



## Ethnomedicinal plants used against cough, cold, bronchitis and asthma by the tribal communities of Baragada District, Odisha, India

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### Abstract

Traditional knowledge of medicinal plants continues to play a vital role in primary healthcare among tribal and forest-dependent communities in India. The present study documents the ethnomedicinal plants traditionally used for the treatment of cough, cold, bronchitis, and asthma by the tribal communities of Baragada (formerly Bargarh) district, Odisha. The investigation was conducted through extensive field surveys in different localities of the district. Ethnobotanical information was collected from knowledgeable informants, including traditional healers, elderly villagers, and other community members, using semi-structured questionnaires, personal interviews, and formal discussions. The information obtained was cross-checked through repeated interactions with different informants to ensure its reliability and consistency. The study records a range of plant species belonging to diverse families that are used either singly or in combination for the management of respiratory ailments. Various plant parts, such as leaves, roots, bark, flowers, rhizomes, seeds, fruits, and whole plants, were reported to be employed in different forms of preparation, including decoctions, extracts, pastes, powders, and infusions. These findings highlight the rich ethnomedicinal heritage preserved among the tribal communities of Baragada district and emphasize the importance of documenting this valuable indigenous knowledge before it declines due to rapid socio-economic and cultural changes. The documented information provides a baseline for future phytochemical, pharmacological, and conservation studies and contributes to the preservation of traditional healthcare.

**Keywords:** Ethnomedicinal plants, cough, cold, bronchitis, asthma, tribal communities, Baragada District, Odisha

### Introduction

Respiratory diseases such as cough, cold, bronchitis, and asthma remain among the most common health problems affecting people across the world. These ailments impose a significant burden on public health, particularly in developing countries where access to modern healthcare facilities is often limited. In rural and tribal regions, traditional medicinal systems continue to serve as an important source of primary healthcare. Indigenous communities have accumulated extensive knowledge regarding the therapeutic properties of local plant resources through generations of observation, experience, and oral transmission. This traditional knowledge forms an integral component of cultural heritage and biodiversity conservation.

India is recognized as one of the world's richest countries in terms of biological and cultural diversity. The country possesses a vast wealth of medicinal plants that have been utilized in various traditional healthcare systems, including Ayurveda, Unani, Siddha, and numerous indigenous folk practices (Goraya and Ved, 2017; Gupta *et al.*, 2022) <sup>[1, 2]</sup>. Tribal communities, in particular, have maintained close relationships with their surrounding natural environments and possess remarkable knowledge of the medicinal uses of wild and cultivated plant species. Their dependence on plant-based remedies is especially pronounced for the treatment of common ailments, including respiratory disorders, because these remedies are readily available, affordable, and culturally accepted.

Odisha is one of the biologically diverse states of eastern India and is home to numerous tribal communities with rich

ethnobotanical traditions (Ota *et al.*, 2014) <sup>[3]</sup>. Although several ethnobotanical investigations have documented medicinal plants used by different tribes in various parts of Odisha, information specifically concerning plants employed for respiratory ailments in Baragada (formerly Bargarh) district remains limited. Baragada district, located in western Odisha, supports diverse vegetation and is inhabited by several communities that rely on traditional plant-based healthcare practices. However, rapid urbanization, changing lifestyles, deforestation, and the declining transmission of indigenous knowledge to younger generations pose serious threats to the preservation of this valuable ethnomedicinal heritage.

Ethnobotanical documentation plays a crucial role in recording and preserving traditional knowledge before it is permanently lost. Such studies not only contribute to the conservation of indigenous cultural heritage but also provide valuable baseline information for future phytochemical, pharmacological, and clinical investigations aimed at identifying bioactive compounds and developing novel therapeutic agents.

The present study was undertaken to document the ethnomedicinal plants used by the tribal communities of Baragada district, Odisha, for the treatment of cough, cold, bronchitis, and asthma. The study is based extensively on field investigations involving direct interaction with local informants through semi-structured questionnaires, personal interviews, and discussions. The information collected was carefully cross-verified among different categories of informants to ensure its authenticity and reliability. By documenting these traditional practices, the study seeks to

preserve indigenous knowledge and provide a comprehensive record of medicinal plants use for respiratory disorders in the study area.

### Collection of Data and Analysis

To examine the ethnomedicinal knowledge related to respiratory disorders in Baragada district, several scientific research papers were collected from various databases, both within and outside Odisha. Dash *et al.* (2018)<sup>[4]</sup> reported 13 plant species belonging to 8 families that are used for the treatment of asthma in Bhubaneswar. Mohanty *et al.* (2018)<sup>[4, 5]</sup> described 52 plant species used against several diseases, among which 10 species were reported to be used for cough, cold, and asthma in the undivided Puri district. Singh and Dhole (2020)<sup>[6]</sup> reported 112 plant species under 43 families and 90 genera used to treat cough, cold, and fever in different districts of Odisha. Rout *et al.* (2025)<sup>[7]</sup> reported 37 plant species belonging to 34 genera and 24 families used for the treatment of various respiratory diseases in the Khallikote area of Ganjam district, Odisha.

Khan and Singh (2018)<sup>[8]</sup> studied 29 plant species from 22 families used for cough and cold in the vicinity of Nahargarh Wildlife Sanctuary, Jaipur, Rajasthan. Shah *et al.* (2012)<sup>[9]</sup> reported 65 plant species belonging to 60 genera and 38 families used for various respiratory disorders among ethnic communities of Valsad district, Gujarat. Arunadevi and Anantharaj (2013)<sup>[10]</sup> reported 33 plant species belonging to 24 families used for various respiratory disorders in Cuddalore district, Tamil Nadu. Naidu and Reddi (2018)<sup>[11]</sup> reported 41 plant species from 39 genera and 29 families used for cough and cold by the tribes of Srikakulam district, Andhra Pradesh. Shende and Dalal (2019)<sup>[12]</sup> reported 55 plant species belonging to 30 families used for cough and asthma in Wardha district, Maharashtra. Bairwa (2023)<sup>[13]</sup> studied 41 plant species belonging to 19 families used to treat cough, cold, and asthma in Alwar district, Rajasthan. Parveen and Bashir (2024)<sup>[14]</sup> recorded 178 plant species under 138 genera and 51 families used to treat various respiratory diseases in the Northern Himalayan Region of India. Ballav and Chaurasia (2007)<sup>[15]</sup> reported 56 plant species and 21 families used in the treatment of cold, cough, and fever in the Ladakh region. Jain and Verma (2020)<sup>[16]</sup> reviewed 465 plant species from 328 genera and 116 families reported to be used for asthma in India. Thakur and Kaur (2023)<sup>[17]</sup> reviewed 239 plant species belonging to 193 genera and 80 families used for the treatment of respiratory problems in India. Mangsianlun *et al.* (2025)<sup>[18]</sup> stated in their review that 51 plant species belonging to 32 families are used to treat respiratory disorders in Northeast India.

### Materials and Methods

Ethnobotanical investigations were conducted through repeated field surveys in tribal-inhabited villages of Baragada district, Odisha. The field investigations documented 38 plant species belonging to 34 genera and 28 families that are traditionally used in the treatment of cough (including dry cough and whooping cough), asthma, bronchitis, and cold. Information on the ethnomedicinal uses of the plants was collected from traditional practitioners, village heads, *Kabirajs*, *Vaidyas*, *Gunias*, village priests,

elderly villagers, and knowledgeable community members using semi-structured questionnaires, personal interviews, and formal discussions. The collected plant specimens were identified by consulting standard regional flora (Haines, 1921-25; Saxena and Brahmam, 1994-96)<sup>[19, 20]</sup>. The recorded information was cross-verified through repeated interactions with different informants to improve the reliability and consistency of the documented ethnomedicinal knowledge. In addition, the recorded information was cross-verified against several published scientific sources (Jain, 1991; Kirtikar and Basu, 1991; Ambasta *et al.*, 1992; Warriar *et al.*, 1995; Rastogi *et al.*, 1995; Chopra *et al.*, 1996; Maheshwari, 2000)<sup>[21, 27]</sup>.

### Results

#### Enumeration

A total of 38 ethnomedicinal plant species belonging to 34 genera and 28 families are presented here in this paper. The ethnomedicinal plants documented during the present study are enumerated below in alphabetical order. For each species, the accepted botanical name, family name in inverted comma, local names in italics, locality, collection number, plant part(s) used, method of preparation, mode of administration and traditional medicinal use are provided. The information presented is based on the traditional knowledge documented from the tribal communities of Baragada district, Odisha.

*Acalypha indica* L. ‘Euphorbiaceae’, *Kaph-katuri*, Ramkhol-726

**Cough:** Leaf extract (Teaspoon for children between 6 months and 1 year, 1 teaspoon for children up to 5 years, and 2 teaspoons for children above 5 years) is taken twice daily to manage cough. Leaf paste is also applied to the anus of infants to manage cough.

*Ageratum conyzoides* L. ‘Asteraceae’, *Poksugha*, Samardhara-197

**Bronchitis:** Roots are crushed and boiled in water, and the vapour is inhaled to relieve bronchitis.

**Cough:** Leaf extract (10 ml) is taken 1–2 times daily to manage cough.

*Alpinia galanga* (L.) Willd. ‘Zingiberaceae’, *Ghoda bacha*, Khandijharan - 321

**Cough:** Rhizome extract (5 ml) is taken with honey once daily on an empty stomach for the treatment of cough.

**Asthma:** Rhizome extract (5–10 ml) is mixed with dried *Zingiber officinale* rhizome powder (2–3 g) and taken once daily on an empty stomach for the treatment of asthma.

*Bergera koenigii* L. ‘Rutaceae’, *Mirsinga*, *Bhursunga*, Khajuria - 596

**Cough:** Leaves (about 10 g) are boiled in 200 ml of water and allowed to reduce to one-fourth of the original volume. The decoction obtained is taken once daily on an empty stomach to treat cough.

*Biophytum sensitivum* (L.) DC. ‘Oxalidaceae’, *San-lajkuri*, Kharmunda-169

**Cough:** Leaf decoction (10–15 ml) is taken twice daily to manage cough.

*Blumea lacera* (Burm.f.) DC. ‘Asteraceae’, *Bad-Poksungha*, Nrusinghnath-175

**Cough:** Root (about 3 inches long) is crushed with dried *Zingiber officinale* rhizome (about ½ inch long), and the paste is taken with honey 2–3 times daily to manage cough. *Boswellia serrata* Roxb. ‘Burseraceae’, *Saleh*, Ainalapali-104

**Cough and Asthma:** Gum is boiled in milk and dried. It is then powdered, and the powder (1–3 g) is taken 2–3 times a day to manage cough and asthma.

*Cajanus scarabaeoides* (L.) Thouars ‘Fabaceae’, *Jharkulthia*, Nrusinghnath-332

**Asthma:** Bark decoction (15–20 ml) is taken twice daily on an empty stomach to obtain relief from asthma.

*Calotropis gigantea* (L.) Dryand. ‘Apocynaceae’, *Arakh*, Beherapali-235

**Asthma:** Flower powder and *Piper nigrum* fruit powder are ground together with cow's milk and dried for three consecutive days. The powder (2–3 g) is taken once daily on an empty stomach to relieve asthma. Bark is ground with the milky latex of the plant and inhaled using a chillum to relieve asthma.

*Calotropis procera* (Aiton) W. T. Aiton ‘Apocynaceae’, *Arakh*, Beherapali-236

**Asthma:** Flower powder and *Piper nigrum* fruit powder are ground together with cow's milk and dried for three consecutive days. The powder (2–3 g) is taken once daily on an empty stomach to relieve asthma.

*Coleus amboinicus* Lour. ‘Lamiaceae’, *Rukuni-hatpochha*, Samardhara - 196

**Cough:** Leaf extract (1 teaspoon) is taken with honey three times daily to relieve cough.

**Bronchitis:** Leaf extract (1 teaspoon) with *Piper longum* fruit powder (3 g) and honey is taken once daily on an empty stomach to treat bronchitis.

*Cordia dichotoma* G. Forst. ‘Cordiaceae’, *Bahal*, Nrusinghnath-408

**Dry cough:** Leaves (3–5 in number) are crushed and boiled in 300 ml of water and allowed to reduce to one-fourth of the original volume. The decoction (20–30 ml) is taken twice daily on an empty stomach to manage dry cough. Flower paste (1 teaspoon) or powder (5 g) is taken with honey or sugar candy to treat dry cough.

*Chrysopogon zizanioides* (L.) Roberty. ‘Poaceae’, *Bena*, Kharmunda-311

**Cough:** Root decoction (4 teaspoons) with *Coriandrum sativum* seed powder (2 g), *Zingiber officinale* rhizome powder (2 g), and honey (1 teaspoon) is taken twice daily to manage cough.

*Curculigo orchoides* Gaertn. ‘Hypoxidaceae’, *Talmuli*, Kharmunda-349

**Bronchitis and Asthma:** Root powder (1–2 g) is taken with *Piper betel* leaf paste (1 in number) 1–2 times daily on an

empty stomach to treat bronchitis. The same preparation and dose are administered to treat asthma.

*Cyperus rotundus* L. ‘Cyperaceae’, *Mutha*, *Gandhel*, Kharmunda - 151

**Cough and Asthma:** Equal amounts of the tubers of the plant and *Piper longum* fruits are crushed together, and the powder (3–5 g) is taken with honey 1–2 times a day to treat cough and asthma.

*Hellinia speciosa* (J. Koenig) S R Dutta ‘Costaceae’, *Kulihakanda*, *Keu*, Ramkhol-732

**Asthma:** Tuberous root powder (5 g) with *Piper longum* fruit powder (2 g) and honey (1 teaspoon) is taken once daily to manage asthma.

*Justicia adhatoda* L. ‘Acanthaceae’, *Basang*, Ramkhol-717

**Cough:** Leaf extract (1–2 teaspoons) with honey is taken 1–2 times daily to manage cough.

Dry cough: Leaves (6–9 in number) are boiled in water (3 cups). The decoction (½ cup) is taken three times a day to manage dry cough. Leaf extract or paste (1 teaspoon) with *Zingiber officinale* rhizome (½ teaspoon) is taken three times a day to manage dry cough.

*Leucas cephalotes* (Roth) Spreng ‘Lamiaceae’, *Gubhi*, Ramkhol-730

**Asthma:** Equal amounts of leaf extract and *Zingiber officinale* rhizome extract are mixed together, and the extract (½ teaspoon) is taken twice daily to manage asthma. *Lygodium flexuosum* (L.) Sw. ‘Lygodiaceae’, *Kalamahajal*, Nrusinghnath - 339

**Cough and Cold:** Root powder (3 g) is taken with honey twice daily on an empty stomach to manage bronchitis. Leaf powder is boiled and taken as herbal tea to treat cough and cold.

*Madhuca longifolia* (L.) J.F. Macbr. ‘Sapotaceae’, *Mahuli*, *Mahul*, Uttam-179

**Cough:** Flowers are boiled by distillation, and country liquor locally known as Mahuli mada is prepared. Flower decoction (5–10 ml) is taken twice a day to manage cough.

*Moringa oleifera* L. ‘Moringaceae’, *Munga*, Ramkhol - 256

**Cough:** Bark decoction (30–50 ml) with honey is taken 1–2 times daily on an empty stomach to relieve cough.

Cough and Cold: Leaf decoction (20 ml) is taken twice daily on an empty stomach to manage cough and cold.

**Asthma:** Seed kernel powder (1–2 g) is administered with honey on an empty stomach for 2–3 weeks to alleviate asthma.

*Nyctanthes arbor-tristis* L. ‘Oleaceae’, *Kharkhas*, *Kukudahad*, Khanjharan-636

**Cough:** Leaf (3 in number) and *Piper betel* leaf (one in number) are boiled together, and the decoction obtained is taken three times daily to manage cough.

**Cold:** Flower powder (5 g) is mixed with sugar candy and taken with cold water (½ cup) twice daily to manage cold.

*Ocimum tenuiflorum* L. ‘Lamiaceae’, *Tulsi*, Nrusinghnath-352

**Cough:** Fresh whole plant (120 g) is boiled in about 2 liters of water and allowed to reduce to one-fourth of the total volume. The decoction (10–20 ml for adults and 5–10 mL for children) is taken along with *Piper longum* fruit powder three times a day on an empty stomach to manage cough.

**Cold:** Leaf extract (20–30 in number) is taken with honey 2–3 times daily to manage cold.

*Operculina turpethum* (L.) Silva Manso ‘Convolvulaceae’, Tihidi, Tihudi, Ramkhol-370

**Cough:** Root powder (3 g) with dried *Zingiber officinale* rhizome (3 g) and honey (½ teaspoon) is taken 2–3 times daily to manage cough.

*Passiflora foetida* L. ‘Passifloraceae’, Phutphutia, Nrusinghnath-482

**Bronchitis:** Bark powder (1–2 teaspoons) is soaked in 100 ml of water for 1 hour and filtered. The filtrate is taken three times daily to manage bronchitis.

*Phyllanthus urinaria* L. ‘Phyllanthaceae’, Badi-aonla, Kharmunda-349

**Cough:** Leaves (about 50 g) are boiled in 1 liter of water and the contents are reduced to one-fourth of the total volume. The decoction (50 ml) is taken 1–2 times daily to manage cough.

*Psidium guajava* L. ‘Myrtaceae’, Maya, Ainlapali-118

**Cough:** Fresh leaves (3–5 in number) are boiled in 200 ml of water and allowed to reduce to 50 ml. The decoction (20 ml) with honey is taken twice daily to manage cough.

*Sesbania grandiflora* (L.) Pers. ‘Fabaceae’, Agasthi, Ainlapali-116

**Cold:** Leaf or flower extract (3 drops) is dropped into the nostrils three times daily to manage cold.

*Solanum virginianum* L. ‘Solanaceae’, Baigan-bhejri, Barhaguda-389

**Asthma:** Whole-plant powder (2–3 g) with honey (½ teaspoon) is taken 2–3 times daily to manage asthma.

**Cough:** The flower is crushed and taken with honey twice daily to manage cough. Whole-plant decoction (15 ml) with *Piper longum* fruit powder (1 g) is taken three times daily to manage cough. Stamens (male floral parts) of one flower are crushed, and the paste is taken with honey 2–3 times daily to manage cough in children up to one year of age.

*Stereospermum chelonoides* (L.f.) DC. ‘Bignoniaceae’, Padhel, Khajuria-599

**Asthma:** Root decoction (20 ml) with honey (1 teaspoon) is taken once daily to manage asthma.

*Tamarindus indica* L. ‘Fabaceae’, Tentel, Khajuria-351

Dry cough: Leaf decoction (3 teaspoons) with a pinch of rock salt is taken three times daily to manage dry cough.

*Terminalia arjuna* (Roxb. ex DC.) Wight & Arn. ‘Combretaceae’, Ka, Khandijharan-316

**Cough:** Slightly crushed root bark (10 g) is boiled in goat milk (1 liter) and allowed to reduce to 500 mL of the original volume. It is filtered, and the milk decoction (100 ml) is taken twice daily to treat cough. Bark powder is

ground with leaf extract of *Justicia adhatoda* and allowed to dry. This process is repeated for 7 days. The powder (about 3 g) is taken with honey once daily on an empty stomach to treat cough.

*Terminalia bellirica* (Gaertn.) Roxb. ‘Combretaceae’, Baheda, Nrusinghnath- 173

Whooping cough: Bark is soaked in milk for 7 days and dried on a frying pan by heating. The bark is then crushed to powder, and the powder (3–4 g) is taken with leaf extract of *Piper betel* or honey four times a day to manage whooping cough.

*Trichosanthes dioica* Roxb. ‘Cucurbitaceae’, Putal, Khajuria- 362

**Cold:** Leaves (10 g), *Zingiber officinale* rhizome (5 g), and *Coriandrum sativum* seeds (10 g) are boiled in 200 mL of water, and the decoction (50 ml) is taken 2–4 times daily to manage cold.

*Trichosanthes tricuspidata* Lour. ‘Cucurbitaceae’, Mahakal, Nrusinghnath- 355

**Asthma:** The roots (2–3 pieces, each about 5 cm long) are crushed and boiled in 200 ml of water until the volume is reduced to one-fourth of the original volume. The decoction obtained is taken once daily on an empty stomach to treat asthma.

**Cough and Asthma:** Fruit juice (5–10 ml) is taken once daily to treat cough and asthma.

*Vincetoxicum indicum* (Burm.f.) Mabb. ‘Apocynaceae’, Antamul, Ramkhol - 716

**Asthma:** Leaf paste (5 g) with lukewarm water is taken once daily on an empty stomach to obtain relief from asthma. A fresh leaf may also be chewed on an empty stomach to manage asthma.

*Vitex negundo* L. ‘Lamiaceae’, Nirguni, Ramkhol-369

Dry cough and Asthma: Juice is collected from one end by burning the twigs from the other end. The juice (1 teaspoon) is taken 1–2 times a day on an empty stomach to manage dry cough and asthma.

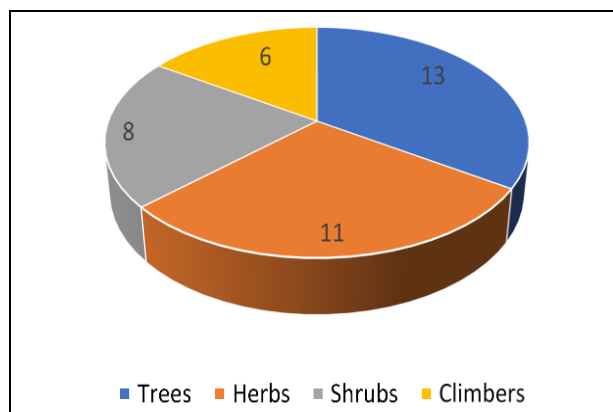
*Ziziphus jujuba* Mill. ‘Rhamnaceae’, Buro, Ainlapali - 111

**Cough and Asthma:** The pulp of 5–6 fruits is crushed and soaked in about 50 ml of water overnight. The preparation is strained in the morning, mixed with honey (1 teaspoon), and taken on an empty stomach for the treatment of cough and asthma. Dried fruits are crushed into a powder, boiled in a glass of water, and allowed to reduce to one-fourth of the original volume. The resulting decoction is mixed with honey (1 teaspoon) and taken once or twice daily for the treatment of cough and asthma.

## Discussion

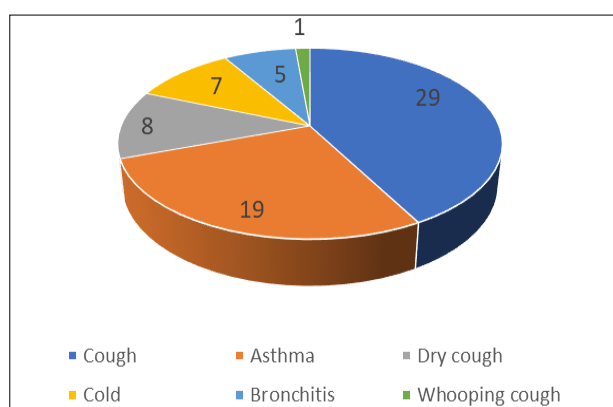
The present ethnomedicinal survey documented 38 plant species belonging to 34 genera and 28 families, represented by 69 traditional herbal prescriptions used by the tribal communities of Baragada district for the treatment of respiratory ailments, including cough, dry cough, whooping cough, cold, bronchitis, and asthma. The findings demonstrate the rich indigenous knowledge of the local

tribal communities in utilizing the surrounding floral diversity for the management of respiratory disorders. Out of 38 ethnomedicinal plant species from the study area, trees constituted the largest growth forms, accounting for 13 species, followed by herbs (11 species), shrubs (8 species), and climbers (6 species) (Fig.1). The predominance of herbs in the present study may be attributed to their wide availability, rapid regeneration, and ease of collection by local tribal communities.



**Fig 1:** Habit of ethnomedicinal plants of the study site

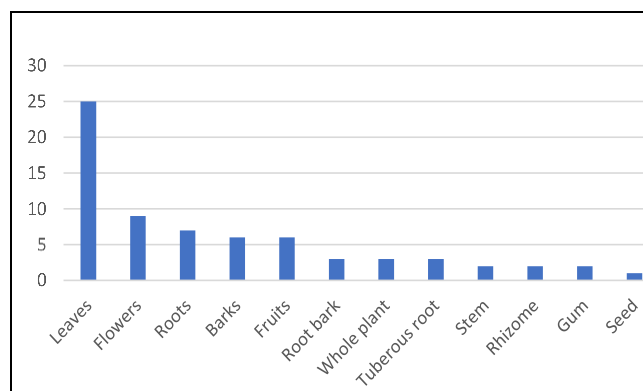
Among the documented respiratory ailments, cough was the most frequently treated condition, accounting for 29 prescriptions, followed by asthma (19 prescriptions) and dry cough (8 prescriptions). Fewer remedies were recorded for cold (7 prescriptions), bronchitis (5 prescriptions), and whooping cough (1 prescription) (Fig.2). The predominance of remedies for cough may be attributed to its high prevalence among tribal populations, where seasonal climatic fluctuations, exposure to smoke from traditional cooking practices, dust, and agricultural activities frequently contribute to respiratory infections and irritation.



**Fig 2:** List of diseases reported from the study site

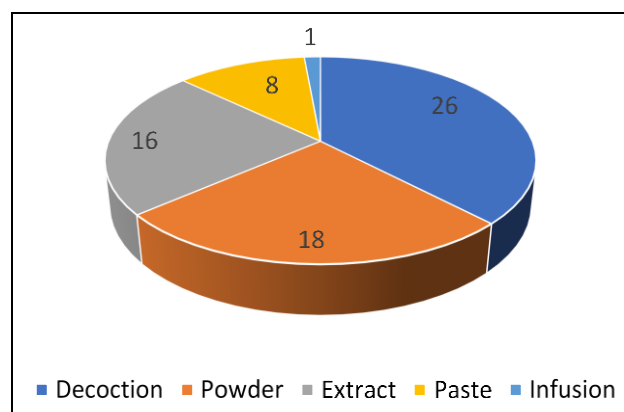
Analysis of plant parts used revealed that leaves constituted the most frequently utilized plant part (25 records), followed by flowers (9), roots (7), fruits (6), stems (2), bark (6), whole plants (3), root bark (3), tuberous roots (3), rhizomes (2), gum (2), and seed (1) (Fig.3). The predominance of leaves has been widely reported in ethnomedicinal studies and may be explained by several ecological and pharmacological factors. Leaves are readily available throughout much of the year and are easy to harvest without destroying the plant. The preferential use of leaves may therefore promote sustainable harvesting compared with

destructive collection of roots and bark, thereby contributing to the conservation of medicinal plant resources.



**Fig 3:** List of plant parts used in medicine preparation

The study also revealed considerable diversity in herbal preparation methods. Decoction was the most commonly employed formulation (26 prescriptions), followed by powders (18), extracts (16), pastes (8), and infusion (1) (Fig. 4). The predominance of decoctions reflects the long-standing tradition of boiling medicinal plant materials to extract water-soluble bioactive constituents while simultaneously reducing potential toxicity. Decoctions are generally preferred for treating respiratory disorders because they facilitate rapid extraction of phytochemicals and are easy to administer orally. Similarly, extracts and powders provide convenient means for preserving medicinal materials and ensuring repeated administration, while pastes are commonly prepared from fresh plant materials for immediate therapeutic use. Although infusion was recorded in only one prescription, this method is traditionally suitable for water-soluble and relatively heat-sensitive constituents from delicate plant parts such as leaves and flowers. The limited use of infusion in the present study may reflect the local preference for decoctions and other preparation methods in the treatment of respiratory disorders.



**Fig 4:** List of herbal preparation methods

The study documented a diverse range of plant species belonging to different families that are used either individually or in combination for the management of respiratory ailments. A total of 69 herbal medicine preparations were recorded, of which 51 formulations involved the use of a single plant species, while 18 preparations consisted of combinations of two or more plant species and/or other ingredients. Regarding the mode of administration, oral application was the predominant

method, accounting for 67 of the documented preparations, whereas inhalation was recorded in only two cases. These findings indicate a strong preference for orally administered herbal remedies among the local community, with inhalation being used less frequently for the treatment of respiratory disorders.

The relatively high number of prescriptions recorded for respiratory disorders indicates that traditional medicine continues to play a significant role in community healthcare. The persistence of this knowledge among tribal healers emphasizes the importance of preserving ethnomedicinal heritage through proper documentation, scientific validation, and intergenerational knowledge transfer. Integration of validated traditional remedies into community healthcare programmes may contribute to affordable and culturally acceptable treatment options while simultaneously promoting biodiversity conservation.

Overall, the present investigation not only enriches the ethnomedicinal database of Odisha but also provides a valuable resource for future phytochemical, pharmacological, and clinical studies aimed at evaluating plant-derived therapeutic potential against respiratory diseases.

### Conclusion

The present study documented 38 medicinal plant species belonging to 34 genera and 28 families that are traditionally employed by the tribal communities of Baragada district, Odisha, for the treatment of respiratory ailments. A total of 69 herbal prescriptions were recorded for managing cough, dry cough, whooping cough, cold, bronchitis, and asthma, demonstrating the extensive reliance of indigenous communities on plant-based healthcare systems. Cough represented the most frequently treated ailment, while leaves were the most commonly utilized plant part, reflecting their easy accessibility and potential for sustainable harvesting. Decoction emerged as the predominant method of herbal preparation, indicating the widespread preference for water-based extraction techniques in traditional medicine.

The documented ethnomedicinal knowledge represents an important cultural and biological resource with considerable potential for future research. The recorded plant species warrant comprehensive phytochemical, pharmacological, toxicological, and clinical investigations to evaluate the scientific basis of their reported traditional uses. Furthermore, increasing anthropogenic pressure, habitat degradation, and the gradual erosion of indigenous knowledge highlight the need for conservation of medicinal plant diversity and systematic documentation of traditional healthcare practices.

The findings of this study contribute to the growing ethnobotanical database of India and provide a scientific foundation for future research on plant-based therapeutics for respiratory diseases. Sustainable utilization, community participation, and conservation of medicinal plant resources should be encouraged to preserve this valuable traditional knowledge while promoting its responsible integration into evidence-based healthcare systems.

### Acknowledgment

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willingness to share their traditional knowledge and valuable information regarding the ethnomedicinal uses of the plant species documented during the study.

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