ISSN (ELECTRONIC): 2945-3135

Saswati Bandyopadhyay & Bishnupada Nanda *(2025).* ***Indigenous Medicinal Plant Knowledge among Tribal Communities of West Bengal: A Review.*** International Journal of Multidisciplinary Research & Reviews. 4(3). 264-274.

INTERNATIONAL JOURNAL OF MULTIDISCIPLINARY RESEARCH & REVIEWS

journal homepage: www.ijmrr.online/index.php/home

INDIGENOUS MEDICINAL PLANT KNOWLEDGE AMONG TRIBAL COMMUNITIES OF WEST BENGAL: A REVIEW

Saswati Bandyopadhyay[1] & Dr. Bishnupada Nanda[2]

[1]Research scholar, Department of Education, Jadavpur University.

[2]Professor, Department of Education, Jadavpur University.

How to Cite the Article: Saswati Bandyopadhyay & Bishnupada Nanda *(2025).* ***Indigenous Medicinal Plant Knowledge among Tribal Communities of West Bengal: A Review.*** International Journal of Multidisciplinary Research & Reviews. 4(3). 264-274.

https://doi.org/10.56815/ijmrr.v4i3.2025.264-274

Keywords	*Abstract*
Tribal Communities, geographic regions, ecological environments, Himalayan zone, medicinal plants.	Traditional medicinal knowledge plays an important role in the health care practices of tribal communities, particularly in rural and forested regions where access to modern medical facilities is limited. In West Bengal, tribal communities have long depended on medicinal plants for the treatment of various diseases and for maintaining their cultural and ecological traditions. The diversity of medicinal plants that are used by Tribal Communities of West Bengal in their health care practices; how these medicines are utilized; and why they are significant, has been reviewed from literature to provide an understanding of this area. A literature review was conducted utilizing Google Scholar for a comprehensive search, resulting in approximately 13,20 records. Following a review of the relevant literature, sixteen studies were chosen. This literature review identified a variety of medicinal plants that have been traditionally used by Tribal Communities of West Bengal to treat many different types of health issues. These include but are not limited to, respiratory issues, infections, and skin conditions. Additionally, there was significant geographic variability among the ecological zones studied. Examples included the plateau zone, the forest zone, the Himalayan zone,

	and the coastal zone. In addition, this literature review noted that Traditional Healers and Community Members continue to utilize Ethnomedicinal Plants and maintain/apply Ethnomedicinal Plant Knowledge. Lastly, it was found that Sacred Grove Conservation is culturally important to the Tribal Communities of West Bengal. Despite the ongoing importance of utilizing Ethnomedicinal Plants as a form of Primary Health Care throughout the rural areas of West Bengal, there remain two major challenges. They consist of inadequately documenting Ethnomedicinal Plants and loss of Biodiversity due to environmental degradation. Therefore, this literature review clearly identifies the need for documenting Ethnomedicinal Plants to conserve them for long term use and future Ethnopharmacological Research.

Research Questions:

I. What types of ethnobotanical diversity, how are they used, and what is their cultural significance to tribes in this area?

II. Are there data on the documentation, preservation, and utilization of indigenous knowledge about medicinal plants in this region?

III. In the use of ethnomedicines, how do traditional healers and community members utilize ethnomedical information?

Introduction:

The knowledge of medicinal plants by indigenous peoples is one of the most important aspects of the traditional medicine systems they have. Most of these traditional medicine systems exist among native communities which live close to nature. They have developed this knowledge through generations of interactions with local flora and fauna, as well as with local ecosystems in the region of West Bengal. Most of the treatments provided by the people of the tribes consist of herbal remedies which provide them with the ability to cure a wide variety of ailments. Due to their high reliance on ethnobotanical methods for the treatment of various ailments, ethnobotany is an integral part of the way they live and identify themselves culturally.

Because of the numerous varied geographic regions found in West Bengal, it presents a great opportunity for research into how indigenous medicinal plant knowledge is practiced. Some examples of these regions include plateau type areas (such as Purulia and Bankura), forested zones (including Jhargram and Paschim Medinipur) and Himalayan area's (Darjeeling and Kalimpong) as well as coastal ecosystems (the Sundarbans). These ecological environments create a diverse array of medicinal plants which can be utilized by the tribal populations. There are studies being done in each of the districts and they document an incredible number of medicinal plants that are being utilized by the tribes to alleviate various types of ailments. These studies show that there is a relationship

between the availability of medicinal plants in the environment and the utilization of those plants for healing purposes, as well as the existence of community specific uses of the plants. Sahoo et al., (2024); Thapa et al., (2025).

Among the tribal communities, ethnomedicinal practice consists primarily of utilizing medicinal plants that grow locally to treat a wide variety of common as well as complex health problems. Many studies have identified that some medicinal plants are utilized specifically to treat particular health problems. Examples of some of these health issues include ear/nose/throat problems, malaria and skin problems (Mahato & Mahato, 2023; Mahato et al., 2024; Mitra & Mukherjee, 2022). It is evident from these studies that indigenous health care systems are diverse and specialized. The knowledge base associated with indigenous health care is based on the types of disease present in each community and the types of plants that grow locally. Additionally, these practices represent the main or only form of health care in many areas where access to formal medical services is difficult to obtain.

In addition to providing therapeutic applications for the treatment of health-related problems, indigenous medicinal plant knowledge is also tied to cultural and social practices. The traditional healers typically act as the primary repositories for this knowledge and are generally responsible for identifying the cause(s) and treatment(s) for various forms of illness via plant extracts (Pradhan & Mondal, 2023). However, other studies have demonstrated that within communities there can be variation in terms of who knows what about which medicinal plants, as women appear to make large contributions to documenting and applying ethnomedicinal practices (Mondal et al., 2025). As a result, when examining indigenous medicinal plant knowledge systems, consideration should also be given to social factors, including who contributes to the development and dissemination of this body of knowledge and why.

Indigenous medicinal knowledge is connected to conservation efforts. Natural reserves are established through cultural beliefs and act as important sources of medicinal plant diversity. Sacred groves are examples of this type of reserve. By preserving these culturally designated lands we not only conserve biological diversity but we also preserve the resource base required for future medicinal plant use. Furthermore, preservation of these lands demonstrates the reciprocal relationship between our culture and our environment.

Although the value of indigenous medicinal plant knowledge is well recognized, it continues to face many barriers. The rapid socio-economic transition taking place in India's tribal areas, along with the impact of degradation of the environment, and the lack of sufficient documentation of indigenous medicinal plant knowledge systems has led to an irreversible erosion of these systems. Ethnomedical knowledge remains largely un-documented and/or restricted to specific community groups, thus being at risk of extinction. In addition, despite attempts by researchers to document and synthesize indigenous medicinal plant knowledge through various methods, the current body of literature is

highly fragmented, geographically localized, and has variable methodologies. Thus, it is difficult to compare or synthesize results from previous studies. There has been increasing awareness in recent years about the potential contributions of traditional medicine as a source of support for public health. Research has documented that indigenous medicinal plant-based remedies can provide supportive care for individuals' medical needs, especially those who belong to economically disadvantaged or socially marginalized populations. Indigenous medicinal practices are generally inexpensive, easily accessible, and acceptable within their respective cultural frameworks, which provides an additional or complement to western medicine. Therefore, there exists a strong need to review and integrate existing studies to identify a broader perspective and understanding of the nature, trends and magnitude of ethnomedicinal knowledge in certain geographic regions.

As such, a literature review is needed to bring together and assess previously completed research in order to develop a better understanding of indigenous medicinal plant knowledge used by tribal communities of West Bengal. A literature review allows for a comprehensive understanding of commonalities, geographical differences and gaps in research related to indigenous medicinal plant knowledge. Additionally, the outcomes of this review will contribute to the academic body of knowledge and assist with documenting, conserving, and sustainably utilizing indigenous medicinal resources.

Methodology

This study used a literature review process to gather information, analyze and synthesize previous studies regarding indigenous medicinal plant knowledge that is held by tribal communities in West Bengal. The review was conducted in a structured manner to ensure clarity and consistency in the selection and analysis of relevant literature.

Search Strategy

A large-scale review of the scientific literature was conducted through a database search on Google Scholar. A keyword strategy (a combination of relevant words) was developed and used for this search. Examples of some of the keywords include:

1. Ethnomedical Plants in West Bengal
2. Indigenous Medicinal Knowledge from Tribal Communities of West Bengal
3. Traditional Healing Practices of Tribal Communities in West Bengal
4. Ethnobotany of Tribal Communities of West Bengal

This search produced an approximate total of 13,20 references which were primarily comprised of journal articles, book chapters, and conference proceedings. Only English language publications were included.

Saswati Bandyopadhyay & Bishnupada Nanda *(2025).* ***Indigenous Medicinal Plant Knowledge among Tribal Communities of West Bengal: A Review.*** International Journal of Multidisciplinary Research & Reviews. 4(3). 264-274.

Screening and Selection Process:

Multiple stages were used to select relevant studies for the review:

1. Identification: Results from an initial database search (total = 13,200 records) were identified.
2. Screening: All titles and/or abstracts of the identified study results were then reviewed to eliminate ineligible studies. As a result, the list was reduced to 150 records.
3. Eligibility: Full-text versions of all remaining potentially relevant studies that met the inclusion criteria were retrieved and assessed. Following thorough evaluation of these full-text articles, the number of eligible studies was narrowed to 32.
4. Inclusion: Duplicate and/or non-relevant articles were removed. A total of 16 studies were eventually included in this literature review.

Research Design:

Data Extraction and Analysis:

Relevant information was identified in all of the selected studies and extracted (i.e., study area/community; types of medicinal plants documented; disease categories treated; cultural/eco-social context; role of healers and/or community members).

Therefore, the extracted data were analyzed using thematic analysis to answer the research questions. The results are categorized by three main themes:

1. Diversity, usage, and cultural significance
2. Documentation, conservation, and application
3. Role of healers and community

Limitations:

This study's limitations include the fact that it was only able to utilize one database for this study (Google Scholar), as well as the amount of available published literature. There could be some additional related studies that were excluded from this study due to being unavailable because of language barriers or not having the necessary access. The varying methodologies utilized within each study included in this review also could create difficulties when comparing them.

Results and Discussion:

Diversity, Usage, and Cultural Significance of Medicinal Plants

It can be seen from these studies that there is an enormous number of medicinal plants being used by tribal communities all over West Bengal. Tribal communities use the medicinal plants based on their geographical locations. Therefore, each tribe uses medicinal plants unique to its location. Examples

of geographical locations of the tribes studied in the area include; Plateau Regions (Purulia, Bankura); Forest Zones (Jhargram, Paschim Medinipur); Mountainous or Himalayan Regions (Darjeeling, Kalimpong); Coastal Ecosystems (Sundarbans). Darjeeling and Kalimpong's studies reveal the extensive variety of medicinal plants present due to favorable climate conditions and high biodiversity (**Thapa et al., 2025; Kandari et al., 2024**), while studies from Purulia and Jhargram reflect a strong dependency on forest-based resources (**Sahoo et al., 2024**).

Medicinal plants utilized by tribal communities across various regions for treating ailments were found to be similar. Common illnesses treated with medicinal plants include fever, respiratory problems, stomach problems and skin infections. More specifically, disease-orientated studies provide better understanding regarding medicinal properties and therapeutic applications of medicinal plants. For example, medicinal plants are used for ENT-related problems (**Mahato & Mahato, 2023**), malaria (**Mahato et al., 2024**) and skin infections including furuncles and carbuncles (**Mitra & Mukherjee, 2022**). Findings from this type of research suggest that indigenous medical systems are both diverse and highly localized and specialized. Furthermore, they appear to be based upon long term empirical observations.

Tribal communities utilize various parts of medicinal plants to treat illnesses. Different parts of the plant, i.e. leaves, roots, barks, and fruits are frequently utilized depending upon the illness to be treated and availability. Quantitative ethnobotanical study methodology has been adopted to assess usage frequencies among some plants. High frequency of usage of some medicinal plants may reflect the efficacy of those plants among the tribal population. Wild plant resource utilization by tribal communities in several districts in West Bengal, especially Birbhum and Purulia, further highlights the strong interdependence between tribal population and their natural habitat (**Bandopadhyay & Palit, 2024**). Ethnomedicinal practices are significant components of local traditions and customs. Ethnomedicines do not exist simply as medicines; they form part of the larger cultural system that includes customs, spirituality and communal practice. Social scientific studies conducted in Bankura district (**Mondal, 2023**) have highlighted how social norms and cultural values influence traditional healing methods. Sacred Groves represent another example of how sacred beliefs lead to conservation of medicinal plants (**Sarkar et al., 2023**). These studies clearly illustrate how cultural systems support maintenance of biodiversity and preservation of ethnomedicinal knowledge.

Documentation, Conservation, and Application of Indigenous Knowledge:

Documenting indigenous medicinal plant knowledge has increased in recent years; however, documentation remains inconsistent and regionalized. **Sahoo et al. (2024) and Samanta (2024)** have completed detailed surveys of plant species, including their uses, helping to preserve traditional knowledge. Utilizing quantitative methodologies, such as those employed by **Pradhan and Mondal (2023),** help create reliable records of knowledge use and richness.

Despite these attempts at documenting this information, issues continue to arise within the documentation process. A significant portion of this information exists orally or locally; thus, this type of knowledge is at risk of being lost due to modernization, migration and other lifestyle changes. **Paul et al. (2022)** research indicates that knowledge management occurs informally at the community level and typically is not recorded formally, limiting access to formal systems of recordation and/or recognition.

Both ecologic and cultural factors influence the conservation of medicinal plants. As illustrated by sacred groves located throughout Dakshin Dinajpur, natural conservation sites can exist due to traditional beliefs preserving biodiversity **(Sarkar et al., 2023**). Additionally, the reliance upon forest resources found in districts such as Jhargram and Paschim Medinipur illustrate the necessity of developing sustainable use practices to maintain long-term availability of plants. Unfortunately, increasing pressure on natural resource utilization, deforestation and environmental changes also present significant risks to these systems.

The relevance of indigenous medicinal knowledge application remains high, specifically as it relates to providing primary healthcare. Studies conducted in Jalpaiguri and Hooghly highlight the continued role of traditional medicine in supporting public health and hygiene within marginalized population groups (**Ghosal et al., 2024**). Ethnomedicinal practices remain a viable and cost-effective option for rural communities with limited access to modern healthcare services. Research from the Sundarbans illustrates how local communities adapt plant-based remedies to their unique environmental conditions (**Acharya et al., 2022**).

In general terms, documentation efforts are progressing; however, additional region wide documentation of traditional knowledge, as well as incorporating traditional knowledge into larger-scale conservation and healthcare initiatives are required.

Role of Traditional Healers and Community Members

Traditional healers and community members provide the foundation upon which ethnomedicinal knowledge continues and is practiced. Many traditional healers have been recognized by various cultures as "medicine men" due to their expertise with the identification, preparation, and application of ethnomedicines. Recent studies conducted by Pradhan and Mondal (2023) in Birbhum emphasize the significance of traditional healers as key knowledge holders of medicinal practices used by local communities.

While traditional healers are essential sources of knowledge regarding medicinal plants and their uses, they do not hold all of the ethnomedicinal knowledge that exists in a community. Ethnomedicinal knowledge is generally held collectively by community members and while many share similar levels of knowledge, the amount can vary greatly depending on gender. For example, research conducted by **Mondal et al. (2025)**, highlighted the active involvement of women in both

the use and preservation of medicinal plants. Specifically, it was shown that women were heavily involved in medicinal plant related health care activities at home. Thus, ethnomedicinal knowledge systems are socially constructed and involve multiple stakeholders within a community.

The social structure of knowledge sharing also exists at the community conservation level. Examples include the protection of sacred groves and sustainable harvests of medicinal plants through the actions of community groups working together to protect ecological integrity. Community based management models such as those observed in Purulia and Bankura districts demonstrate that there is an understanding that ethnomedicinal knowledge goes beyond treatment; responsible management of natural resource usage is necessary to preserve future access to medicinal resources.

Overall Discussion

This literature review demonstrates diversity, specific to contexts, and culturally situated knowledge by Indigenous Medicinal Plants (IMPs) in Tribal Communities of West Bengal. Variation in plant uses within ecologically different zones indicate an ability to adapt to the local environment; however, IMPs are also used to treat diseases effectively.

On the other hand, limitations were identified in this review including lack of documentation, loss of biodiversity, and barriers to transferring traditional knowledge. Although traditional practices provide health care for many in remote rural areas, these will only be sustainable if documented well, conserved appropriately and involve community participation. Ethnomedicine provides a powerful combination of cultural practice, ecological knowledge, and health care application and therefore deserves much greater consideration in both research and policy.

Conclusion

This literature review highlights the richness and significance of indigenous medicinal plant Tribal ethnobotanical knowledge in West Bengal and indicates that ecologically-based ethnopharmacological practices have developed over time as part of the cultural and ecological history of the region. These practices are therefore localized and diverse, providing a specific and unique system of medicine.

As such, tribal people employ a considerable number of plant species to treat many diseases — including common and specialized ones — and demonstrate an empirical familiarity with plants and other biological resources available locally.

Documentation has shown that this medicinal-plant-knowledge is not uniformly distributed; it can be influenced by the geography (plateau, forest, Himalayan, etc.) of the region where the tribe lives. Also, documented variations in medical-plant-use among tribes indicate that availability of plants due to geographic differences may influence how they are used. Documentation has also indicated that the role of traditional healers is important in maintaining the collective aspects of traditional

medical knowledge. In addition, involvement of all community members, especially women, supports documentation indicating that these knowledge systems are often maintained collectively.

Although there continues to be great potential for the utilization of indigenous medicinal knowledge for health care delivery at the community level, several challenges exist. These include limited documentation, loss of habitat due to environmental degradation and changes in culture which reduce the transmission of traditional knowledge. Although some documentation exists regarding the uses of plants and practices, overall, the literature base is fragmented and geographically dispersed.

Notwithstanding the challenges associated with the use of indigenous medicinal knowledge, ethnomedicine still provides an opportunity to support primary health care services — especially in rural or underserved areas — through provision of low-cost and accessible treatment options. As such, there are benefits to continue utilizing ethnomedical practices today.

In summary, indigenous medicinal-plant-knowledge provides a unique combination of ecological knowledge, cultural tradition, and application to health care needs. Therefore, there is a need for documentation of these practices, conservation of medicinal plants, and research from multiple disciplines to protect and sustainably use these resources for future generations.

Recommendations

To ensure that the knowledge of indigenous medicinal plants will continue to be sustainable in West Bengal, it is necessary for the documentation process to be community specific and more organized. Collaborative research with regional communities will enhance this effort. The conservation of medicinal plant species is a priority, especially those located in forest and sacred grove areas. It is essential to protect these ecosystems from further biodiversity decline. Community members including traditional healers and women must be involved as part of all efforts to preserve their knowledge. Interdisciplinary research that connects ethnobotany with ecology and public health will assist in validating the indigenous knowledge used by many people around the world. In addition, awareness programs have been successful in educating individuals about the importance of preserving and utilizing indigenous knowledge.

AUTHOR(S) CONTRIBUTION

The writers affirm that they have no connections to, or engagement with, any group or body that provides financial or non-financial assistance for the topics or resources covered in this manuscript.

CONFLICTS OF INTEREST

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

PLAGIARISM POLICY

All authors declare that any kind of violation of plagiarism, copyright and ethical matters will take care by all authors. Journal and editors are not liable for aforesaid matters.

Saswati Bandyopadhyay & Bishnupada Nanda *(2025).* ***Indigenous Medicinal Plant Knowledge among Tribal Communities of West Bengal: A Review.*** International Journal of Multidisciplinary Research & Reviews. 4(3). 264-274.

SOURCES OF FUNDING

The authors received no financial aid to support for the research.

REFERENCES

Acharya, C. K., Khan, N. S., & Madhu, N. R. (2022). Traditional phyto-therapeutic uses by tribal people in the western Sundarbans (Henry Island, Fredric Island and Bakkhali), West Bengal, India. *Journal of Plant Science Research, 38*(2), 513–523.

Bandopadhyay, S., & Palit, D. (2024). Wild plants used as cure to diseases by the people of tribal communities in Birbhum district, West Bengal, India. *Environment and Ecology, 42*(3A), 1277–1282.

Bhattacharjee, T., Baitalik, A., & Bera, B. (2025). Knowledge and uses of ethnomedicinal plants: A study on tribal communities of Joypur forest, West Bengal (India). *International Journal of Indian Culture and Business Management, 35*(2), 207–233.

Chatterjee, S., & Paul, S. (2023). Ethnomedicinal practices among the northern tribes of West Bengal. *Anthropological Research in India*, 185.

Dandapath, P. K. (2024). Herbal medicine, indigenous healing and community health: Ethnobotanical and geographical insights from tribal households in Duarsini, Purulia district, West Bengal, India.

Ghosal, P., Goswami, A., Pal, B., & Biswas, S. (2024). Role of traditional medicines in public health and hygiene of tribal and non-tribal communities in Jalpaiguri and Hooghly districts of West Bengal, India. *Indian Journal of Veterinary Public Health, 10*(1), 95.

Kandari, L. S., Bisht, V. K., Negi, T., Maikhuri, R. K., & Chettri, S. (2024). Ethnobotanical study among tribal communities of Kalimpong, West Bengal. *Journal of Herbs, Spices & Medicinal Plants, 30*(1), 39–52.

Mahato, R. K., & Mahato, G. (2023). Traditional use of medicinal plants against ENT diseases by the tribals of Purulia district, West Bengal, India. *Pharmacognosy Research, 15*(4).

Mahato, R. K., Mandal, A. K., Mallick, S. K., & Sinhababu, A. (2024). Investigation of medicinal plants used to treat malaria by the ethnic people of Purulia district, West Bengal, India. *Pharmacognosy Research, 16*(4).

Mitra, S., & Mukherjee, S. K. (2022). Observation on traditional treatment methods of furuncle and carbuncle by tribal people of North Bengal plains, West Bengal, India. *Plant Archives, 22*(2).

Mondal, M., Sau, A. K., Das, S., & Karmakar, P. (2025). Quantitative analysis and documentation of women's ethnomedical knowledge in western West Bengal, India. *Ethnobotany Research and Applications, 30*, 1–31.

Saswati Bandyopadhyay & Bishnupada Nanda *(2025).* ***Indigenous Medicinal Plant Knowledge among Tribal Communities of West Bengal: A Review.*** International Journal of Multidisciplinary Research & Reviews. 4(3). 264-274.

Mondal, S. (2023). Indigenous medical practices among tribes: A sociological study in Bankura district of West Bengal.

Paul, A., Pani, A., & Bhandary, A. (2022). Traditional knowledge of ethnomedicinal practices and its management: A case study of Khoyrasole block in Birbhum district, West Bengal, India. *International Journal of Indian Culture and Business Management, 27*(4), 510–533.

Pradhan, B., & Mondal, S. (2023). A quantitative ethnobotanical approach to assess knowledge richness on the use of plants among the Santal medicine men of Birbhum district, West Bengal, India. *Ethnobotany Research and Applications, 26*, 1–21.

Sahoo, K. P., Siddique, G., Roy, A., Ghosh, S., & Mandal, M. H. (2024). Ethnomedicinal knowledge and utilization of medicinal plant resources by the tribal people of Jhargram district, West Bengal, India. *Plant Biosystems, 158*(4), 668–687.

Samanta, S. K. (2024). Traditional uses of medicinal plants by ethnic peoples of Salboni block in Paschim Medinipur district, West Bengal, India. *Ecology, Environment & Conservation, 30*.

Sarkar, K., Roy, P., Panda, S., Choudhuri, C., & Chowdhury, M. (2023). Ethnomedicinal study on plant resources from sacred groves of Dakshin Dinajpur district, West Bengal, India. *Ethnobotany Research and Applications, 25*(32), 1–35.

Thapa, A., Mandal, S., Khanra, R., Dua, T. K., Paul, P., Nandi, G., & Sahu, R. (2025). Traditional medicinal plants used by the tribals of Darjeeling district, West Bengal, India. *Proceedings of the National Academy of Sciences, India Section B: Biological Sciences*, 1–12.