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Herbal drug discovery from grassroots innovations and traditional knowledge: An inimitable journey of national innovation foundation India

Pawan Kumar Singh and Vipin Kumar
National Innovation Foundation, India

Traditional herbal medications had become integral part of different human societies across the globe, since time immemorial. Recently, World Health Organization (WHO) estimated that globally more than 80% population uses herbal indigenous medications to cater their basic healthcare necessities. National Innovation Foundation (NIF) India, established in year 2000 scouts, documents, validates and adds value to the grassroots innovations (GRI) and traditional knowledge (tk). NIF, with the help of the Honey Bee Network (HBN) and other partners, has created a National register which presently comprises more than 275,000 ideas, innovations and tk from over 585 districts of the country. Interestingly, about 40% of this unique database contains herbal human health, veterinary and agriculture practices. Since more than a decade, NIF is actively involved in translating GRIs and tk into effective and safe solutions, through land-to-lab-to-land approach. NIF closely works with premier public and private research institutions including Indian Council of Medical Research (ICMR), Council of Scientific and Industrial Research (CSIR), top medical institutions and Contract Research Organizations (CROs) across the country with an aim to translate the herbal leads into alternative solutions for preventive and curative health care. NIF shortlists only those unique lead for validation, value addition and product development which contain non-codified plants that are not mentioned in any codified classical or modern literature. The drug discovery pathway followed at NIF includes in depth analysis and understanding of the unique practices through interactive discussions with the grassroots healers and its translation into formal scientific language, identification of plants and diseases and selection of appropriate standard experimental models (in vitro, in vivo) for validation to establish the proof of concept. Most of the pre-clinical scientific validation studies strongly support the claims of the herbal healers, evident by the positive outcomes in terms of efficacy and safety. The funneled potential leads are further put into the pipeline of clinical trial phases, following stringent adherence with the regulatory guidelines. Most of these herbal practices are already being used by the knowledge holders as preventive and curative solution for various health issues. These herbal leads are the low hanging fruits which can be converted into evidence based novel medications if precise drug discovery mechanisms are followed. The present model can be adapted for the herbal drug development in different parts of traditionally rich countries, across the globe.

pawan@nifindia.org