

Potentials of Ethnomedicinal Plants of North Bengal Hilly Areas

¹Chandan Naskar and ²Dr. Projjwal Chandra Lama

^{1,2}Post Graduate Department of Botany, Darjeeling Government College, Darjeeling, West Bengal, India

ARTICLE DETAILS

Article History

Published Online: 25 May 2019

Keywords

Ethnomedicinal, Plants, North Bengal, Hilly areas

ABSTRACT

The community may gradually gain access to traditional ethnomedicinal plant knowledge. Exploration, identification, and documentation of ethnobotanic resources are vital for restoring and preserving ethnomedicinal knowledge about plants, as well as for the species' protection for the greater good of humanity. The ethnomedicinal potential of plants was highlighted in this article, with a particular emphasis on North Bengal's hilly regions, which had hitherto received little attention.

Introduction

Medicinal plants form the basis of India's diverse indigenous traditional medicinal systems. The first mention to the usage of plants medicinally appears in the "Rig-Veda," which lists 67 plants having curative powers. According to a WHO report, almost 80% of the world's population relies on plant-based products for health care. Plant-derived lead compounds are the primary source of lead in around 25% to 45% of current prescriptions. Additionally, around 42% of the top 25 best-selling drugs on the market are derived from natural sources or from plant products [1-3].

Herbal medicines have had a renaissance in popularity. This is due to an increasing awareness of synthetic pharmaceutical products' limited ability to control major diseases, as well as the requirement to identify unique chemical structures as lead compounds from plants. Plants are the bedrock of modern medicine. The fundamental chemical and active structures for synthesised fields are derived from natural sources. This expanding global interest in medicinal plants reflects a growing awareness of the reality of numerous traditional health claims regarding natural products [4-6].

Plant medicines have a lower risk of adverse reactions than modern conventional pharmaceuticals, which, along with their lower cost, is encouraging both the general public and national health care institutions to investigate them as alternatives to synthetic drugs [7].

Focused studies related to ethnomedicinal plants of north Bengal hilly areas:

People have employed medicinal plants to treat a range of diseases since prehistoric times. Botanically derived medicinal plants play a critical role in human society. Traditional medicine provides critical data for the creation of new drugs. These ethnobotanic resources must be researched, utilized, and maintained in order to rehabilitate and maintain traditional and indigenous knowledge. This freshly acquired knowledge of plants will prove tremendously beneficial in the near future [8-11].

According to Mudasir Nazir Bhat et al. (2021), traditional medical knowledge is receiving a lot of attention in order to

meet growing countries' public health concerns, owing to the increased demand for global health care. Ethnobotany knowledge and practise facilitate the exploration of the pharmacological underpinnings of medicinally valuable cultural species. Local indigenous tribes possess traditional knowledge (TK), which has been passed down through generations as an integral element of the community's identity. The purpose of this study is to gain a better understanding of the Himalayan plant diversity and the ways in which traditional knowledge is understood.

Raj et al. (2018) report that the study took place between December 2014 and May 2016 in the periphery areas of Chilapatta Reserve Forest in the foothills of West Bengal's eastern sub-Himalayan Mountain ranges. The area was selected by a stratified sampling approach. 400 respondents from this location, which is populated by an aboriginal community of Indo-Mongoloid ancestry, were randomly selected for personal interviews via an open-ended questionnaire. The survey addressed plant species used as ethnomedicines, plant parts used, dosage and therapy protocols. The Chilapatta Reserve Forest and its outlying areas are rich in ethnobotanical plant species, as indicated by the list of 140 plant species. *Rauwolfia serpentina* was the most valuable species in terms of maximal usage, with a higher use value. The documentation of 78 ethnobotanical species cultivated in backyard gardens illustrates community knowledge of the species' conservation worth [13].

Tanmay Datta et al. (2014) stated that their objective was to examine the traditional ethnomedicinal knowledge of numerous tribes in West Bengal, India's Coochbehar area, as well as its contemporary state. Between July 2007 and December 2009, traditional healers and resource persons were interviewed about the medicinal uses of local flora in all the tribal villages of Coochbehar district using standardised questionnaires, and some locations were revisited for this purpose again between July and December of 2012. We noticed that all tribal nations used medicinal plants, particularly to treat common physical ailments such as minor injuries, stomachaches, and gastrointestinal illnesses. However, the scarcity of such plants in the local vicinity limits their usage. Further investigation of these species may result in the identification of novel bioactive

chemicals, as well as a new horizon for sustainable development [14].

According to Jayati Saha et al. (2011), the purpose of this study was to document the Darjeeling hill tribes' ethnomedicinal knowledge and to analyse the antibacterial and antioxidant capacities of the tested plants. In Darjeeling's three hilly subdivisions, the survey discovered 78 plant species (47 families and 70 genera). Antibacterial activity against a panel of 11 pathogens was determined using the disc diffusion technique (6 Gram positive bacteria species, 1 Gram negative bacteria species, 2 yeast species and 2 mould species). The total phenolic content, total flavonoid content, DPPH•, •OH, and ABTS•+ scavenging activities, reducing power, metal chelating activity, and anti-lipid peroxidation activity of the plants were all determined to determine their antioxidant potential [15].

Conclusion:

A medicinal plant is any plant that has a chemical that has therapeutic potential or serves as a precursor for the production of valuable pharmaceuticals in one or more of its organs. Man has relied on several plant species for his survival from the start of time. Plant medicines have a lower risk of

adverse reactions than modern conventional pharmaceuticals, which, along with their lower cost, has prompted both the general community and national health care organisations to investigate them as possible alternatives to synthetic drugs [16, 17].

Ethnomedicinal research is critical for the identification of innovative crude medicines derived from previously reported indigenous medicinal herbs. Since its inception, ethnobotany has discovered/provided a number of critical contemporary pharmaceuticals, with a special emphasis on the documentation of traditional medical knowledge about plants [18].

Communities should be encouraged to develop cultivation practises for commercially viable ethnobotanical species through capacity building, timely policy intervention, and strong market links. This will result in more income and improved livelihoods, as well as eventual species conservation. To this day, ethnomedicines continue to outperform modern/allopathic drugs [19, 20].

References

- Gautam, A. K. et al (2009). Homeopathic Flora of Bilaspur District of Himachal Pradesh, India. *Journal Ethnobotanical Leaflets* 13: 123-30.
- Bapuji, J.L. and Ratnam, S.V. (2009). Traditional uses of some medicinal plants by tribals of Gangaraju Madugula Mandal of Visakhapatnam district, Andhra Pradesh. *J. Ethnobot Leaflets*; 13: 388-398.
- Acharya, D. and Shrivastava, A. (2011). *Indigenous Herbal Medicines*. Aavishkar Publ., Jaipur. 5-9.
- Dangol, D.R. (2008). Traditional uses of plants of common land habitats in Western Chitwan, Nepal. *J. Inst. Agric. Anim. Sci.* 29:71-78.
- Sharma, R. (2003). "Medicinal plants of India –An Encyclopedia". Daya publishing house New Delhi.
- Dhiman, A.K. (2005). *Wild Medicinal Plants of India*. 23-A, New Connaught Place Dehra Doon. 61, 64, 67, 87, 92-94, 103-170, 236-270, 235-280.
- Rawat, D.S. et al (2010). *Ethnobotanical Studies on Dental Hygiene in District Hamirpur, Himachal Pradesh (H.P.), India*. *Ethnobotanical Leaflets* 14: 136-60.
- Lewis WH, Elwin Lewis MP. *Medical botany plants affecting human health*. New York: Wiley; 2003. p. 812.
- Iwu MM. African medicinal plants in the search for new drugs based on ethnomedicinal leads. In: Chadwick DJ, Marsh J, editors. *Ethnobotany and the search for new drugs*, Ciba foundation symposium 185. Chichester: Wiley; 1994. p. 116–29.
- Reddy BM. Wild edible plants of Chandrapur district, Maharashtra, India. *Indian J Nat Prod Resour.* 2012;3:110–7.
- Payyappallimana U, Fadeeva Z. *Traditional knowledge and biodiversity*. Yokohama: United Nations University-IAS; 2013.
- Mudasir Nazir Bhat, Bikarma Singh, Opender Surmal, Bishander Sing, Vijay Shivgotra, Carmelo Maria Musarella (2021). Ethnobotany of the Himalayas: Safeguarding Medical Practices and Traditional Uses of Kashmir Regions, *Biology* 2021, 10(9), 851: 1-45.
- Tanmay Datta, Amal Kumar Patra, Santanu Ghosh Dastidar (2014). Medicinal plants used by tribal population of Coochbehar district, West Bengal, India-an ethnobotanical survey, *Asian Pac J Trop Biomed.* 2014 May; 4(Suppl 1): S478–S482.
- Jayati Saha, Prabir K Sarkar, Subrata Chattopadhyay (2011). A survey of ethnomedicinal plants of Darjeeling hills for their antimicrobial and antioxidant activities, *Indian Journal of Natural Products and Resources* Vol. 2(4), 2011, pp. 479-492.
- Antony Joseph Raj, Saroj Biswakarma, Nazir A. Pala, Gopal Shukla, Vineeta, Munesh Kumar, Sumit Chakravarty, Rainer W. Bussmann (2018). Indigenous uses of ethnomedicinal plants among forest-dependent communities of Northern Bengal, India, *Journal of Ethnobiology and Ethnomedicine* 14:8: 1-28.
- Jeyaprakash K, Ayyanar M, Geetha KN, Sekar T. Traditional uses of medicinal plants among the tribal people in Theni districts (Western Ghats), Southern India. *Asian Pac J Trop Biomed.* 2011;1:S20–5.
- Kar A, Goswami NK, Saharia D. Wild edible plants sold in the local market of Garo hills, Meghalaya. *J Frontline Res Arts Sci.* 2012;2:69–78.
- Suresh CP, Bhutia KD, Shukla G, Pradhan K, Chakravarty S. Free list of wild edible fruit species of Sikkim Himalayas and their uses. *Proceedings of the Second International Symposium on Minor Fruits and Medicinal Plants for Better Lives 2013*; pp.17-37.
- Geng Y, Zhang Y, Ranjitkar S, Huai H, Wang Y. Traditional knowledge and its transmission of wild edibles used by the Naxi in Baidi Village, northwest Yunnan province. *J Ethnobiol Ethnomed.* 2016;12:10–30.
- Van der Merwea D, Swana GE, Botha CJ. Use of ethnoveterinary medicinal plants in cattle by Setswana-speaking people in the Madikwe area of the North West Province of South Africa. *J S Afr Vet Assoc.* 2001;72:189–96.