

Ethnobotanical insights of medicinal plants: traditional therapeutic applications

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Abstract: Medicinal plants are regarded as crucial ancient form of medication that are used in traditional medicine in many countries not only in rural areas but also in urban areas for thousands of years. The current study reported the comprehensive overview of the ethnobotanical review of a selected 50 species belonging to 31 families to document their therapeutic applications and traditional preparation approaches. The data were systematically compiled from published ethnobotanical literature and scientific databases, focusing on the mode of administration and the therapeutic relevance of taxa. This review revealed a diverse range of pharmacological activities, with the most frequent therapeutic targets being gastrointestinal, skin disorders and wound healing, documented in 15-20 studied taxa. Specific ailments including diabetes, respiratory infections and fever were also prominently addressed across multiple species. The analysis of administration methods confirmed a primary reliance on oral decoctions, followed by topical leaf paste and infusions, emphasizing a preference for simple water-based extraction approach. These overviews value the conservation of traditional knowledge and offer a scientific foundation for further phytochemical as well as pharmacological research of the medicinal plants.

Keywords: decoction, disorders, ethnobotany, ethnomedicine, medicinal plants

INTRODUCTION

Globally, medicinal plants are regarded as crucial ancient form of medication that are used in traditional medicine in many countries not only in rural areas but also in urban areas for thousands of years. Within human communities, the knowledge of beneficial effects of medicinal plants was transferred over the centuries [Marrelli, 2021]. According to the World Health Organization (WHO), in rural areas, 80% of the populations depends on herbal medicine for their healthcare requirements. In developing countries, due to the lack of modern health facilities, traditional medicines serve as economic source of primary health maintenance (Hu et al., 2020). Since ancient times, herbal medicines have been widely approved in China. The first book called Shennong Bencao Jing (Shennong's Herbal Classic), systematically introduced and explained the knowledge of traditional medicinal plants in the Eastern Han Dynasty (25 AD–220 AD). Historical context revealed that the establishment of traditional medicine in countries like China is based on thousands of years of experiences owing to prescriptions, principles, and reflections on the human-nature relationships. Presently, traditional medicinal plants play a vital role in protecting human health in remote and less-developed areas [Hermosaningtyas et al., 2025].

Ethnobotany is defined as the study of plant and people relationships, and it is regarded as subdisciplines of ethnobiology, among others like ethnopharmacology, ethnomedicine, ethnozoology, ethnoecology, ethnomycology, and ethnoveterinary. According to J. Harshberger, the term “ethnobotany” was defined as “the use of plants by aboriginal peoples” [Huang et al., 2022]. According to Schultes, ethnobotany is the study of the relationship between primitive societies and their plant environment. The indigenous knowledge of the use and preparation of plants in traditional medicine plays a valuable role in defining the cultural identities of communities and provide evidence for links to their past. In obtaining new lead bioactive compounds for developing allopathic drugs, documenting traditional knowledge of plants used in traditional medicine is a crucial step

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[Tahir et al., 2023]. Previous study revealed that plants produce diverse natural products, such as bioactive metabolites, phenolics and antioxidants which are essential to address a wide range of ailments. For example, coumarins were first isolated from *Dipteryx odorata* Willd and commonly used to treat prostate cancer. Ethanol extract of *Terminalia pallida* Brandis (Combretaceae) showed antimicrobial potential against various bacterial and fungal strains. Neuropharmacological activities of *Citrus limon* extracts against Swiss albino mice highlight significant sleep onset reduction [Rahman et al., 2022]. The present review paper aimed to systematically document the therapeutic applications and traditional preparation methods of 50 selected plant taxa across 31 families to establish a scientific foundation for future pharmacological research.

MATERIAL AND METHODS

Samples collection and identification. During August and September 2025, various field visits were conducted in subtropical regions of KPK for the collection of medicinal plants belonging to various families. Fifty fresh samples of selected plants were collected from their habitat and kept in labeled transparent zipper envelopes. The fifty plant species were selected based on their ethnomedicinal importance and availability in the study area. Taxonomically diverse species with multiple traditional uses and reported pharmacological potential were prioritized to ensure a comprehensive and representative overview. High-quality visual documentation was ensured by capturing images of each plant using a Panasonic ZS 20 digital camera. The identification of collected plant species was done by accessing the ISL Herbarium located at Quaid-i-Azam University, Islamabad, Pakistan.

Literature-Based ethnobotanical data acquisition. The current study is based on a comprehensive review of ethnobotanical literature related to 50 species belonging to 31 families (Figure 1). Data of studied taxa were collected from peer-reviewed research articles, ethnobotanical surveys, floras, books, and online scientific databases, such as Google Scholar, Scopus, and PubMed. Keywords such as ethnobotany, traditional medicine, medicinal uses, and individual plant names were used to retrieve relevant literature. To ensure accuracy and consistency, details regarding plant habit, and ethnomedicinal applications was extracted, compiled, and critically analyzed (Table 1).



Figure 1. Field pictorial view: 1. *Trianthema portulacastrum*, 2. *Tulbaghia violacea*, 3. *Ageratum conyzoides*, 4. *Calendula officinalis*, 5. *Impatiens scabrida*, 6. *Impatiens bicolor*, 7. *Begonia cucullata*, 8. *Campsis grandiflora*, 9. *Tecoma stans*, 10. *Tecomaria capensis*, 11. *Ethretia microphylla*, 12. *Cleome viscosa*, 13. *Combretum indicum*, 14. *Commelina benghalensis*, 15. *Cassia fistula*, 16. *Geranium palustre*, 17. *Geranium pusillum*, 18. *Pelargonium zonale*, 19. *Hypericum androsaemum*, 20. *Hydrangea involucrate*, 21. *Cuphea hyssopifolia*, 22. *Lagerstromemia speciosa*, 23. *Martynia annua*, 24. *Mirabilis jalapa*.



Figure 1 (continue). Field pictorial view: 25. *Bougainvillea glabra*, 26. *Jasminum grandiflorum*, 27. *Ludwigia octovalvis*, 28. *Oxalis triangularis*, 29. *Paeonia × suffruticosa*, 30. *Sesamum indicum*, 31. *Antirrhinum latifolium*, 32. *Antirrhinum australe*, 33. *Persicaria capitata*, 34. *Persicaria orientalis*, 35. *Ranunculus lanuginosus*, 36. *Clematis connata*, 37. *Delphinium elatum*, 38. *Hamelia patens*, 39. *Rondeletia odorata*, 40. *Kickxia elatine*, 41. *Leucophyllum frutescens*, 42. *Ficus sur*, 43. *Ajuga integrifolia*, 44. *Leucas aspera*, 45. *Debregeasia longifolia*, 46. *Urena baccifera*, 47. *Verbena aristigera*, 48. *Duranta erecta*, 49. *Nekemias cantoniensis*, 50. *Causonis trifolia*.

RESULTS AND DISCUSSION

The ethnobotanical interpretation of the 50 species belonging to 31 families highlights a wide range of medicinal applications across different therapeutic categories. Medicinal plants have played a vital role in traditional healthcare systems, offering remedies for a wide range of human health issues. The transmission of traditional knowledge about these plants typically orally passed down through generations by elders and traditional healers [Awoke et al., 2024]. The most frequently reported use was for gastrointestinal, skin disorders and wound healing purposes, documented in 15-20 studied species (Fig. 2). *Helichrysum compactum*, *S. cilicica* and *S. congesta* were consumed as herbal teas while *M. communis* is used to treat diabetes and constipation, and its fruits are consumed as a snack. Dysentery is treated by three distinct studied taxa while diarrhea is primary target for species like *Ajuga integrifolia*. Multiple plants are used to treat fever, cardiac problems, ulcer etc. Previous study suggested that *F. saussureana*, *T. asiatica*, *P. hadiensis* and *S. longipedunculata* are used for treating sore throat [Emre et al., 2021]. Certain studied taxa including *Impatiens scabrids* and *Verbena aristigera* are highlighted for their broad pharmacological potential, ranging from antimicrobial and anti-inflammatory to neuroprotective and anticancer properties. Previous study showed that *M. neglecta*, endemic *Helichrysum arenarium*, *Thymus leucotrichus*, *U. dioica*, are used to treat various disorders ranging from asthma, inflammations, Espiye bronchitis, cough, cutaneous disease, respiratory disease and tonsillitis [Polat et al., 2015]. The modes of administration were analyzed and found that most frequent mode of administration is the oral intake of decoctions, followed by using leaf pastes for topical applications and infusions. The prevalence of decoctions and topical pastes confirmed a heavy dependence on water-based methods of extraction that are simple to use, highlighting that there is a heavy dependence on knowledge systems based on the traditional that can be prepared using readily available and affordable means. A significant portion of the documented species are utilized to treat a handful of recurring ailments (Fig. 3). Experimental evidence highlighted that *Euphorbia hirta* contains compounds with antiviral activity so decoction of the whole of this plant or its part(s) can be used against the dengue virus. Due to easy handling and sustainability, Leaves are common parts used for medicinal treatment preparation [Meñiza et al., 2024].

Table 1. Ethnobotanical overview of the fifty selected medicinal taxa.

S.no	Plant taxa	Family	Habit	Traditional medicinal uses	Mode of preparation / administration	Citation
1.	<i>Ageratum conyzoides</i> L.	Asteraceae	Annual herb	Wound healing, fever, antimicrobial	Leaf paste applied topically; decoction taken orally	Awake & tahir, (2025)
2.	<i>Ajuga integrifolia</i> Buch.-Ham. Ex d don	Lamiaceae	Perennial herb	Diarrhea, stomach disorders, evil eye, retained placenta, ascariasis, malaria, swollen legs, hypertension, jaundice and wounds	Decoction; leaf paste	Seifu, (2017)
3.	<i>Antirrhinum australe</i> Rothm	Plantaginaceae	Perennial herb	Liver problems	Decoction taken orally	Al-snafi, (2015)
4.	<i>Antirrhinum latifolium</i> Mill	Plantaginaceae	Perennial herb	Diuretic and to treat scurvy, tumors and ulcers	Leaves and flower decoction taken orally.	Kumar, (2022)
5.	<i>Begonia cucullata</i> Willd	Bigoniaceae	Succulent or perennial herb	Respiratory disorders, digestive disorders, dermatological conditions, hypertension, kidney stones, liver disorders, venereal diseases, measles, diabetes mellitus, postpartum complications.	Decoctions taken orally; leaf paste applied topically; stems/petioles and flowers, are also used in their raw form.	Borah et al., (2025)
6.	<i>Bougainvillea glabra</i> Choisy	Nyctaginaceae	Perennials shrub	Respiratory diseases such as cough, asthma, bronchitis, gastrointestinal diseases	Decoction of plant taken orally.	Omelaş garcía et al., (2023)
7.	<i>Calendula officinalis</i> L	Asteraceae	Annual herb	Skin disorders, ulcers	Flower ointment and infusion	Nadaf et al., (2025)
8.	<i>Campsis grandiflora</i> (Thunb.) K.schum	Bignoniaceae	Deciduous climbers	Activating blood circulation, removing blood stasis,	Decoctions taken orally	Cui et al., (2006)
9.	<i>Cassia fistula</i> L.	Fabaceae	Perennial herb	Diabetic therapy, antioxidant	Decoction	Singdam et al., (2025)
10.	<i>Cassia trifolia</i> (L.) Mabb. & j.wen	Vitaceae	Perennial herb	Ailments such as nervous disorders, syphilis, gout, malaria, dysentery, rheumatism, asthma, and as analgesic, anti-inflammatory, diuretic, antitumor, antibacterial and anticancer	Decoction	Chawla et al., (2012)
11.	<i>Clematis connata</i> DC	Ranunculaceae	Deciduous climber	Malarial fevers, fevers due to indigestion, skin diseases, leprosy, blood diseases, and uterine complaints, earache, piles, and lumbago, diabetes.	Juice of the leaves taken orally.	Mali, (2010)
12.	<i>Cleome viscosa</i> L.	Cleomaceae	Annual, sticky herb			

Table 1 (continues). Ethnobotanical overview of the fifty selected medicinal taxa.

1	2	3	4	5	6	7
13.	<i>Combretum indicum</i> (L.) Defilipps	Combretaceae	Deciduous climbing shrub	Respiratory infections, gastro-intestinal problems, malaria, evil spirits, fatigue, rheumatism, epilepsy, haemorrhoids, pain, infertility in women, wounds, snake bites and skin disorders.	Leaf decoctions taken orally.	Bhuiya, (2020)
14.	<i>Commelina benghalensis</i> L.	Commelinaceae	Perennial herb	Dengue fever, diabetes, cancer heart-diseases, autoimmune diseases, aging and neurological diseases.	Leaf decoctions taken orally.	Omi et al., (2018)
15.	<i>Cuphea hyssopifolia</i> kunth	Lythraceae	Perennials shrub	Antioxidant and anticytotoxic	Decoctions taken orally.	Elgindi et al., (2012)
16.	<i>Debregeasia longifolia</i> (Burm.f.) Wedd	Urticaceae	Shrub	Dysentery, arthritis, skin scabies, digestive disorders, skin illnesses, indigestion, and sunburn.	Leaves used in their raw form; paste	Mahmoud, (2019)
17.	<i>Delphinium elatum</i> L.	Ranunculaceae	Perennial herb	Analgesic, antibacterial, antipyretic, and anticancer, bruises, rheumatism, toothache, and enteritis.	Decoction; leaf paste	Chen et al., (2020)
18.	<i>Duranta erecta</i> L.	Verbenaceae	Shrub	Antioxidant and antimicrobial	Decoction	Donkor et al., (2019)
19.	<i>Ehretia microphylla</i> Lam	Boraginaceae	Evergreen shrub	Antibacterial, anti-allergic, anti-diarrheal, anti-inflammatory, analgesic, anti-mutagen and anti-tumor activities; treat cholera, diabetes, hyperacidity and allergies	Leaf decoctions taken orally.	Suresh et al., (2025)
20.	<i>Ficus sur</i> Forssk	Moraceae	tree	Leukoderma, leprosy, wounds, oedema, respiratory problems, diarrhoea, tuberculosis, anaemia, epilepsy, rickets, dysentery, male infertility, and gonorrhoea	Decoction	Sieniawska et al., (2022)
21.	<i>Geranium palustre</i> L.	Geraniaceae	Perennial herb	Antibacterial	Fresh or dried plant is used as a decoction or infusion	Velasquez-arevalo et al., (2020)
22.	<i>Geranium pusillum</i> L.	Geraniaceae	Perennial herb	Antioxidant, antibacterial	Leaf decoctions taken orally.	Mehmood et al., (2024)
23.	<i>Hamelia patens</i> Jacq.	Rubiaceae	Perennial shrub	Athlete's foot, skin problems, insect sting, psychiatric disorder, rheumatism, headache, asthma, dysentery, menses, ovarian and uterine disorders	Decoction; leaf paste	Noor et al., (2020)
24.	<i>Hydrangea involucrate</i> Siebold	Hydrangeaceae	Shrub	To treat kidney disorders	decoctions taken orally.	Leitanthem, (2020).

Table 1 (continues). Ethnobotanical overview of the fifty selected medicinal taxa.

1	2	3	4	5	6	7
13.	<i>Combretum indicum</i> (L.) Deflilpps	Combretaceae	Deciduous climbing shrub	Respiratory infections, gastro-intestinal problems, malaria, evil spirits, fatigue, rheumatism, epilepsy, haemorrhoids, pain, infertility in women, wounds, snake bites and skin disorders.	Leaf decoctions taken orally.	Bhuiya, (2020)
14.	<i>Commelina benghalensis</i> L.	Commelinaceae	Perennial herb	Dengue fever, diabetes, cancer heart-diseases, autoimmune diseases, aging and neurological diseases.	Leaf decoctions taken orally.	Orni et al., (2018)
15.	<i>Cuphea hyssopifolia</i> kunth	Lythraceae	Perennials shrub	AntioXidant and anticytotoxic	Decoctions taken orally.	Elgindi et al., (2012)
16.	<i>Debregeasia longifolia</i> (Burm.f.) Wedd	Urticaceae	Shrub	Dysentery, arthritis, skin scabies, digestive disorders, skin illnesses, indigestion, and sunburn.	Leaves used in their raw form; paste	Mahmoud, (2019)
17.	<i>Delphinium elatum</i> L.	Ranunculaceae	Perennial herb	analgesic, antibacterial, antipyretic, and anticancer, bruises, rheumatism, toothache, and enteritis.	Decoction; leaf paste	Chen et al., (2020)
18.	<i>Duranta erecta</i> L.	Verbenaceae	shrub	AntioXidant and antimicrobial	Decoction	Donkor et al., (2019)
19.	<i>Ethretia microphylla</i> Lam	Boraginaceae	Evergreen shrub	Antibacterial, anti-allergic, anti-diarrheal, anti-inflammatory, analgesic, anti-mutagen and anti-tumor activities; treat cholera, diabetes, hyperacidity and allergies	Leaf decoctions taken orally.	Suresh et al., (2025)
20.	<i>Ficus sur</i> Forssk	Moraceae	tree	Leukoderma, leprosy, wounds, oedema, respiratory problems, diarrhoea, tuberculosis, anaemia, epilepsy, rickets, dysentery, male infertility, and gonorrhoea	Decoction	Sieniawska et al., (2022)
21.	<i>Geranium palustre</i> L.	Geraniaceae	Perennial herb	Antibacterial	Fresh or dried plant is used as a decoction or infusion	Velasquez-arevalo et al., (2020)
22.	<i>Geranium pusillum</i> L.	Geraniaceae	Perennial herb	Antioxidant, antibacterial	Leaf decoctions taken orally.	Mehmood et al., (2024)
23.	<i>Hamelia patens</i> Jacq.	Rubiaceae	Perennial shrub	Athlete's foot, skin problems, insect sting, psychiatric disorder, rheumatism, headache, asthma, dysentery, menses, ovarian and uterine disorders	Decoction; leaf paste	Noor et al., (2020)
24.	<i>Hydrangea involucrate</i> Siebold	Hydrangeaceae	Shrub	To treat kidney disorders	decoctions taken orally.	Leitanthem, (2020).

Table 1 (continues). Ethnobotanical overview of the fifty selected medicinal taxa.

1	2	3	4	5	6	7
25.	<i>Hypericum androsaemum</i> L.	Hypericaceae	deciduous shrub	Diuretic, hepatoprotective and antihypertensive, kidney and bladder ailments.	Infusions are used	Ramalhete et al., (2016)
26.	<i>Impatiens bicolor</i> Royle	Balsaminaceae	Annual herb	Antimicrobial	Juice of corolla	Nisar et al., (2010)
27.	<i>Impatiens scabrida</i> DC.	Balsaminaceae	Annual herb	For healing wounds, abscesses, ingrown nails and chronic ulcers; to treat articular rheumatism, beriberi, bruises pain, bacterial, fungal and local infections.	squeezed on skin as an antipruritic; dried herb boiled in water and taken orally.	Singh et al., (2017)
28.	<i>Jasminum grandiflorum</i> L.	Oleaceae	Evergreen shrub	Body pains, toothache, stomachache, ulcers, wound healing, antimicrobial.	Leaves are chewed; extracted oil applied topically.	Arun et al., (2016).
29.	<i>Kickxia elatine</i> (L.) Dumort.	Scrophulariaceae	Perennial herb	Wound healing, and cure hemorrhages and laceration, internal bleeding, profuse menstruation, and nosebleeds	Infusion; paste	Hermosaningtyas et al., (2025)
30.	<i>Lagerstromenia speciosa</i> (L.) Pers.	Lythraceae	Tree	Diabetes mellitus, kidney inflammation, dysuria, urinary dysfunctions, cholesterol deduction, hypertension, poulitice, malaria, headache	Leaf decoction or infusion	Al-snafi, (2019)
31.	<i>Leucas aspera</i> (Willd.) Link	Lamiaceae	Herb	Antimicrobial, larvicidal, antinociceptive, cytotoxic antioxidant, and hepatoprotective	Decoction	Kumar et al., (2019)
32.	<i>Leucophyllum frutescens</i> (Berland.) I.M.Johnst	Scrophulariaceae	perennial shrub	bronchitis, chills, fever, dysentery, cough, cataract, asthma, and liver injury	Decoction	Ahmad et al., (2022)
33.	<i>Ludwigia octovalvis</i> (Jacq.) P.H.Raven	Onagraceae	Perennial herb	edema, nephritis, hypotension, anti-malarial, dysentery, diarrhea, diabetes, headache, fever, carminative, laxative, vermifuge, astringent, anthelmintic, in nervous disorders, as analgesic, in rheumatic pain and for swollen glands	Decoctions taken orally.	Pandey et al., (2021)
34.	<i>Martynia annua</i> L.	Martyniaceae	Annual herb	Antioxidant, anthelmintic, analgesic and antipyretic, antibacterial, anti-convulsant, antinociceptive and antifertility, central nervous system (CNS) depressant, wound healing, antidiabetic, gastroprotective, antifungal.	Decoction of whole plant taken orally.	Gupta & deogade, (2018)

Table 1 (continues). Ethnobotanical overview of the fifty selected medicinal taxa.

1	2	3	4	5	6	7
35.	<i>Mirabilis jalapa</i> L.	Nyctaginaceae	Perennial herb	Dysentery, diarrhea, muscle pain, abdominal colic, hepatitis and jaundice.	Juice of the leaves taken orally; leaf paste applied topically.	Rozina, (2016)
36.	<i>Nekemias cantoniensis</i> (Hook. & Arn.) J.Wen & Z.L.Nie	Vitaceae	Woody vine	Cold fever, sore throat, jaundice hepatitis.	Decoction	Yang et al., (2024)
37.	<i>Oxalis triangularis</i> A. St.-Hil	Oxalidaceae	Perennial herb	Antioxidant & antioxidant	Decoction taken orally; leaf paste applied topically.	Sharma et al., (2024)
38.	<i>Paeonia</i> × <i>suffruticosa</i> Andrews	Paeoniaceae	Deciduous shrub	Antioxidant, cytoprotective, anti-cancer, anti-inflammatory, cardioprotective, anti-atherosclerotic, anti-diabetic and hepatoprotective	Root decoction taken orally	Ekiert et al., (2022)
39.	<i>Pelargonium zonale</i> (L.) L'hér.	Geraniaceae	Scrambling shrub	Antioxidant, antifungal, antiviral, anti-inflammatory, hepatoprotective and antimicrobial	Leaf decoctions taken orally.	Celi et al., (2024)
40.	<i>Persicaria capitata</i> (Buch.-Ham. Ex d.don) h.gross	Polygonaceae	Perennial herb	Antioxidant and antibacterial, skin infections, urinary tract ailments, cardiovascular diseases, and inflammatory conditions	Decoction taken orally	Kumar et al., (2025)
41.	<i>Persicaria orientalis</i> (L.) Spach	Polygonaceae	annual herb	Anti-inflammatory, anti-diarrheal, thrombolytic, and cytotoxic	Decoction taken orally	Ansari et al., (2017)
42.	<i>Ranunculus lanuginosus</i> L.	Ranunculaceae	Perennial herb	Malaria, jaundice, migraines, stomachaches, arthralgia, crane-like arthropathy, ulcers, toothaches, and eye inflammation	Decoction taken orally	Goo, (2022).
43.	<i>Rondeletia odorata</i> Jacq	Rubiaceae	Perennial shrub	Ulcers, skin-related problems and diuresis.	Decoction; leaf paste	Khursheed et al., (2022)
44.	<i>Sesamum indicum</i> L.	Pedaliaceae	Annual herb	High blood pressure, laxative, emollient, demulcent and poultice	Seed and leaf decoction taken orally.	Anilakumar et al., (2010)
45.	<i>Tecoma stans</i> (L.) Juss. ex Kunth	Bignoniaceae	Large shrub	Diabetes, urinary disorder, diuretic, vermifuge, wound healing, antispasmodic, antimicrobial.	Decoctions taken orally; leaf paste applied topically.	Anburaj et al., 2016
46.	<i>Tecomaria capensis</i> (thunb.) Spach	Bignoniaceae	Perennial shrub	Analgesic, anti-inflammatory and antipyretic	Decoctions taken orally	Saini & singha, (2012).
47.	<i>Trianthema portulacastrum</i> L.	Aizoaceae	Succulent or fleshy herb	Wound healing, relieving thoracic and stomach pain, relieving the joint and muscle pain, cures corneal ulcers.	Powder and decoction taken orally; extracted oil and leaf paste applied topically.	Poddar et al., (2020)

Table 1 (continues). Ethnobotanical overview of the fifty selected medicinal taxa.

1	2	3	4	5	6	7
48.	<i>Tulbaghia violacea</i> Harv	Amaryllidaceae	perennial herb	Earache, fever, high blood pressure, heart problems, chest complaints and high cholesterol.	Boiled fresh bulb in water and infusion taken orally.	Olorunnisola et al., (2011)
49.	<i>Ureva baccifera</i> (L.) Gaudich. ex Wedd	Urticaceae	Shrub	Antioxidant, antiviral, anti-inflammatory and antimicrobial	Decoction	Gindri et al., (2014)
50.	<i>Verbena aristigera</i> S. Moore	Verbenaceae	Perennial herb	Antioxidant, antimicrobial, anti-inflammatory, neuroprotective anticancer, analgesic, or anticonvulsant	Decoction	Kubica et al., (2020)

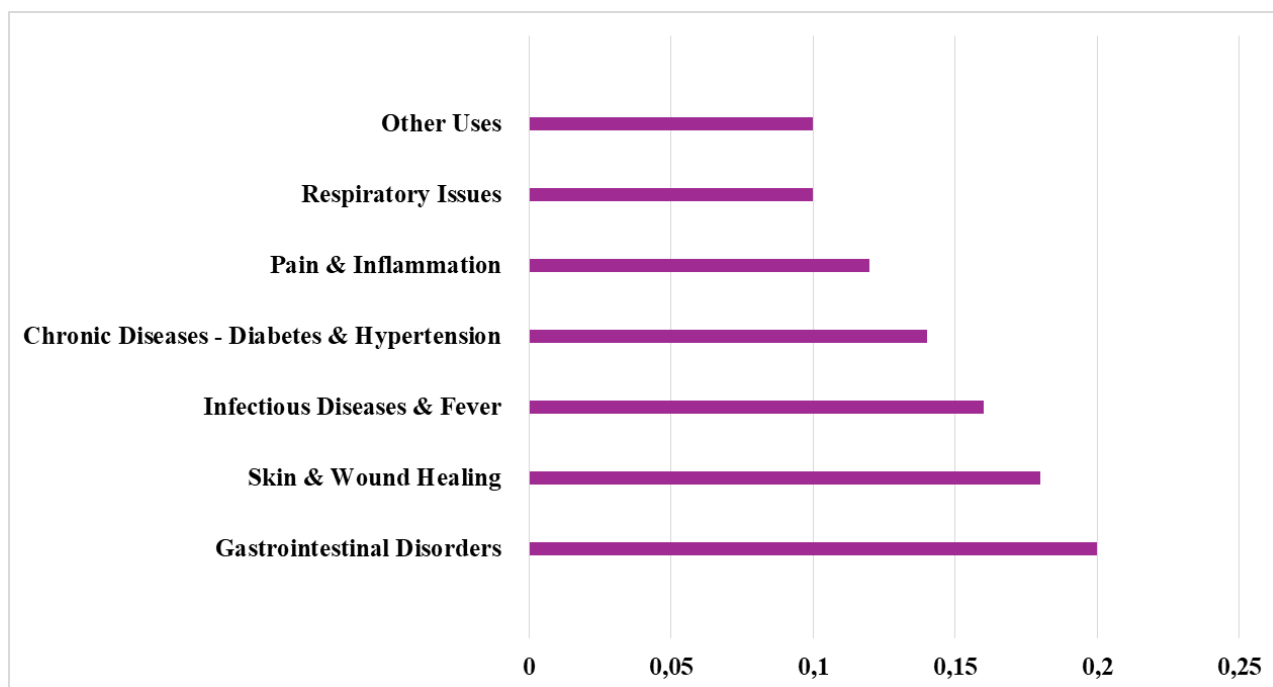


Figure 2. Bar graph overview of the mode of administration utilized by 50 species belonging to 31 families.

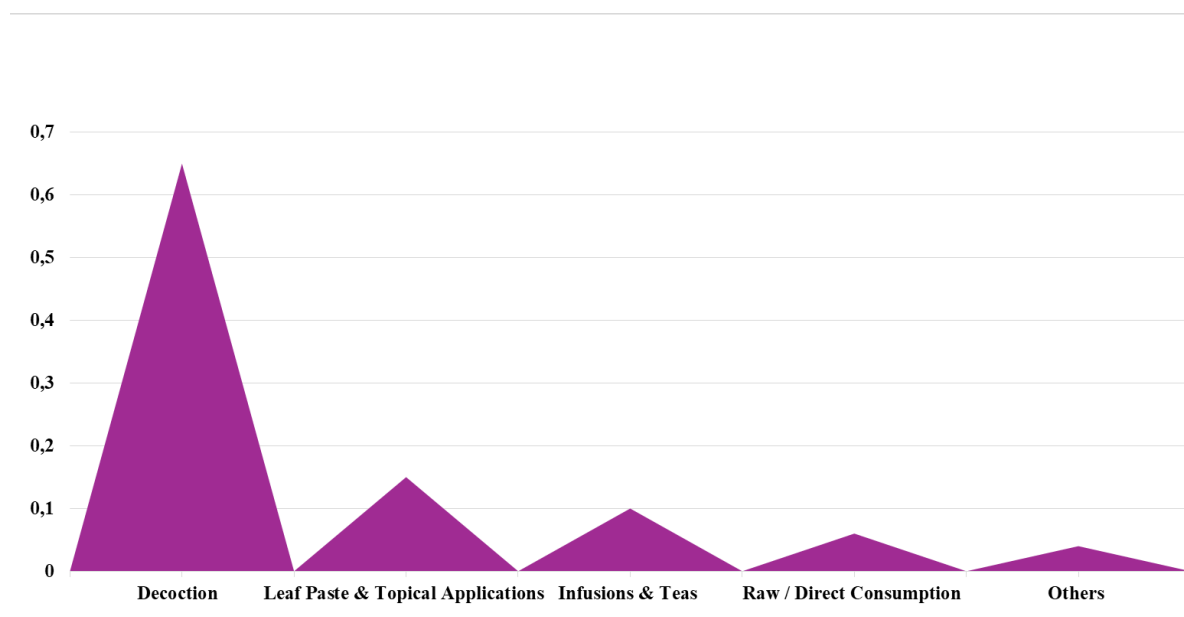


Figure 3. Bar graph showing the overview of 50 species belonging to 31 families used to treat different ailments.

In decoction, the leaves of *Maerua crassifolia* are used to treat gastric ailments. To treat burns and sores, leaf powder is applied as poultice. In decoction, the bark of the stem is used as antidiarrheal and to treat the stomach aches. The chewed stem is used as a traditional toothbrush [Idm'hand, et al., 2020]

CONCLUSION

The current study revealed that fifty studied taxa can be regarded as good source of traditional medicine in contemporary healthcare, particularly within rural and developing regions. By documenting species across 31 diverse families, this study revealed the significance of plant-people relationships, where specific botanical habits are systematically linked to the treatment of ailments including gastrointestinal, skin and respiratory disorders. The findings highlight that oral decoctions and tropical leaf pastes remains the primary mode of administration. The study confirmed from the literature the high reliance on plant-based remedies since they are easily available and effective in treatment. The uniform ethnomedicinal approaches of such species justifies their future pharmacological validation as well as the isolation of bioactive compounds.

DECLARATIONS

The data that support the findings of this study are available from the corresponding author upon reasonable request.

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Dərman bitkilərinin etnobotanik xüsusiyyətləri: ənənəvi müalicə tətbiqləri

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Dərman bitkiləri min illərdir ki, həm kənd, həm də şəhər ərazilərində bir çox ölkələrdə ənənəvi tibbdə istifadə olunan ən qədim və mühüm müalicə vasitələrindən biri hesab edilir. Bu tədqiqatda 31 fəsiləyə aid seçilmiş 50 bitki növünün etnobotanik icmalı təqdim olunmuş, onların terapevtik tətbiqləri və ənənəvi hazırlanma üsulları sənədləşdirilmişdir. Məlumatlar dərc olunmuş etnobotanik ədəbiyyatlardan və elmi bazalardan sistemli şəkildə toplanmış, xüsusilə tətbiq üsulları və bitki növlərinin terapevtik əhəmiyyəti araşdırılmışdır. İcmal göstərmişdir ki, bu bitkilər müxtəlif farmakoloji təsirlərə malikdir və ən çox rast gəlinən müalicə istiqamətləri mədə-bağırsaq xəstəlikləri, dəri problemləri və yara müalicəsi olmuşdur; bu təsirlər 15–20 növdə qeyd edilmişdir. Bundan əlavə, diabet, tənəffüs yolu infeksiyaları və qızdırma kimi xəstəliklərin müalicəsində də bir çox bitki növündən geniş istifadə olunduğu müəyyən edilmişdir. İstifadə üsullarının təhlili göstərmişdir ki, əsasən ağız yolu ilə qəbul edilən həlimlərdən istifadə olunur, bundan sonra yarpaq pastalarının səthi tətbiqi və dəmləmələr gəlir. Bu isə sadə, su əsaslı ekstraksiya üsullarına üstünlük verildiyini göstərir. Bu icmal ənənəvi biliklərin qorunmasının vacibliyini vurğulayır və dərman bitkilərinin gələcək fitokimyəvi və farmakoloji tədqiqatları üçün elmi əsas yaradır.

Açar sözlər: həlim, nasazlıq, etnobotanika, xalq təbabəti, dərman bitkiləri

Этноботанические особенности лекарственных растений: традиционные терапевтические применения

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Лекарственные растения считаются одной из важнейших древних форм лечения, которые на протяжении тысячелетий используются в традиционной медицине многих стран как в сельской местности, так и в городах. В данном исследовании представлен комплексный этноботанический обзор 50 выбранных видов растений, относящихся к 31 семейству, с целью документирования их терапевтического применения и традиционных способов приготовления. Данные были системно отобраны из опубликованной этноботанической литературы и научных баз данных с акцентом на способы применения и терапевтическое значение таксонов. Обзор показал широкий спектр фармакологических свойств, при этом наиболее распространёнными направлениями лечения были заболевания желудочно-кишечного тракта, кожные заболевания и заживление ран, зафиксированные у 15–20 изученных видов. Кроме того, многие растения активно применялись для лечения диабета, респираторных инфекций и лихорадки. Анализ способов применения подтвердил преимущественное использование отваров для приёма внутрь, за которыми следуют наружное применение паст из листьев и настоев. Это подчёркивает предпочтение простых методов экстракции на водной основе. Данный обзор подчёркивает важность сохранения традиционных знаний и создаёт научную основу для дальнейших фитохимических и фармакологических исследований лекарственных растений.

Ключевые слова: отвар, расстройство, этноботаника, этномедицина, лекарственные растения