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## **ETHNOBOTANICAL STUDY OF MEDICINAL PLANTS USED BY TRIBAL COMMUNITIES IN INDIA**

Dr Ranjeet Singh  
Associate Professor of Botany  
Pt. CLS Government College, Karnal

Email id: [ranjeet.s71@gmail.com](mailto:ranjeet.s71@gmail.com)

### **ABSTRACT**

Plants have been used as a primary resource for medical research. Synthetic drugs have easy access to the fundamental molecular and active structures because of the abundance of naturally occurring materials. The growing global interest in medicinal plants is a result of the output came from many traditional assertions about the benefits of natural goods in healthcare. Plant preparations have a lower frequency of adverse responses compared to current conventional medications, and their decreased cost is prompting both consumers and national health care organizations to explore them as alternatives to synthetic treatments. There has been a significant uptick in the demand for and supply of herbal remedies over the past decade. Several plants are widely utilized by indigenous peoples across the world for their antibacterial qualities in traditional medicine. The metabolites found in plants have shown to be a rich source of potential novel pharmaceuticals. Many plant-based anti-cancer compounds have been discovered. Secondary metabolites found in plants can help treat a wide variety of illnesses, and they can be broken down into four distinct structural groups. In search of plants with antibacterial properties, several have been tested. Researchers have reported both the existence of antibacterial principles and their distribution throughout plants.

**KEYWORDS:** Medicinal Herbs, Tribal Groups Communities, healthcare, antibacterial properties, health care organizations

## INTRODUCTION

As pathogenic microorganisms are becoming increasingly resistant to both chemotherapeutics and antibiotics, researchers have begun testing a variety of medicinal plants for their potential antimicrobial efficacy. The emergence of multidrug-resistant strains has necessitated the administration of ever-increasing dosages of antimicrobials, their prolonged usage has become a potential biohazard. For more than 4,500 years, people in India have been using the Ayurvedic medicines and these are based on various plant extracts and other plant components to cure human and animal health issues. Human diseases have become resistant to many frequently used antibiotics, there has been a urgent need to discover novel antimicrobial compounds from alternative sources, such as plants as a whole and its parts. Plants have a big potential and a good resource for many kinds of antimicrobial chemicals due to their ability to create a wide range of molecules to defend themselves against infections (Alkofani et al., 1990; Cowan, 1999).

Traditional medicinal plants have been shown to have a variety of chemicals that are effective against both persistent and newly acquired forms of infection. Substances that either slow the development of microorganisms or kill them are studied as potential novel medications for treating infectious disorders. The traditional medical practitioners in rural parts of poor nations have long recognized that the herbs they utilize contain curative properties. In places where conventional treatment is lacking, people have turned to herbal remedies (Jeyachandran et al., 2007). The current research in this area aims to investigate the bioactive components extracted from *Lantana camara*, *Melia azedarach*, *Murrayakoenigii*, *Ocimum basilicum*, *Phyllanthus amarus*, *Piper nigrum*, *Pterospermum xylocarpum*, *Ricinus communis*, *Tephrosia purpurea*, and *Tinospora cardifolia* leaves. Spectrum of inhibition on bacterial strains by using the agar cup plate technique can be observed in strains such as *Staphylococcus aureus*, *S. mitis*, *Escherichia coli*, and *Xanthomonas* acted on the leaf extract of specific plant species on the extract prepared by chloroform and methanol solvent extraction method. The results showed a clear zone of inhibition, suggesting effective antibacterial action. Long-term approaches to slow the spread of resistance include the search for and development of new,

effective antimicrobials to replace those that have proven ineffective. Plants and microbes in particular are promising natural resources for this purpose. The potential of antimicrobial herbs, as well as their usefulness and necessity in modern medicine, are not to be underestimated. Study of the ethnomedicinal plants utilized by four different tribal communities in the Vizianagaram and Srikakulam districts in Andhra Pradesh of eastern India shows the potential use of medicinal plants for their community and are able to save the money by very low expenditure on medicine and other health related issues in that area.

### **Chapter Content and Conclusion**

The Indian population is concentrated and growing well in its rural areas. In the context of premodern India, this holds true that India is home to a large percentage of the world's rural population and is recognized as a global hotspot for biodiversity. Villages of the tribal people tend to be located high up on hills or in the valleys of the tribal lands. The temperature, terrain, language, customs, and ethnic composition of the many tribal settlements make it impossible to generalize about their shared culture. The regions of tribal dominating states of Andhra Pradesh like Vizianagaram and Srikakulam cover a combined area of 12,376 square kilometers on India's eastern coast, between 17 degrees north latitude and 19 degrees north longitude. According to geological standards, the earliest rocks in the area are Archean in age. The plains are largely composed of granite. Certain areas of the Vizianagaram district contain bauxite. Tatiguda, Regati, and Bantupalle in Cheepurapallimandal have limestone; Chetaladmeitta and Bodikonda in Kurupam contain mica. Nimmalapadu in the Rajamandal is where you may find clay, so the rumor goes. Ninety-six percent of the region is covered with a variety of soils, including red soils, loamy soils, sandy loams, and others with varied concentrations of sand and clay. Standard soils are red sands. Eastern and northern sections of the district have deltaic alluvial soils along hilltops and in low-lying lowlands. In valleys, the soil is rich and characterized by the presence of humus on the surface; literate soil is found only in a small area in the south-western section of the region, close to kothavalsa. From Naupada to Ichchapuram, you may find alluvial soils along the coast.

The area ChhotaBhngal represents one of the most interior areas of western Himalaya and is located in the hill state of Himachal Pradesh (HP) in India. From this state more than 3500 flowering plants have been reported from HP. About, 500 medicinal plants are believed to be of medicinal importance. The area located between 32° N lat to 32° 7.77' N and 76° 45' E long to 76° 53.83' ChhotaBhngal is an area with dense vegetation and trees of different type (*Quercus* sp.). The forest have dominated trees of *Cedrusdeodara* along with other tree species such as *Abiespindrow* and *Piceasmithiana*, *Rhododendron campanulatum* and *Betula utilis* form the tree line in that habitat. The flora includes *Berberislycium*, *Prinsepiautilis*, *Viburnum nervosum* and a diversity of herbs and grasses like *Vitexnegundo* (bana), *Adhatodavasica* (basuti) and *Acoruscalamus* (bare) of medicinal use for health purpose. The people of this area use 35 different plants for the treatment of various diseases, out of which 25 were herbs, 5 trees, 4 shrubs and one climber. In most of the cases (45%), underground parts were used for the treatment.

The Tripuri tribes of Tripura possess rich knowledge on the medicinal plants and their utilization in the area. The local community used a total of 51 plant species belonging to 32 families to cure a variety of diseases. Out of 51 plants species, 21 were herbs, followed by trees (17) and shrubs (8). The Climbers and ferns had reported 2 species for each one grass species was found. The family Fabaceae was the dominant with the highest number of species (6) followed by Asteraceae (4 species) and Lamiaceae (5 species) of angiospermic families.

A wide variety of plant life may be found in the region's, the Kurupam, Parvathipuram, and Palakonda Forest Ranges have a greater variety in floristic composition and distribution. Dense dry deciduous to mainly deciduous woods, home to rare species like *Shorearobusta*, *Cycascircinalis*, may be found in the inner Eastern ghat hill ranges. Tribal people here make extensive use of the area's many therapeutic herbs. One million eighty-four thousand hundred and seven hectares (Ha) is the total forest area of the district. That's equivalent to 18% of the overall landmass. Based on floristic composition and nature of growth in connection to soil and temperature, the Reserved Forests and unprotected vegetation of this region are categorized into 7 kinds. Forest types are shown below according to Champion and

Seth's (1968) taxonomy of Indian woods.

There is a lot of interesting plant life in the region's woodlands. The forestry industry is crucial to the local economy. Since the district's fauna is rather abundant in the inner hill regions, it faces serious extinction risks. Loss of habitat and unchecked poaching are major contributors to the population decline. Yellow bats, sloth bears, wild buffaloes, foxes, hares, hyenas, jackals, mongooses, and birds like the blue rock pigeon, house crow, house sparrow, common myna, Pitta, etc. are among the most common animals and birds found from the coast to the high plateau. It was believed that wildlife would flourish and return to its former grandeur with the passage of the Wild Life Protection Act of 1972. The forest area in Himalayas consisting of a variety of plants of high medicinal value and these are still used in tribal community. The different type of forests having plants of medicinal importance in these areas are given below

### **1. Southern Tropical moist mixed deciduous forests**

As the name implies, there are the tallest trees on Earth, typically topping out at 20 meters or more. The trees like *Terminalia alata*, *Ternstroemia alata*, *Dalbergia latifolia*, *Anogeissus accuminata*, *Syzygium cumini*, *Madhuca indica*, *Lannea coromandelica*, and other major tree species populate the upper canopy. The intermediate canopy is made up of trees (such as *Diospyros melanoxylon*, *Phyllanthus emblica*, *Mallotus philippinensis*) and bamboo species (such as *Bambusa arundinacea* and *Dendrocalamus strictus*). *Woodfordia floribunda*, *Rauvolfia serpentina*, *Costus speciosus*, *Clerodendrum serratum*, etc. are only few of the common shrubs and plants found in the area. *Butea superba*, *Bauhinia vahlii*, *Mimosa intesia*, etc. are just a few of the more prevalent climbers. The districts of Antikonda and Burnakoda in Srikakulam and Duggeru, Thonam, and Kurukutti in Vizianagaram are home to a population of this kind.

## 2. Tropical dry deciduous Sal forest

The sal (*Shorea-robusta*) tree is found exclusively in lowland areas, on moderate slopes, and in milder climates. It is most common in the Masimanda areas of Komaradamandal, Kurupammandal portions of Vizianagaram districts, and Donubay areas of Seethampetamandal in Srikakulam districts. Sal grows exclusively in flatlands, moderate slopes, and other mild climates. At the highest levels of the forest are trees such as *Shorearobusta*, *Terminalialalata*, *Adina cardifolia*, *Lagerstromiaparuiiflora*, *Pterocarpusmarsupium*, *Mitragynaparuiiflora*, *Albiziaodoratissimus*, etc. *Anogeissuslatifolia*, *Buchnanigalalanzan*, *Semicarpusanacardium*, *Diospyrosmalanoxyton*, *Cleistanthuscollinus*, *Careyaarborea*, *Phyllanthusemblica*, *Strychnosnux-vomica*, etc., fill the intermediate level. *Woodfordia floribunda*, *Indigoferapulchella*, *Phoenix loureiro*, *Cipadessabaccifera*, *Costusspeciosus*, etc. are all examples of common shrubs and plants. *Buteasuperba*, *Bauhinia vahlii*, and *Mimosa intsia* are all climbers, whereas *Aristidasetacea* and *Cymbopogoncontortus* are examples of grasses.

## 3. Southern Tropical dry mixed forest

The typical tree height in these woods is between 10 and 15 meters. The thorny climbers stand out. *Terminalialalata*, *Pterocarpusmarsupium*, *Anogeissuslatifolia*, and *Terminaliaarjuna* are some of the most numerous and towering trees. The intermediate canopy is made up of trees like *Cleistanthuscollinus*, *Chloroxylumswietenia*, *Soymidafebrifuga* etc. Common shrubs and plants include the *Carissa caranda*, *Costusspeciosus*, etc. Plants like *Bauhinia vahlii* and *Zizyphusoenoplea*, as well as *Acacia sinuata* and other kinds of *Dioscorea*, are among the many climbers found in the area. *Srungavarapukota*, *Kurupam*, and *Duggeru* can be found in Vizianagaram district, while *Palakonda* and *Seethampeta* can be found in Srikakulam district, all of which are home to this species.

## 4. Dry thorny scrub forest

Trees rarely grow taller than 6 meters, resulting in a completely open forest. The environment

contains bamboo. Plants including *Holarrhenaantidysenterica*, *Dodonaeviscosa*, *Hugoniastax*, and *Gmelinaasiatica* are common. Grass grows constantly all through the year. The prevalence of thorny plants in these woods is one of their defining features. The upper canopy is populated by many tree species, including *Terminalialata*, *Pterocarpusmarsupium*, *Anogeissuslatifolia*, *Acacia*, etc. Plants like *Chloroxylumswietania*, *Soymidafebrifuga*, *Phyllanthusemblica*, etc. may be found in the intermediate canopy.

### 5. Dry evergreen forest

Most of these woods are open, uneven in shape, and six meters or less in height. Species of evergreens and thorn bushes stand out. The *Randiadumatorium*, *Memeeylonedule*, *Gymnosporiamontana*, etc., all belong to the same family of trees. Shrubs and plants including *Dodonaeviscosa*, *Mababuxifolia*, *Ixorapavetta*, *Cassia auriculata*, and *Cassia tora* are common. *Zizypusoenoplea*, *Pterolobiumindicum*, and others like them are thorny climbers. The districts of Vedurawada and Gopalarayudupeta in Vizianagaram are home to examples of this kind.

### 6) Hill top forests

Although it is a part of the dry deciduous forests that are the predominant type all along the lower slopes below the hills, the open grass lands with sparse, stunted tree and shrubby growth found exclusively on the hill-tops above 900 m altitude along with the Eastern Ghats are considered to be district vegetation types due to its unique and specialized nature. Vegetation like this, which has a distinctive but visually unpleasant poor top, is regarded to be the edaphic climax form in the Eastern Ghats. Phoenix lourerii, easily identified by its characteristic stemless trees and shrubs, characterized by sturdy root stocks and stunted, twisted, and hollow stems, grows in the midst of the typical deciduous forest's grass and other plant life. Topography, height, and the peculiar composition of the flora of such hill-tops are nearly same, making this a district feature found often all along the hill tops from the Godavari bank till certain areas of Orissa in the north direction. In the state of Andhra Pradesh, you may find these



kinds of hilltops all the way from the East Godavari district to the Srikakulam district.

## CONCLUSION

Tribal people have rich cultural customs and practices. They worship local Gods and Goddesses. They also celebrate festivals in honour of the Gods and Goddesses. They usually celebrate them before harvesting any crop and has a ritual before eating the new crops. These festivals are celebrated with a prescribed ceremonies and sacrifices. They depend up on priest, sorcerers and herbalist for curing them from ailments or diseases. They have special practices in regard to marriage, death, celebration of birthdays and festivals in their regions. Each tribe has a guru or Leader locally called as Kula Pedda who governs the people in the region and whoever does wrong or go against the social customs will be brought to the Kula Pedda for he is the one who punishes them for their mistakes. The present study was undertaken for the first time with an objective of analysing the extensive ethnomedicinal plants and medicinal practices among the four tribal groups viz Savara, Jatpau, Gadaba and Kondadora comparatively and statistically to record the method of treatment to various ailments peculiar to four tribal groups and antimicrobial activity of selected plants used by studies tribes.

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