Delhi, brought national focus to India's medicinal plant sector—assured quality, traceability, and standardisation of raw materials at the point of origin.

The seminar convened policymakers, scientists, technologists, industry leaders, and researchers to deliberate on strengthening farm-gate quality systems as a foundation for the sustainable growth and global competitiveness of India's Ayush and medicinal plant ecosystem.

The seminar was inaugurated with keynote addresses by Prof. Dr. Mahesh Kumar Dadhich, Chief Executive Officer, NMPB, and Prof. Dr. Tanuja Nesari, Director, Institute of Teaching and Research in Ayurveda (ITRA). Their addresses set the national policy and scientific context for quality-driven growth, emphasising the need to integrate innovation, regulation, and traditional knowledge to build global confidence in Indian medicinal plant raw materials.

Technical sessions on Day One examined the entire medicinal plant value chain—from sustainable cultivation and regenerative agriculture to AI-enabled quality assessment, digital traceability, and supply-chain integration. Experts from ICAR–Directorate of Medicinal and Aromatic Plants Research (DMAPR), IIT Delhi, the World Health Organization (WHO), the Ministry of Ayush, Central Council for Research in Ayurvedic Sciences (CCRAS), Himalaya Wellness, and Herbalscape Crops shared evidence-based insights and field experiences.

The discussions highlighted that India is both technically and institutionally prepared to adopt AI-based diagnostics, digital phenotyping, and integrated quality frameworks, reinforcing the credibility of Indian medicinal plant raw materials in domestic as well as international markets.

Day Two was dedicated to roadmap building through two structured expert brainstorming sessions on Integration of Artificial Intelligence in the Indian Medicinal Plant Industry, and use of Blockchain Technology for Supply-Chain Transparency and Traceability.

The sessions resulted in a strong consensus that digital tools at the farm gate—such as portable quality-testing devices, AI-enabled decision-support systems, and blockchain-based traceability platforms—are no longer optional but essential to ensure authenticity, safety, and global competitiveness of Indian herbal raw materials.

The seminar delivered clear and actionable outcomes aligned with the objectives of NMPB and the Ministry of Ayush. It enabled rare national-level convergence among policy institutions, scientific bodies, industry stakeholders, and global health organisations, fostering integrated solutions rather than fragmented interventions.

Participants unanimously underscored that quality must be built at the point of origin, directly supporting NMPB's mandate to empower primary producers and collectors. The deliberations validated the practical deployment of AI and digital tools to reduce adulteration, variability, and farmer losses, while also establishing the critical role of blockchain-enabled end-to-end traceability for exports and pharmacopoeial compliance.

The seminar also highlighted the integration of traditional knowledge systems such as Vriksha Ayurveda with modern quality-control frameworks, demonstrating how India's heritage can be scientifically validated and digitised to strengthen global acceptance. Strong emphasis was placed on capacity building, with participants gaining exposure to advanced tools, standards, and evolving policy directions.

The seminar laid a robust foundation for developing a national framework for AI-enabled, traceable, and standardised medicinal plant supply chains. The outcomes directly support the national priorities of Atmanirbhar Bharat and Make in India, while reinforcing India's leadership in the global Ayush sector.

The deliberations strongly underscored the need for continued and expanded support for pilot projects, technology deployment, and farmer-level capacity building under NMPB-supported initiatives, positioning farm-gate quality as a cornerstone of India's medicinal plant economy.



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