

Report on the National Workshop on “Role of Taxonomical Identification & Authentication of Plants & Crude Drugs in Traditional Medicine & Research”

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A National Workshop on “Role of Taxonomical Identification & Authentication of Plants & Crude Drugs in Traditional Medicine & Research” was organised by CSIR-NIScPR during 14-15th February 2023. The workshop was funded by the National Medicinal Plant Board (NMPB). A total of 54 delegates participated in the workshop.

A dedicated poster session was organised on the first day of the International Conference on Communication and Dissemination of Traditional Knowledge (CDTK-2023) aligned with the theme of the national workshop on medicinal plants. A total of 36 researchers presented posters in this session.



Prof Ranjana Aggarwal, Director, CSIR-NIScPR delivered the welcome address in the inaugural session organised on 15th February. Prof Aggarwal highlighted the foundation for the national initiative SVASTIK, CDTK-2023 and the national workshop. She emphasized on the significance of Indian medicinal systems encompassing the disciplines of Ayurveda, Yoga, Unani, Siddha and Homeopathy. Further, she stressed on the importance of gaining accurate knowledge of Indian medicinal herbs and their proper identification. Dr Tanuja Nesari, Chief Executive Officer, NMPB and Director, All India Institute of Ayurveda (AIIA), delivered the inaugural address wherein she illustrated the relevance of Indian medicinal system. She emphasized the importance of minimizing the gap between this traditional knowledge and the contemporary science and technological methods. Prof Nesari discussed the role of accurate taxonomic identification of medicinal plants and praised the efforts of CSIR-NIScPR and NMPB, in this regard. Prof Nesari provided an overview of NMPB’s role in disseminating information and educating the society about Indian traditional medicinal practice. Prof Nesari concluded her talk by stressing the importance of combining Ayurvedic *Rasa Vidya*, modern pharmacology techniques and taxonomy in order to correctly identify medicinal plants.



Shri R S Jayasomu, Chief Scientist, CSIR-NIScPR, New Delhi demonstrated how India is positioned in the worldwide scenario of published research on the subject of traditional medicinal knowledge. Dr Sharad Srivastava, Sr Principal Scientist, CSIR-NBRI, Lucknow in his talk focused on the relevance of authenticating medicinal plants for usage in R&D activities. Dr Srivastava elaborated the challenges that India currently faces in terms of medicinal plants and crude drugs, and opportunities that are currently available in this regard. Prof K Indira Priyadarsini, Raja Ramanna Fellow, UGC-DAE Centre for Excellence, University of Mumbai discussed the potential of utilizing turmeric as a therapeutic against a number of modern diseases. Dr Priyadarsini shared her views on how currently available medicinal plant/ayurvedic formulations have quality control issues and how relevant this aspect is for attaining reproducibility in experimental research studies.

Prof S K Barik, Department of Botany, North-Eastern Hill University, Shillong, in his keynote address shared his views on the R&D activities that NMPB should undertake and appreciated their role in organised cultivation of medicinal plants by farmers and their trade. He shared his views on how modern technologies such as artificial intelligence and metabolite modelling can prove valuable in overcoming the greatest challenge to the acceptance of traditional Indian medicinal formulations *viz.* adulteration.

Dr Sunita Garg, Ex CSIR-Emeritus Scientist, CSIR-NIScPR described the importance of accurate identification of crude plants and shared her experiences as a certification expert at CSIR-NIScPR's Raw Materials' Herbarium & Museum (RHMD) facility.



The national workshop was concluded with a visit to Raw Materials, Herbarium and Museum Delhi (RHMD) where hand-on demonstration was given to the participants, and Ayur-Vatika facilities at CSIR-NIScPR campus.

The valedictory session of the workshop was clubbed together with that of the international conference CDTK-2023.

Recommendations

- 1) Awareness about the Ayurvedic concept of ‘*Rasa Vidya*’ that is analogous to the modern chemo-sensory properties of plants must be undertaken for precise identification of raw medicinal plants for conducting R&D activities; a synergy between the two aspects is crucial.
- 2) India needs to harness its potency as a huge reserve of traditional knowledge; similar to the lines on which China has emerged in recent years, as the leading contributor of published research on the varying aspects of traditional medicinal knowledge.
- 3) Prime challenges in the trade of medicinal plants such as- indiscriminate harvesting of medicinal plants, declining biodiversity resulting in scarcity of medicinal plants, inadequate cultivation and adulteration/substitution, must be addressed through the application of modern research and technological tools.
- 4) Adequate measures for quality assurance and control of different Ayurvedic plant extracts must be set up for successful R&D endeavours.
- 5) To ascertain the best quality plant produce focus should not be the available biomass, instead the content of the key metabolite/bio-active component. A Pan-India chemo-typing survey of different plant varieties can be undertaken to establish the best plant source based on the geographic/climatic factors.
- 6) NMPB’s currently followed regime of voluntary certification of plant produce should be abolished and instead certification should be made mandatory for all sources of plant produce when it comes to trade of medicinal plants.
- 7) Collaborative efforts both at the rearward level (farmers) and onward level (organic chemists, researchers, instrumentation experts) must be initiated by NMPB to preserve good quality plant produce.
- 8) NMPB should take initiative towards conservation of threatened plants.
- 9) Practicing traditional agronomic methods of breeding and harvest should be continued.
- 10) Artificial intelligence is a promising approach to circumvent the serious problem of adulteration in medicinal plants produce; a fusion of plant molecular markers, morphological features and chemo-typing can be employed.
- 11) Setting up of digital herbaria can aid in proper taxonomic identification of raw medicinal plants.