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Herbal healing traditions: A study of folk medicines used by traditional healers of Sonamukhi block, Bankura district, West Bengal, India

Aratrika Bhadra[1] & Manjunath BT[2*]

[1]Department of Life Sciences, Christ (Deemed to be University), Bengaluru 560029, India
[2]Department of Life Sciences, Christ (Deemed to be University), Bengaluru 560029, India

*Email: manjunath.bt@christuniversity.in

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Abstract

This ethnobotanical study aims to dive into the traditional medicinal practices used by tribals in Sonamukhi Block, Bankura district, West Bengal, India. Focusing on the use of medicinal herbs, the study carefully investigates the intergenerational wisdom kept by traditional healers, who play an important role in healthcare administration. Through conversations with traditional healers and patients, a thorough list of medicinal plants used to treat various diseases has been developed. The study demonstrates that traditional healers successfully use these medicinal plants to produce herbal medications, offering insights into the painstaking process of herbal medicine preparation that was explored in depth during the investigation. These findings highlight the significance of joint efforts to preserve indigenous knowledge and encourage the incorporation of traditional healing techniques into contemporary healthcare. The research study focused on the complicated junction of scientific methodologies and traditional beliefs, indicating the possibility for effective collaboration between scientific institutions and indigenous populations to improve healthcare practices. The studies' thorough examination of medicinal plant usage and herbal medication manufacturing emphasizes the importance of preserving, recording, and using this unique traditional knowledge for the benefit of world healthcare.

Keywords

ethnobotany; indigenous knowledge; medicinal plant; traditional healing; tribal

Introduction

Ethnomedicine, the study of indigenous peoples' traditional medical beliefs and practices, plays a crucial role in conserving, recording, and assessing the theories and methods of conventional medicine. Ethnomedicinal methodologies are widespread in rural and tribal communities throughout India. With varied customary sharing standards, much oral information is held by individuals, closed groups, or even shared simultaneously by communities in similar ecological systems (1). The classical medical books that date back over 3,000 years contain significant knowledge institutionalized in places like China and the Indian subcontinent. Health professionals' training in traditional and informal systems of medicine is vital in connecting knowledge about the characterization of biological resources with health-related knowledge to offer accessible healthcare in

local communities. Traditional medical practices are diverse and distinctive due to the interconnections between geography, communities, worldviews, biodiversity, and ecosystems, as well as the home-level understanding of nutrition, management of minor ailments, and reproductive health practices as well as the treatment of chronic severe illnesses and requirements for public health (2).

Traditional healers from tribes in India have played an essential role in conserving and passing on ethnomedicine expertise over the years. This information has been passed down from generation to generation and is being utilized today, particularly in rural places with limited access to modern medical facilities (3). This information has been passed down from generation to generation and is being utilized today, particularly in rural places with limited access to modern medical facilities. Over 100 million indigenous people in India rely on traditional medicine, and traditional healers are essential to the rural healthcare system (4).

These healers have a thorough awareness of medicinal plants, their qualities, and their applications, and they have established intricate procedures of diagnosis and treatment based on observations and experiences (5).

Numerous studies have been conducted to document the use of ethnomedicine by tribal communities in India, highlighting the importance of this field and the role of traditional healers in preserving this knowledge. It is crucial to recognize and appreciate the value of conventional medical practices and the expertise of indigenous populations, especially as modern medicine advances. Throughout history, various cultures have cultivated unique approaches to health and wellness (6). Ancient civilizations like Egypt have left behind evidence of their sophisticated medical practices. Medical papyri dating back to 1550 BC revealed detailed descriptions of medical conditions and treatments, including herbal remedies, bandages, and surgical procedures (7).

It is essential to balance modern medicine and traditional healing practices. Both have merits and can coexist harmoniously, offering individuals a comprehensive range of healthcare options (8). By acknowledging the rich heritage of conventional medicine and the wisdom of traditional healers, a more inclusive and holistic approach to healthcare can be created that benefits all. This study documents the Ethnomedicinal knowledge of tribal communities in Sonamukhi Block and surrounding areas of Bankura District, West Bengal, India. It focuses on two objectives: documenting and analyzing the traditional healing practices and folk medicines local healers use and identifying the most commonly used remedies. The goal is to preserve indigenous medical wisdom while gaining insights that could benefit modern healthcare.

Materials and Methods

Study Area

13 villages in West Bengal province's Bankura district were the sites of this study. Sonamukhi is the name of the district's Block that was researched. Geographically, it is located between 87°25′00′′ East Longitude and 23°18′00′′ North Latitude. QGIS software was used to create the map (Fig. 1) (9). Sonamukhi Block is part of the fertile, low-lying alluvial plains, similar to the predominant rice lands in West Bengal's neighboring districts. The eye is drawn to the vast expanses of rice fields, which are green during the rains but parched during the summer. It has one panchayat samiti, 10-gram panchayats, 120-gram sansads (village councils), and 161 inhabited villages. The Sonamukhi police station serves this block (10). The CD block's headquarters is Sonamukhi (10). Bankura district has 148,177 hectares of forest or 21.5% of its total geographical area.

According to the 2005 Rural Household Survey, BPL families made up 28.87% of the total number of families in the Bankura district. Cultivators (25.26%), Agricultural laborers (52.85%), Household industries (3.77%), and Other Workers (18.12%) make up the Sonamukhi CD block. In the Sonamukhi CD block in 2011, cultivators numbered 18,332 and made up 25.26% of total workers, agricultural laborers numbered 38,357 and made up 52.85%, household industry workers numbered 2,737 and made up 3.77%, and other workers numbered 13,155 and made up 18.12% (11) Total workers numbered 72,581 and made up 45.74% of the total population, while non-workers numbered 86,116 and made up 54.26% (as per the Census of 2011).

Sampling Technique

Sonamukhi Block, Bankura district served as the site of the study's fieldwork from June to August 2023. The researchers chose thirteen villages within the block using sampling procedures such as random selection and snowball sampling (12). The snowball approach was also used to choose the traditional healers. Ten traditional healers from various ethnic groups are taken into account for the study. The names of the villages and a list of traditional healers from each village are included in Table 1.

Methodology

This study's approach included conducting interviews and questionnaires with traditional healers in the Sonamukhi Block, Bankura District, West Bengal, India. The study's principal research methodologies were open-ended questionnaires and interviews with traditional healers from the aforementioned villages (Table 1). Participants were granted oral consent before the study after being told about the scope of the research. The research process followed the International Society of Ethnobiology's code of ethics. An open-ended questionnaire in Bengali, the native dialect, was created to elicit extensive responses. Separate items were added to the questionnaire for traditional healers and their patients. Questions for traditional healers included personal information, literacy level, occupation, experience, specialty health issues addressed, and knowledge acquisition. Patients' queries centered on personal information, treatment history with traditional healers, herbal drug prescriptions, health

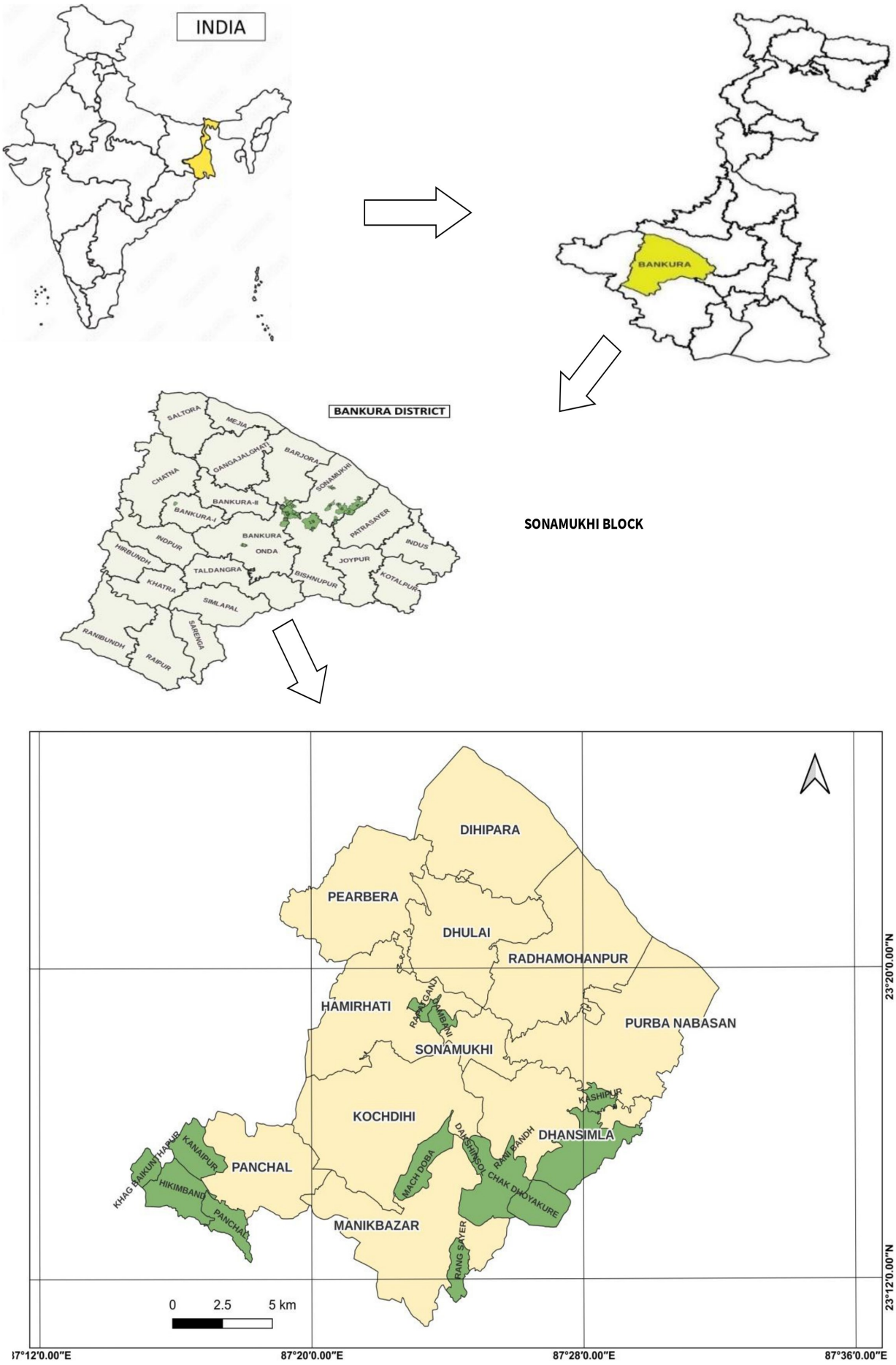

Fig. 1. Location of Study Area.

Table 1. Name of the 13 villages selected for the study using the snowball method.

Village	Gram Panchayat Name
Jambani	Hamirhati
Rapatganj	Hamirhati
Kashipur	Purba Nabasan
Dhan Simla	Dhansimla
Chak Dhoyakure	Dhansimla
Rani Bandh	Dhansimla
Dakshinsol	Manikbazar
Mach Doba	Manikbazar
Rang Sayer	Manikbazar
Kanaipur	Panchal
Hikimband	Panchal
Panchal	Panchal
Khag Baikunthapur	Panchal

improvement, side effects, satisfaction levels, and recommendations.

A data sheet was also created to record regional health customs. It contained sections for the name of the healer, the village or tribal community, the local health issue, a description of the issue, specifics of the remedy or procedure, directions for dosing and administering the herbal medications, and information about the herbal drugs themselves. Information about single or compound formulations, origin, plant origin, local/regional names, Bengali and English names, parts used, time of plant gathering, and storage conditions were all included in the details of the herbal remedies. The open-ended questionnaires and data sheets were designed to collect detailed information about traditional healers, their activities, and patients' experiences and perceptions. These study methodologies enabled a qualitative examination of the data collected, which could help to improve understanding of local health traditions and influence future studies and interventions.

Data Collection and Analysis

The current investigation involves interviewing traditional healers, each with their specific knowledge and patients. The use of herbal medications in ancient medicinal techniques was well-researched. To supplement the interviews, transect walks with the healers were conducted, during which the specific medicinal plants used to cure various diseases were discovered. This method aided in the identification and collection of medicinal plants of interest. Throughout the interviews and hikes, thorough records containing vital facts such as local names, growth forms, and specific plant parts used in herbal medicinal formulation were kept. Microsoft spreadsheet software was used to simplify the organization and analysis of this large dataset. The findings of this study add significantly to the existing body of knowledge on traditional healing techniques, while also setting the groundwork for future academic inquiries into this fascinating and dynamic topic.

Taxonomic Identification

Plant specimens were collected, dried, and stored on sheets of paper, together with information about the plant's qualities and location (Table 2). To ensure the legitimacy of the collected plants, the herbaria sets were authenticated by TDU (University of Trans-Disciplinary Health Sciences and Technology) in Bangalore, Karnataka, India, which also furnished an identification and verification letter, that can be used as a reference for future plant identification and authentication (13). Overall, the study adds to the current body of knowledge on traditional healing techniques and lays the groundwork for future academic research in this area. The study of traditional healing methods requires proper identification and authentication of medicinal plants, and the research approach provides a framework for future studies in this area.

Results and Discussion

Traditional healers and patients at traditional healing facilities served as research units for the quantitative component of this study. Ten traditional healers and a few patients were interviewed to learn more about the usage of herbal medications in traditional healing procedures. In light of the preceding discoveries, this part will explore the outcomes of medicinal plant identification and documentation and their cultural significance. The study aims to shed information on the region's traditional healing methods and investigate medicinal plants' potential in addressing health issues. Valuable insights into the use of herbal remedies and their efficiency in

Table 2. Collected Plants and Their Therapeutic Correlations

Diseases / Ailments	Plants Used
Blood Sugar	*Gymnema sylvestre* (Retz.) R.Br. ex Sm.
Dysentery	*Tinospora sinensis (Lour.) Merr*
Ringworm, Skin Disease, Wound Healing	*Croton bonplandianus Baill.*
Snake Bite	*Aristolochia indica L* *Rauvolfia serpentina (L.) Benth. ex Kurz*
Gastric ulcers	*Kalanchoe pinnata (Lam.) Pers.*
Wounds (Burns)	*Centella asiatica (L.) Urb.*
Arthritis	*Litsea glutinosa (Lour.) C.B.Rob.*
Jaundice	*Andrographis paniculata (Burm.f.) Wall. ex Nees* *Cajanus cajan (L.) Huth*
Gastritis	*Asparagus racemosus Willd* *Typhonium trilobatum (L.) Schot*
Dysentery, Piles **Inflammation, pain** **Toothache** **Albuminuria**	*Mimosa pudica L* *Lygodium flexuosum (L.) Sw* *Vitex negundo L.* *Abroma augustum (L.) L.f.*
Urinary Tract Infections	*Hemidesmus indicus (L.) R.Br.* *Costus speciosus (J. Koenig) Sm.*
Bone Fracture **Childhood Asthma** **Diarrhoea**	*Ipomoea obscura (L.) Ker Gawl* *Piper longum L* *Flacourtia indica (Burm.f.)Merr*

treating various disorders were gathered by interviewing traditional healers and patients.

A 62-year-old man from Kanaipur Village, Sonamukhi Block, with a higher secondary education, works full-time in traditional healing after an 18-year medical career specializing in gastritis treatment. Services are provided altruistically and without charge to those who are proficient in conventional wisdom gleaned from familial sources. Because no imminent replacement has been identified, the practitioner concentrates on treating gastritis, a disorder characterized by stomach irritation and discomfort caused by digestive system abnormalities. Dietary abnormalities, excessive oil intake, emotional stress, and environmental variables are all blamed for the condition (14). The examination of the patient's tongue coating, pulse characteristics, and claims of stomach discomfort are all part of the diagnostic process. Shatavari (*Asparagus racemosus*) roots are collected, refined, and prepared into a paste, then dried and shaped into tablets for oral ingestion with water. Dosage and treatment length are determined by the patient's improvement.

The traditional healer from Dakshinsol Village in the Sonamukhi Block has around 9 years of expertise, specializing in snake bite treatment and anti-snake treatments. The healer's grandpa passed down ancient healing skills spanning three generations. A price of 100 rupees was paid for each patient who had finished Matric (Secondary School) examinations for literacy while practicing full-time traditional healing. The healer's son and daughter are the direct heirs to the healing lineage. Snakebite, which has been recognized as a common health risk in the region, entails assessing the injured body part and evaluating localized signs such as pain, swelling, redness, puncture wounds, and fang marks (15). Instincts and knowledge of snake behavior are used to distinguish between venomous and non-venomous bites. The herbal remedies, which included *Aristolochia indica* and *Rauvolfia serpentina*, were created and delivered based on the patient's condition and development, with the prospect of additional treatments (16). A 34-year-old male patient acknowledged receiving treatment from traditional healers and being prescribed herbal remedies after being bitten by a snake. For three days, the patient has attentively followed the herbal regimen, reporting significant gains in health and the absence of unpleasant effects. The patient is likely to advocate herbal remedies to others since he believes in their efficacy. In addition, the patient was given a therapeutic paste to apply to his left leg, which aided in his recuperation, albeit some residual stiffness in the afflicted limb remained.

Part-time traditional healer and a priest with 12 years of expertise, residing in Dhan Shimla Village inside Sonamukhi Block, specialized in the treatment of renal illnesses, notably albuminuria. It is a medical condition defined by excessive amounts of albumin in the urine, which indicates potential kidney damage (17). Services were supplied gratuitously and without fee. Traditional knowledge was used to treat albuminuria utilizing ulotkombol (local name) with an upper secondary education and a strong dedication to spiritual ideas. The herbal cure, made from the leaves of *Abroma augustum*, was meticulously collected, washed, dried, and occasionally boiled before being delivered as an oral paste—one tablespoon per day for a month—with the treatment period customized to the patient's development. There was no direct successor designated to carry on the healing tradition.

The part-time traditional healer from Khag Baikunthapur Village in Sonamukhi Block specializes in the treatment of jaundice and has around 5-6 years of expertise. The services were provided at Rs 60 per patient. The healer's father-in-law taught her traditional procedures for curing jaundice, a disorder marked by yellowing of the skin and eyes that predominantly affects the liver (18). The traditional treatment was making a medicinal concoction from arhar (*Cajanus cajan*) leaves and sugarcane juice. Arhar leaves were collected, washed, and ground into a paste, which when mixed with sugarcane juice yielded a medicinal drink that was taken orally twice a day. The therapy lasted four weeks, with regular check-ups in between. A 13-year-old patient reported receiving treatment from traditional healers and being prescribed herbal medications, expressing belief in the efficacy of the herbal drugs and satisfaction with the results of traditional healers' herbal medication treatment for jaundice.

The full-time traditional healer from Rapat Ganj Village in Sonamukhi Block, with 9-10 years of experience, specializes in healing bone fractures in the hands, legs, and ribs. The practitioner's bone fracture specialism is based on traditional knowledge from the healer's grandpa. Services are provided for 50 rupees for each patient, with two sons appointed to carry on the healing legacy. Motivated by talent and enthusiasm, the healer plays an important role in community well-being by providing essential healing services. *Ipomoea obscura* (Harjora), a medicinal plant generated from leaves with a short shelf life, is used to make a therapeutic drink from Ipomoea leaves, which is given externally to the fracture location. These traditional healers function as educators, emphasizing the significance of a well-balanced diet throughout.

A healer from Jambani Village in the Sonamukhi Block changed to full-time traditional healing after completing upper secondary school and previously working as a compounder at a doctor's clinic. His traditional expertise, specializing in bone fracture treatment, notably in the hands, legs, and ribs, was passed down to his son, who was selected as the direct successor, providing vital healthcare services to the community at a cost ranging between 150 and 200 for each patient. He a medicinal drink prepared from processed *Moringa tinctoria* (drumstick) leaves that addresses the health of the cardiovascular system for blood pressure. The green tea, made from dried leaves that have been ground into powder, is consumed with warm water, one teaspoon every day before breakfast, to ensure a long treatment period. Another patient who has been using herbal

remedies recommended by traditional healers for the past five to six years, with no adverse effects, has noticed significant improvements in health and is very satisfied with the results of the herbal drug treatment provided by traditional healers.

Another traditional healer in Rang Sayer Village, Sonamukhi Block, has been practicing traditional healing for 16 years, focusing on the treatment of blood sugar issues and charging 20 rupees for each patient. The great-grandfather's acquired traditional wisdom was passed down to the son, who was chosen as the immediate heir. Despite having just a seventh-grade education, she was committed to providing full-time healthcare, with blood sugar levels (19) measured based on symptoms and medication provided using Gurmar (*Gymnema sylvestre*) leaves crushed into a powder and taken twice a day orally. Dietary suggestions and intermittent fasting were part of the patient's regimen. The patient was treated by traditional healers and given herbal medications, and he experienced significant health improvements with no side effects. The patient explicitly mentioned reduced sugar levels without adverse effects from the daily dosage.

A traditional healer in Panchal Village has spent the past 12 years in full-time traditional healing, specializing in health conditions such as chronic diarrhea, dysentery, and neonates vomiting or spitting up (20). With a Higher Secondary education, the practitioner developed healing abilities through heavenly instructions received in dreams. Offering remedies for a price of Rupees 100, the healer, who is now without an immediate successor, is critical to the survival of this ancient healing dynasty. The diagnostic procedure entails detecting particular symptoms for each ailment and using *Tinospora sinensis* (Poran) roots in herbal therapy, which are precisely produced in paste form. The individualized therapy focuses on a single herbal formulation appropriate for adults and children and detailed information on origin, manufacture, and storage conditions.

Subsequently, a part-time traditional healer from Rani Bandh Village, Sonamukhi Block, with 15 years of expertise treating ailments such as cough cold, and fever, learned traditional healing abilities from family heritage. Despite having completed the eighth grade, the primary employment was farming. The late father passed along traditional wisdom, which was perfected under the tutelage of the uncle. For each patient, services were offered for Rs 50, with the son serving as the immediate successor. Red Vasaka (*Adhathoda vasica*) leaves, harvested between June and October and locally known as "Vasak" were used in traditional medicine to cure "Khasi-Khoka," a respiratory disease, with meticulous leaf preparation and preservation stressed for maximum outcomes (21).

Finally, the 48-year-old patient experienced noticeable health improvements without adverse effects after five days of herbal remedy use, expressing high satisfaction and recommending herbal medications based on personal experience, particularly emphasizing the lack of side effects in the juice's application, following the recommended dosage and administration instructions. (Tables 2 and 3 provide thorough information on the relationship between certain plant species and their medicinal uses for various diseases as described by traditional healers. The distribution of medicinal plant families in and around Sonamukhi Block was depicted in Figure 2, which also explains how common each family appeared in traditional medicine used by local healers to treat various illnesses. These tables and figure summarize the essential knowledge offered by traditional practitioners, highlighting the specific plants recognized for managing certain health issues in the community).

Conclusion

Fig. 2. Plant frequency per family for diverse ailments as advised by healers

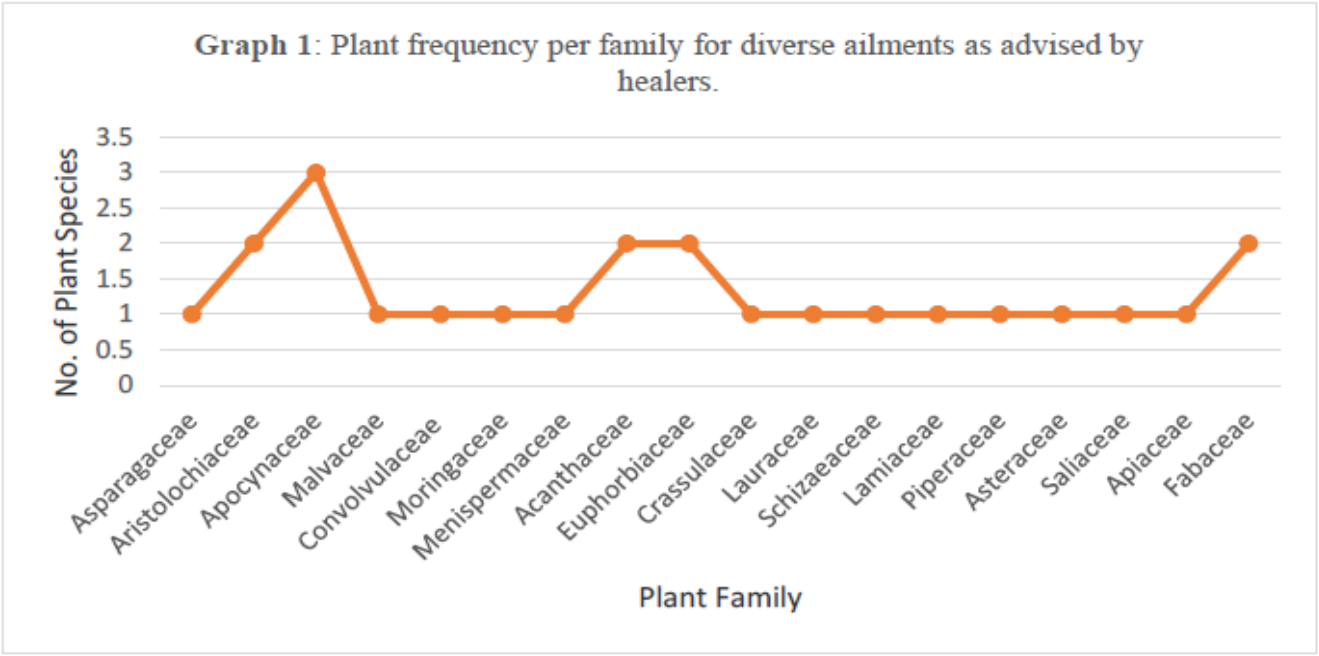

Table 3. Medicinal Plants Profile - Including Authentication No., Local Name, Scientific Name, Family Name, Habit, Plant Parts Used, and Ailment Treated.

Sl No	Authentication No.	Vernacular Name	Botanical Name	Family	Habit	Parts Used	Ailment
1.	**127107**	Gurmar	*Gymnema sylvestre (Retz.) R.Br. ex Sm.*	Apocynaceae	Climber	Leaves	Blood Sugar
2.	**127108**	Poran, Malabar Gulbel	*Tinospora sinensis (Lour.) Mer.*	Menispermaceae	Climber	Stems	Dysentery
3.	**127109**	Jhinjhini	*Croton bonplandianus Baill.*	Euphorbiaceae	Undershrub	Leaves	Ringworms, Skin Disease, Wound Healing
4.	**127110**	Ishwarmul	*Aristolochia indica L.*	Aristolochiaceae	Climber	Roots/ Entire plant	Snake Bite
5.	**127111**	Pathorkuchi	*Kalanchoe pinnata (Lam.) Pers.*	Crassulaceae	Herb	Leaves	Gastric-ulcers
6.	**127112**	Thankuni	*Centella asiatica (L.) Urb.*	Apiaceae	Herb	Leaves	Wounds (Burns)
7.	**127113**	Kukurchita	*Litsea glutinosa (Lour.) C.B.Rob.*	Lauraceae	Tree	Leaves and Roots	Abdominal pain, arthritis
8.	**127114**	Kalmeg	*Andrographis paniculata (Burm.f.) Wall. ex Nees*	Acanthaceae	Herb	Leaves	Fever due to infective cause, jaundice
9.	**127115**	Arhar, Pigeon Pea	*Cajanus cajan (L.) Huth*	Fabaceae	Undershrub	Fruit	Smallpox
10.	**127116**	Shatamuli	*Asparagus racemosus Willd.*	Asparagaceae	Climber	Roots	Gastritis
11.	**127118**	Dheki shak	*Lygodium flexuosum (L.) Sw.*	Schizaeaceae	Climber	Leaves	Pain, inflammation
12.	**127120**	Boyan	*Vitex negundo L.*	Lamiaceae	Small tree	Leaves	Eye disease, skin ulcers, toothache
13.	**127121**	Chandra	*Rauvolfia serpentina (L.) Benth. ex Kurz*	Apocynaceae	Herb	Leaves, Flowers	Snake Bite
14.	**127123**	Olotkombol	*Abroma augustum (L.) L.f.*	Malvaceae	Shrub	Leaves	Albuminuria
15.	**127124**	Bonomali	*Hemidesmus indicus (L.) R.Br.*	Apocynaceae	Climber	Roots	Skin and urinary tract infections
16.	**127131**	Chhagalkuri	*Ipomoea obscura (L.) Ker Gawl*	Convulvulaceae	Climber	Leaves, Stems	Bone Fractures
17.	**127126**	Amarsankha	*Typhonium trilobatum (L.) Schott*	Araceae	Herb	Leaves, Roots	Gastrointestinal disorder
18.	**127127**	Pipplamul, Pippal	*Piper longum L.*	Piperaceae	Climber	Dried Spikes, Roots	Childhood asthma
19.	**127129**	Kukshim	*Cyanthillium cinereum (L.) H.Rob*	Asteraceae	Herb	Stem/bark flowers	Wound healing, Rheumatism
20.	**127130**	Ramontchi	*Flacourtia indica (Burm.f.) Merr*	Saliaceae	Shrub	Bark, leaves, roots	Fever, Diarrhoea
21.	**127131**	Ketaki	*Costus speciosus (J. Koenig) Sm.*	Costaceae	Herb	Rhizome	Urinary diseases, rheumatism

This ethnobotanical investigation in the Sonamukhi Block in the Bankura district of West Bengal, India, reveals the vast reservoir of traditional knowledge and practices embedded in tribes' use of medicinal plants. The comprehensive record included 34 plant species from 30 families, with a strain on Apocynaceae and Aristolochiaceae. These plant families play an essential part in the development of herbal treatments, serving as a cornerstone for the local population's well-being and subsistence. However, perceptible variations in conventional wisdom, particularly among the younger generation, highlight the critical need for collaborative efforts in knowledge preservation and intergenerational transmission. This study emphasizes the need to integrate indigenous knowledge with rigorous scientific investigation to optimize the strategic selection and use of medicinal flora. Research collaborations between indigenous groups and scientific institutions have enormous promise in unlocking the full advantages of these botanical resources, benefiting both tribal populations and considerably contributing to the vast domains of ethno-medical research.

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Authors' contributions

AB formed the questionnaires and carried out interviews of different traditional healers, completed plant collection and herbarium making, and authentication of medicinal plants. She also drafted the manuscript. MBT helped to identify the medicinal plants and did a thorough checking of each questionnaire provided to healers and patients. He also arranged ethics approval forms before interviews. All authors read and approved the final manuscript.

Compliance with ethical standards

Conflict of interest: The author(s) declare that there is no conflict of interest.

Ethical issues: The interviewees were apprised of the study's aims and the future release of the material obtained, and they were promised that the names of the informants would be kept confidential.

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