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Some common native medicinal plants used by tribals in Odisha, India

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Abstract: The major tribes of Odisha, India, including communities like the Mundas, Kondhas, Dongaria, Santhals, and Bonda, have a deep-rooted dependence on forests and indigenous medicinal plants for their livelihoods. This reliance is integral to their cultural and economic practices. These tribes engage in traditional agricultural activities, gathering forest produce, and practicing unique forms of therapeutics using indigenous plants as they have the best knowledge of the wild medicinal plant, their uses, specific for various ailments. The sustainable use of forest resources is a crucial aspect of their lifestyle, emphasizing the need for conservation and preservation of these ecosystems. However, the increasing pressure on forests due to factors like deforestation and industrialization poses challenges to balance between tribal livelihood and environmental sustainability. Efforts are needed to promote conservation practices that respect the symbiotic relationship of these tribes with their natural surroundings.

Keywords: Indigenous medicinal plants, therapeutics, forest resources, deforestation, environmental sustainability, conservation practices

Introduction

India is one of the most diverse lands found anywhere in the world with 28 states, each with their own unique culture and traditions. Each state has got numerous different tribal communities. Odisha, a state in eastern India, is ranked the third largest population of Schedule Tribes having a total of 62 different tribes distributed in different districts of the state (Nayak and Kumar 2023). Some of the major tribal groups in Odisha include Kondhs, Santals, Gonds, Bhuyans, Bonda, Mundas, Juang etc. (Kumar et al. 2022). The tribal communities often reside in the hilly and forested regions, maintaining a close connection with nature. Their livelihood is mainly based on forest products for their daily needs like food, timber, fodder, medicine, etc. They have developed sustainable ways of utilizing food resources from forests, relying on traditional knowledge and practices that have been passed down through generations. They gather a variety of wild edible plants, fruits, berries, and tubers from the forest as these plants often serve as important sources of nutrition and are integrated into their daily diets (Kumar

et al. 2012). The tribal communities often have a deep understanding of the medicinal properties of plants in the forest (Nayak and Kumar 2023). They use various herbs and plants for medicinal purposes, treating ailments and promoting overall well-being. Due to cultural shifts, urbanisation, habitat loss, deforestation and lack of documentation, the traditional knowledge and healing practices became gradually decreasing (Kumar et al. 2022). To conserve such traditional knowledge needs proper scientific documentation. Therefore, the present study aims to document and focus on the medicinal plants used by the tribal communities of Odisha. After a thorough field survey (Plate 2), literature findings and interactions with tribal people in this regard, about 50 medicinal plant species have been listed belonging to different families with their therapeutic uses. The plant photographs were taken for easy identification in the field (Plate 1). This documentation could be useful for local people, young researchers and future generations to identify the plants and understand their medicinal values for sustainable utilization and conservation. For young researchers, this can also be an opportunity to screen the medicinal properties of their interest for further research purposes.

Methodology

The study was carried out to comprehensively document the indigenous medicinal plants used by the tribal communities of Odisha. Data collection was primarily conducted through in-depth interviews with traditional healers, community members, and local experts to establish representative data from different regions such as, Mayurbhanj, Baripada (Plate 2), Sundergarh, Koraput, and Kandhamal districts. The data was gathered from scientific databases such as Google Scholar, SpringerLink, Mendeley, Science Open and offline publications. Additionally, structured surveys were administered to gather quantitative data on the frequency of specific plant species and their applications. A semi-structured questionnaire was carried out in the field, where the field observations and participatory methods were also employed. The plant local names were noted and plant species were identified by Dr. Sanjeet Kumar, Ambika Prasad Research Foundation, Odisha, India with the available books on Flora (Nayak and Kumar 2023; Haines 1925; Saxena and Brahmam 1995).

Results

The present study highlights a rich variety of indigenous medicinal knowledge held by the tribal communities. Through in-depth interviews and surveys, it was observed that a diverse group of plant species is integral to the traditional healing practices of these communities. Notably, plants species such as *Acmella paniculata*, *Capparis zeylanica*, *Clematis roylei*, *Elephantopus scaber*, *Evolvulus nummularius* and *Nicotaba betonica* were identified for their efficacy in treating common ailments like cough, cold, fever, skin infections, dysentery, and diarrhoea. The occurrence and application of these plants varied among different tribal groups. The study also revealed a strong correlation between the traditional significance of certain plants and their medicinal use, homes to severe healthcare needs. However, the results also bring light on the challenges faced by the indigenous medicinal plant knowledge, including environmental threats and the erosion of traditional practices due to cultural shifts, habitat loss, deforestation etc. This split presents an opportunity for targeted conservation efforts and

collaborative initiatives to integrate traditional therapeutics into modern healthcare systems, thereby preserving both biodiversity and traditional knowledge of indigenous communities.

Table 1: List of common native plants with their medicinal uses

Botanical name	Common name	Parts used	Medicinal uses	Collection site
<i>Acampe praemorsa</i> (Roxb.) Blatt. & McCann	Rasna	Root	The paste is used in treating rheumatism.	Keonjhar
<i>Acmella paniculata</i> (Wall. ex DC.) R.K.Jansen	Akarkara	Leaves	The paste is used to treat cuts and wounds.	Rayagada
<i>Bergia ammannioides</i> Roxb.	Nali suari	Root	The decoction is useful in the treatment of respiratory problems.	Khordha
<i>Bidens Pilosa</i> L.	Bisalyakarani	Whole plant	The decoction is used to treat fever and malaria.	Bolangir
<i>Capparis brevispina</i> DC.	Nepheda	Whole plant	The decoction is used in treating stomach-related problems.	Cuttack
<i>Capparis zeylanica</i> L.	Asadhua	Fruits	Boiled and used as vegetables to strengthen the body.	Keonjhar
<i>Celastrus paniculatus</i> Willd.	Kujuri	Seed	The oil is used as a brain tonic.	Keonjhar
<i>Clematis roylei</i> Rehder	Ganamari	Aerial part	The decoction is used in treating cold and cough.	Sundargarh
<i>Coelogyne imbricata</i> (Hook.) Rchb.f.	Amari rasna	Bulb	The paste is used to treat chest pain.	Sundargarh
<i>Corchorus aestuans</i> L.	Bana nalita	Seed	The paste is used in treating chest pain	Sundargarh
<i>Dillenia pentagyna</i> Roxb.	Rai	Bark	The powder with water is given to treat diabetes.	Sundargarh
<i>Elephantopus scaber</i> L.	Mayurachulia	Whole plant	The paste is used to treat fungal skin infections.	Keonjhar
<i>Evolvulus nummularius</i> (L.) L.	Bichamalia	Whole plant	The ash with oil is rubbed against skin infections, especially chickenpox.	Koraput
<i>Flacourtia jangomas</i> (Lour.) Raeusch.	Bhaincha	Fruit	The paste is used in bilious conditions.	Sundargarh

<i>Floscopa scandens</i> Lour.	Pani kana saga	Leaves	Used in the treatment of stomach problems.	Sundargarh
<i>Garcinia xanthochymus</i> Hook.f. ex T.Anderson	Satyamba	Fruit	The paste is used in wound healing.	Bolangir
<i>Glochidion lanceolarium</i> (Roxb.) Voigt	Khakada	Bark	The infusion is used in treating food poisoning.	Keonjhar
<i>Guilandina bonduc</i> L.	Katakoleja	Fruit	The decoction is used to treat piles.	Cuttack
<i>Hedychium coronarium</i> J.Koenig	Dhalachampa	Rhizome	The decoction is used to treat chest pain.	Malkangiri
<i>Homalium napaulense</i> (DC.) Benth.	Dahanamari	Bark	The juice about two spoons three times a day is given to cure stomach-related problems.	Sundargarh
<i>Impatiens balsamina</i> L.	Haragaura	Flower	The paste is used in treating burns.	Sundargarh
<i>Ixora undulata</i> Roxb. ex Sm.	Karuna	Leaf	The infusion is used in the treatment of dysentery.	Mayurbhanj
<i>Jasminum multiflorum</i> (Burm.f.) Andrews	Danta puspa	Flower	The infusion is given to treat asthma.	Cuttack
<i>Kalanchoe pinnata</i> (Lam.) Pers.	Amarpoi	Root	The decoction is drunk in the morning to cure indigestion.	Nayagarh
<i>Knoxia sumatrensis</i> (Retz.) DC.	Gola	Leaves	The infusion is used in treating asthma.	Sundargarh
<i>Lepidagathis fasciculata</i> (Retz.) Nees	Rasna	Leaf	The infusion is used in the treatment of fever.	Kalahandi
<i>Ludwigia octovalvis</i> (Jacq.) P.H.Raven	Datiju	Leaf	The paste is applied as a poultice to treat headaches.	Angul
<i>Mallotus nudiflorus</i> (L.) Kulju & Welzen	Panidimiri	Leaves	The paste is used to reduce swelling.	Keonjhar
<i>Mallotus repandus</i> (Rottler) Müll.Arg.	Dankari	Leaf	The paste is used for the relief of muscle pain.	Puri
<i>Mitragyna parvifolia</i> (Roxb.) Korth.	Mundi	Fruit	The decoction is used for lactation in the mother.	Mayurbhanj
<i>Naringi crenulata</i> (Roxb.) Nicolson	Behenta	Leaves	The infusion is consumed to get relief from ulcer.	Dhenkanal

<i>Neptunia oleracea</i> Lour.	Lajalu	Stem	The juice is squeezed into the ear to cure earache.	Puri
<i>Nicotaba betonica</i> (L.) Lindau	Had-pat	Leaf	The juice is used to treat diarrhoea.	Koraput
<i>Ochna obtusata</i> DC.	Bhuin champa	Root	The paste is used to treat irregular menstruation.	Mayurbhanj
<i>Oxalis corniculata</i> L.	Ambiliti	Leaf	The juice is applied to treat insect bites.	Sundargarh
<i>Premna herbacea</i> Roxb.	Ganthiabuda	Root and rhizome	The juice is used to treat cough and asthma.	Sundargarh
<i>Pueraria tuberosa</i> (Roxb. ex Willd.) DC.	Handiphuta	Tuber	The decoction is used as tonic.	Sundargarh
<i>Remusatia vivipara</i> (Roxb.) Schott	Telia kanda	Root	The juice is used on the wound to dispel any germ and worms.	Sundargarh
<i>Rungia pectinata</i> (L.) Nees	Mati saga	Leaves	The bruised leaves are applied to reduce muscular swelling.	Mayurbhanj
<i>Saccharum spontaneum</i> L.	Kasatandi	Nodules	The juice is used to reduce body heat.	Koraput
<i>Scindapsus officinalis</i> (Roxb.) Schott	Gaja-pipili	Root	The paste is used in treating joint pain.	Mayurbhanj
<i>Senegalia pennata</i> (L.) Maslin	Dantari	Stem	The fresh sap is sucked daily once to cure asthma.	Mayurbhanj
<i>Smilax zeylanica</i> L.	Muturi	Stem	Used in treating toothache.	Mayurbhanj
<i>Soyimida febrifuga</i> (Roxb.) A.Juss.	Rohini	Bark	The paste is used to treat rheumatoid arthritis.	Sundargarh
<i>Thespesia populnea</i> (L.) Sol. ex Corrêa	Goya	Fruit	The crushed fruit is used in the treatment of urinary tract.	Kendrapada
<i>Trichosanthes tricuspidata</i> Lour.	Mahakal	Fruit	The powder is used in the treatment of asthma.	Sundargarh
<i>Vachellia nilotica</i> (L.) P.J.H.Hurter & Mabb.	Babul	Bark	The powder is used in treating diarrhoea and dysentery.	Rayagada
<i>Vitex negundo</i> L.	Nirgundi	Stem	Tender stem is used to inhale to cure respiratory problems.	Mayurbhanj

<i>Zanthoxylum asiaticum</i> (L.) Appelhans, Groppo & J.Wen	Tundpoda	Fruit	The decoction is used to treat cough.	Keonjhar
<i>Zingiber zerumbet</i> (L.) Roscoe ex Sm.	Kedar	Rhizome	The paste is used to treat various skin diseases.	Sundargarh

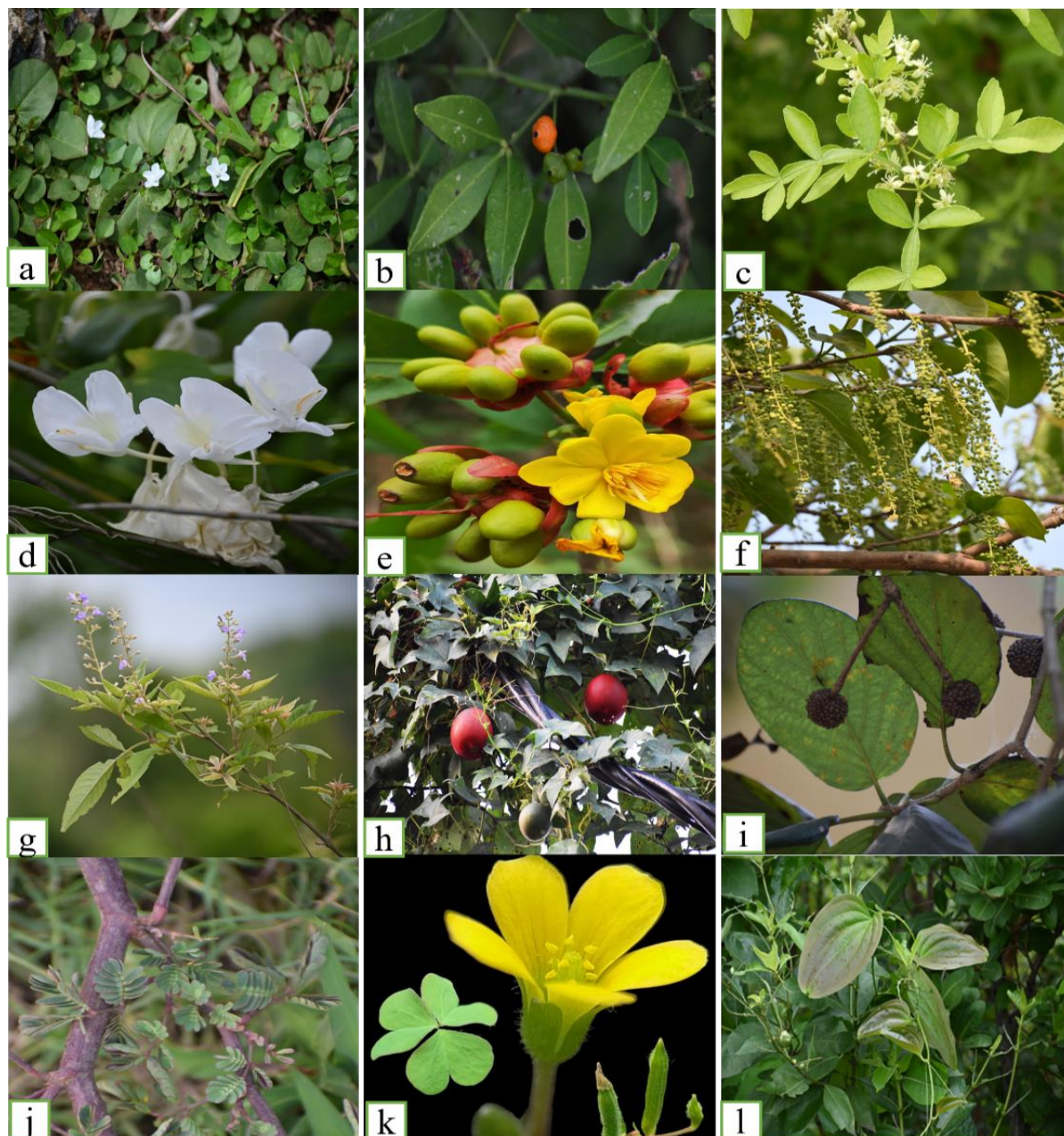


Plate 1: Some common native medicinal plants such as: (a) *Evolvulus nummularius*, (b) *Zanthoxylum asiaticum*, (c) *Naringi crenulata*, (d) *Hedychium coronarium*, (e) *Ochna obtusata*, (f) *Mallotus nudiflorus*, (g) *Vitex negundo*, (h) *Trichosanthes tricuspidata*, (i) *Mitragyna parvifolia*, (j) *Neptunia oleracea*, (k) *Oxalis corniculata*, (l) *Smilax zeylanica*



Plate 2: Field survey and interaction with tribal communities in Mayurbhanj and Baripada districts, Odisha

Discussion

In the last five years, research studies on the utilization of indigenous medicinal plants by tribal communities in Odisha have witnessed a notable change. Pandey and his team surveyed in the years between 2022 and 2023 the traditional medicinal knowledge among the tribal communities and residents of villages near the Gandhamardan Mountain Chain in the Bargarh District of Odisha and collected representative data about 70 plants from 36 families employed for medicinal purposes. In 2021, Satapathy and Bisoi noted that tribal communities protect 66 plant species distributed among 42 different families because of their medicinal values based on long experience in Koraput district. In 2021, Kumar and his team recorded a total of 50 common plant species having medicinal values and used by the local tribal communities of mining areas of Barsuan Range, Bonai Forest Division of Sundargarh district (Kumar et al. 2021).

Conclusion

The tribal communities mainly depend upon forest for their livelihood. It is important to note that the sustainable use of forest resources by tribal groups is often deeply rooted in their cultural and spiritual beliefs, emphasizing the need for conservation. As modernization and external factors pose challenges to these traditional practices, efforts to preserve indigenous knowledge and promote sustainable practices are vital for both well-being of the tribals and the conservation of biodiversity.

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