

# Studies in Ethnobotany Focus on Traditional Plant Applications and Indigenous Wisdom

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**Abstract**— Ethnobotany is a subfield of botany that studies the relationships between traditional societies and the plants in their environments. In its widest sense, ethnobotany is the study of how plants have shaped the worldviews and historical narratives of indigenous peoples, as well as how these people evaluate the efficacy of modern scientific knowledge. Ethnobotanical research may provide light on the complex relationships between plants and indigenous peoples, both in the past and the present. While modern society may look down on our ancestors as primitive and barbaric, they really helped us advance by teaching us how to utilize plants for food, medicine, chemicals, colors, wood products, textiles, and so on. As this study progressed, it became abundantly evident that the vast body of past studies on rural and tribal medicines in North Eastern India had just scratched the surface. There is still plenty to do and write down before it's all gone forever. Interviews and on-location observations were used extensively in this study's investigation. The information on medicinal plants and interview notes were written down in field notebooks. Traditional plant knowledge and the usage of curative wild herbs by the Marakwet people were the focus of a study. As a result of interviews with traditional healers and community people, a list of the plants' traditional names was developed. As much as sixty percent of plant names are same, it is clear that traditional names for medicinal plants are vanishing. Nearly all locals (94.8 percent) knew which traditional medicinal herbs were best for treating stomach problems, followed by diarrhea (70.7 percent), chest discomfort (65.5 percent), and typhoid (63.3 percent). Locals have a low knowledge index (23.6%) of curative plants, according to traditional healers.

**Keyword**— Ethnobotany, traditional healers, observations, indigenous, medicinal plants

## I. INTRODUCTION

Both the diversity and the origin of medicinal plants may be traced back to India. There are just twelve nations like it in the world. The term "ethnobotany" comes from the Greek words for "people" and "plants," respectively. It is possible to interpret the term "ethnobotany" as either "the study of people and herbs" or "the study of people and plants (trees, shrubs, and herbs)" from the Greek "ethnos" and "botane," respectively. The term was coined in 1895 by American botanist and taxonomist John W.

Harshberger. Ethnobotany is the study of the culturally significant relationship between humans and the plants that grow in their environs. India is a fantastic place to study ethnobotany because of its rich biodiversity. Huge swathes of society and many different cultural groups continue to depend significantly on bio-resources.

ethnobotany is "the study of how people and plants interact from a scientific perspective." The name "ethnobotany" was not used until 1896, although the study of plants utilized by humans goes back

considerably further in time. Ethnobotany is a powerful lens through which to examine the interplay between biological variety and human social and cultural practices. Any plant that has been shown to have beneficial pharmacological effects on the body, whether of humans or animals, is considered a "medicinal plant." According to the World Health Organization (WHO), eighty percent of people in developing nations depend on indigenous medicinal herbs for their basic healthcare requirements because of inadequate or absence of modern healthcare facilities. Out of the world's total of 422,000 flowering plants, almost half a million have been used in medicinal applications. Over twenty-five percent of all medications are derived from plants. About 11% of all pharmaceuticals come from plants with medicinal properties, although only 252 of them are considered essential by the World Health Organization (WHO).

People use medicinal plants for health purposes in accordance with cultural traditions and indigenous knowledge. Medicinal plants are an essential component of primary healthcare in underdeveloped, rural, and economically unstable regions of the world. Plants native to the Himalayas and its environs are often used in ethno-medicines that draw on the wisdom of the ages. Therefore, indigenous peoples have relied on oral transmission of information about medicinal plants from one generation to the next. This oral discourse aids indigenous people in transmitting information about medicinal plants from one generation to the next, but it also undergoes modification as it travels from one person to the next. In order to offer a descriptive account of plants that have the potential to be utilized as a source of medicines to cure sickness, ethnobotanical surveys gather and document the knowledge of local people and specialists on medicinal plants.

Ethnobotany is generally recognized as a multidisciplinary field of study that seeks to increase our understanding of plants. Medicinal plants are a viable option for local healthcare and disease prevention due to their efficacy and low cost. In recent years, there has been a resurgence of interest in traditional ethnomedicinal research due to the extensive local acceptance of these practices and the clues they may provide for new or poorly recognized medicinal plants. India is just one of several nations that is gradually losing its centuries-old knowledge of

how to use plants to treat medical conditions. The term "ethnobotany" is used to describe the scholarly investigation and documentation of indigenous peoples' knowledge of plants. Ethnomedicine is a subfield of anthropology that studies the beliefs and practices of different societies in relation to illness and health. It's a kind of treatment that has been successful in certain places while being relatively unknown elsewhere. True custodians of the world's natural healing traditions and monetary resources are the world's indigenous peoples.

## II. LITERATURE REVIEW

**Sarkar et al (2015)** talks about how the availability of food influences people's health. According to Sarkar, traditional Indian food that has been cooked and stored may be considered functional food since it includes dietary fiber, antioxidants, and body healing chemical components. Ayurveda teaches that the source of all life is the nourishment that allows it to grow, flourish, and maintain its natural state of equilibrium.

**Poddar et al. (2020)**, Researchers in India analyzed the therapeutic properties of 100 different plants found throughout the country. Mwine and Damme (2011) examined the phytochemistry and medicinal properties of plants in the Euphorbiaceae family. Kasrina and Zukmadini's 2021 research sheds light on the euphorbiaceous medicinal plants used by locals in the Bengkulu region of Indonesia.

**Islam et al. (2019)**, There are six members of the Euphorbiaceae family that have been shown to have medicinal qualities. After performing an extensive ethnomedicinal study, Hu et al. (2020) found that the Malum people of Guangxi, China, employ the medicinal properties of 456 plant species from 350 genera and 132 families to cure 312 human diseases. There are 54% herbaceous plants, 17% shrubs, 16% lianas, and 13% trees. In 2017, Zahidin et al. highlighted the usage of the euphorbiaceous plant *Acalypha indica* for traditional medicine and alternative remedies among the indigenous people of Malaysia.

**Zahidina, et al., (2017)** found that *acalypha indica* was utilized as an antidote for snake venom and to calm skin irritation. People in India use branches from the *Baccaurea sapinda* tree to wash their teeth and relieve

dental discomfort (Upasania et al., 2017). A powder extracted from the fruit of the Terminalia species is used to treat asthma, cardiac disorders, and gastrointestinal difficulties. Herbs used to mitigate the effects of venom are often taken orally (just after a bite from a deadly snake).

**Seethapathy et al., (2018);** According to the Natural Resources Conservation Service of the United States Department of Agriculture, the family Meliaceae (Mahogany) consists of 702 species in 53 genera of dicotyledonous trees and shrubs. The family includes economically important plants: *Aglaia roxburghiana*, *Swietenia*, *Cadrela*, *Khaya*, *Entandrophragma*, *Azadirachta indica*, *Aphanamixis polystachya*, *Cipadessa bassifera*, *Carapa procera*, *Lansium domesticum*, *Sandoricum koetjape*, *Swietenia mahagoni*, *Melia azadirachta*, *Leplea*, *Toona calcicola*, *Toona serrata*, *Toona hexandra*, *Toona sinensis* and *Munronia pinnata*. These plants have been used to create a wide variety of products, including medicine, food, cosmetics, and building materials.

### III. MATERIAL AND METHODS

As part of the present study, researchers have been traveling extensively throughout the five talukas that make up the Vijayapur district. Extensive fieldwork was done in the Vijayapur area between February 2014 and June 2016 to collect seasonal plant specimens and ethnobotanical data. The total distance traveled by researchers on field trips to contact traditional practitioners and beneficiaries in the Vijayapur region exceeds 10,000 kilometers. Photographs of medicinal plant species and community meetings are used to record interactions between researchers and traditional healers and study participants. Traditional doctors and researchers observe as interviews with recipients are videotaped.

#### Collection of Plant Specimen:

Medicinal plant species and plant parts are collected from all around the Vijayapur region. Flowers or fruits, or sometimes both, are included in plant collections. There are no herbaceous plants left. Parts of the plant that grow underground are gathered, while limbs bearing flowers and fruit are picked.

#### Data Sheet:

A questionnaire (Data sheet) is currently being created

to collect information from traditional practitioners. A data sheet and a field research notebook are used to keep track of conversations and observations. Name, age, employment, visit date, knowledge (acquired/ethnic), locality, vernacular names of plants, botanical name, family, habit, dose, etc. are all included on the data sheet for the traditional practitioner.

#### Preparation Of Herbarium:

After collection, the samples are either field-pressed on the spot or kept in gunny bags or thick grade polythene of varied sizes. Leaves, branches, and other non-essential elements are removed during this process. A plant press is used to provide uniform pressure to stacks of pressing sheets containing specimens. The plants were dried in the usual way. We change the sheets every day till they are dry. The succulent plants were sprayed with an alcoholic formalin solution of 4% or splashed with hot water to kill the fungus. Until they can be mounted and labeled, plant specimens are kept in newspaper folds after being tagged.

Standard herbarium sheets measuring 11 1/2 by 16 1/2 inches (28 by 42 centimeters) were used to mount the pressed plant specimens. Glue sticks or hot-melt adhesive (HMA) were used to secure the samples to the backing. To provide a firm hold, the specimens were stitched to their mounts from behind in key locations. Fruits, seeds, and other unattached plant parts were secured in a paper packet and mounted. Herbarium specimens that have been mounted will have a label affixed to the sheet's lower right corner. Habit, Family, Genus, Species, Local Name, Collecting Location, Morphological Characteristics, Date Collected, and Collector's Name are all recorded for each specimen. Plant remnants such as seeds, fruits, roots, and leaves gathered and withered.

#### Identification Of Medicinal Plants:

Specimens of plants are often identified in the field using flora such as "Flora of Gulbarga District" (Seetharam et al., 2000) or "The Flora of the Presidency of Madras" (Gamble, 1984), before being brought back to the lab for a final confirmation. The flora of Bombay under the British Raj is described in Cooke's "The Flora of the Presidency of Bombay" (1903). While identification to the species level is not feasible, certain plant specimens are verified by experts and compared

to those preserved at the Department of Postgraduate Studies and Research in Botany at Gulbarga University, Kalaburgi.

The morphological features of a plant are what are used for identification. These features include the plant's habit, habitat, stem, leaves, flowers, inflorescence, calyx, corolla, stamens, anthers, carpels, ovary, ovules, fruit, seed, and cotyledons.

#### Enumeration Of Ethnomedicinal Plants:

This list of Kannada names for plants of ethnobotanical significance begins with their ICBN names, continues with their synonyms (if any), then groups them into families. This brief account of the plant's phenology (the study of when and how it flowers and bears fruit) emphasizes its distinctive characteristics. There have been three further meetings of the Angiosperm Phylogeny Group after the inaugural one in 1998: in 2003 and 2009. These results are used in subsequent studies (Research areas) on therapeutic uses and comparisons to other published works.

Included are the new family name (in brackets), the right scientific name of the species, a synonym, and the corrected author citation. After the survey is finished, the doctors get together to discuss the symptoms and diseases, as well as the correct English titles for a particular ailment or condition, and then they create a report. One such condition is leucorrhea, characterized by a white vaginal discharge.

**Plant description** - Shrubs; leaves up to 7 x 5 cm, cordate, ovate, acuminate, toothed; petiole 2-8 cm; stipules 2 cm long, linear, sharp. Flowers are axillary, single, on a 2.5-5cm pedicel; sepals are 1-2cm long, oblong, and apiculate; petals are yellow; the staminal column is hairy at its base; the ovary has 15-20 hairy seeds; and the seeds are kidney-shaped and brown-black.

**Fl and Fr** - August to October

**Voucher No** - HGUG-5014

Table 1: Part Used for Specific Ailments

Part used	Preparation, dosage and administration	Ailment	Traditional practitioners No
Leaves	A handful of leaves are ground and administered to take orally early in the morning.	Piles	TP174
Leaves	Leaves +Cumin seeds +Garlic +Pepper are ground with edible oil, made into small tablets and administered to take 7 tablet for 7 days before meal.	Bone fracture	TP196
Leaves	Leaves+7 Red Sorghum seeds are ground and made into tablets and administered to take a tablet once in a day for 7 days	Leucorrhoea	TP200
Leaves	50 gm of leaves+50 gm of <i>Achyranthes aspera</i> leaves +10 gm of garlic are ground, made into tablets and administered to take 1 tablet, once in a day for 8-10 days	Bone fracture	TP188,TP148

A literature review revealed that the bark is used to treat urinary tract infections and the roots are used to alleviate uterine bleeding after childbirth. Traditional treatment for rectal fistula includes chewing fresh leaves with cardamom seeds (Singh, 2000). Leaves used for piles, ulcers, and diarrhea; roots used for chronic fever and cough (Alagesboopathi, 2000). The tribal tribes of Maharashtra use the leaves as a diabetic treatment. A decoction is used as a mouthwash in Bihar for dental ache and sore gums, while the powdered root is used to treat epilepsy (Parrota, 2001). Crushed leaves mixed with castor oil are used as a treatment for piles (Rosakutty, 2003), and the infusion of the leaves is used as a laxative. Kidney stones and urinary tract infections (UTIs) may both be treated with leaf juice (Prachi et al., 2008). (Madhu & Suvatha, 2009) Suggested use: 2 teaspoons of a decoction of stem bark with honey daily for 20 days. The result will be a diuretic rush. Three grams of freshly ground leaves yields two tablets. Take one tablet in the morning and another before night. Kidney stones may be eliminated after a week of this therapy. Avoiding foods including tomatoes, peppers, and brinjals is recommended during treatment (Ghatapanadi et al., 2010). According to Nandagopalan et al. (2014), it is useful in reducing fever. Lambadis use a combination of root bark paste (two to three tablespoons) and a cup of water (one ounce) once day for five days to cure convulsions (Sangameshwar and Vatsavaya Raju, 2015). The bark has anti-inflammatory and astringent



properties, and the entire plant is used as an anthelmintic (Prashanth Kumar and Shiddamallayya, 2016). The results of this study support the use of leaves in the treatment of bone fractures and piles.

**Botanical name** - *Acacia ferruginea* DC.

**Family** - Fabaceae (Mimosaceae)

**Vernacular name** - Banni gida

**Plant description** - Deciduous tree, leaves 8cm long, corolla white, pods strapshaped, flat.

**Fl and Fr** - September to January

**Voucher No** - HGUG-5015

Table 2: Medicinal Use of *Acacia ferruginea* DC

Plant parts used	Preparation, dosage and administration	Ailment	Traditional practitioners No
Leaves	Leaves+ cumin+ Fresh zinger are ground. 2 spoonful of Juice is administered to take orally	Acidity	TP143
Leaves	Fist of leaves ground and administered to drink with curd in empty stomach for 7 days	Leucorrhoea	TP47

Literature review suggests that in Ayurveda, bark and fruits are used to treat vertigo, diarrhea, dysentery, piles, worm infestation, bleeding, coughing, dyspnea, and skin problems. Diarrhea, dysentery, piles, worm infestation, bleeding, and cough may all be treated with the bark and fruits (Prashanth Kumar, Shiddamallayya, 2016). This research indicates that leaves are utilized to alleviate acidity and leucorrhea.

**Botanical name** - *Acacia nilotica* (L.)Delile

**Family** - Fabaceae (Mimosaceae)

**Vernacular name** - Kari jali

**Plant description** - Wide-spreading crown evergreen tree The leaves are compound and bipinnate, with 10-25 pairs of leaflets with stipular spines. length of the leaves in centimeters is 8. Sessile, golden yellow flowers; greenish-black, longitudinally fissured stem bark. Fruit Pods with Clear Stems lomentum.

**Fl and Fr** - September to December

**Voucher No** - HGUG-5018

Table 3: Plant part used

Plant parts used	Preparation, dosage and administration	Ailment	Traditional practitioners No
Stem bark	Decoction of stem bark is administered to drink twice a day for 7 days	Cough and cold	TP145

According to a literature review, it has the following properties: astringent; acrid; cooling; stypic; aphrodisiac; vulnerary; anthelmintic; constipating; depurative; diuretic; alexeteric; nourishing; and so on. Koyas and Konda redds apply a mixture of crushed bark and pepper as a treatment for viper bite (Sangameshwar and Vatsavaya, 2015). Decoction made from the bark is used to treat urogenital and dental conditions (Prashanth Kumar & Shiddamallayya, 2016). This study found that stem bark is often used to treat cold and flu symptoms.

#### IV. CONCLUSION

The following inferences are made based on the analysis, interpretation, and discussion of the findings, Herpes can be cured with *Cymbopogon coloratus* and *Phyllanthus maderaspatensis*; snake bites can be treated with *Pentatropis capensis* and *Ruellia humilis*; and toothaches can be relieved with *Euphorbia dracunculoides* and *Pennisetum hohenackeri*. This is the first record of use of these plants in traditional medicine. Many popular medicinal plants, including those in the Fabaceae family, are relied on greatly by traditional healers in this area. Many traditional herbal medicines rely on leaves or other plant parts. According to the findings, some local Hakeems have been practicing complementary medicine for decades. Interviews with recipients demonstrated the efficacy of traditional medicine and practitioners. The full moon, the new moon, and the four days immediately around them (Thursday, Sunday, full moon, and new moon) all play an important role in the collecting, praying, and healing rituals associated with medicinal plants. Vijayapur's rural areas are rich in medicinal plants. Diseases may respond well to the targeted application of traditional practitioners and people. The therapeutic significance of this study lies in its demonstration of the efficacy of locally sourced medicinal plant resources and traditional practitioners

in improving population health.

### REFERENCES

- [1] Sarkar, P., Kumar, L.D.H., Dhupal, C., Panigrahi, S.S. and Choudhary, R. 2015. Traditional and Ayurvedic foods of Indian origin. *Journal of ethnic foods*. 2: 97-109.
- [2] Poddar, S., Sarkar, T., Choudhury, S., Chatterjee, S. and Ghosh P. 2020. Indian traditional medicinal plants: a concise review. *International journal of botany studies*. 5(5): 174-190.
- [3] Islam, S., Ara, H., Ahkad, K. and Uddin, M. 2019. A review on medicinal uses of different plant of Euphorbiaceae family. *Universal journal of pharmaceutical research*. 4(1): 47-51.
- [4] Zahidina, N.S., Saidina, S., Zulkifli, R.M., Muhamadb, I.I., Yaakobb, H. and Nur, H. 2017. A review of *Acalypha indica* L. (Euphorbiaceae) as traditional medicinal plant and its therapeutic potential. *Journal of ethnopharmacology*. 207: 146-173.
- [5] Seethapathy, G.S., Ravikumar, K., Paulsen, B.S., Boer, H.J. and Wangenstein, H. 2018. Ethnobotany of dioecious species: traditional knowledge on dioecious plants in India. *Journal of ethnopharmacology*. 221: 56-64.
- [6] Rao, M., Rao, K.D., Kumar, A.S., Chatterjee, M., and Sundararaman, T. 2011. Human resources for health in India. *The lancet*. 377(9765): 587-598.
- [7] Atkinson, B.A. 2019. Fossil evidence for a cretaceous rise of the Mahogany family. *American journal of Botany*. 107(1): 139-147.
- [8] Shah, S.M. and Hussain, F. 2012. Ethnomedicinal plant wealth of Mastuj valley, Hindukush range, District Chitral, Pakistan. *Journal of medicinal plants research*. 6(26): 4328-4337
- [9] Biswas, K., Chattopadhyay, I., Banerjee, R.K. and Bandyopadhyay U. 2002. Biological activities and medicinal properties of neem (*Azadirachta indica*). *Current science*. 82(11): 1336- 1345.
- [10] Singh, R., Upadhyay, S.K., Rani, A., Kumar, P., Sharma, P., Sharma, I., Singh, C., Chauhan, N. and Kumar, M. 2020. Ethnobotanical study of weed flora at district Ambala, Haryana, India: Comprehensive medicinal and pharmacological aspects of plants resources. *International journal of pharmaceutical research*. 1:1-16.
- [11] Shukla, A.N., Srivastava, S. and Rawat, A.K.S. 2020. An ethnobotanical study of medicinal plants of Rewa district, Madhya Pradesh. *Indian journal of traditional knowledge*. 9(1): 191-202.
- [12] Narayan, D. and Singh, P.K. 2017. Ethnobotanical importance and herbal medicine in Vindhya region of eastern UP, India. *Journal of medicinal plant research*. 11(25): 403-413.
- [13] Hazarika, P., Hazarika, P. and Dutta, D. 2018. Traditional knowledge for using plant resources as tooth brushing stick (datun) by indigenous community of Assam, India. *International journal of herbal medicine*. 6(6): 22-34.
- [14] Preeti, K.M and Verma, A.B. 2014. A review on ethnopharmacological potential of *Ricinus communis* (L). *PharmaTutor*. 2(3): 76-85.
- [15] Tiwari, R., Verma, A.K., Chakraborty, S., Dhama, K. and Singh, S.V. 2014. Neem (*Azadirachta indica*) and its potential for safeguarding health of animals and humans: A review. *Journal of biological sciences*. 14: 110-123.