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Medicinal Plants Used in Tribal Healthcare Practices for the Treatment of Gastrointestinal Ailments in UT of Jammu and Kashmir: A Review

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Abstract.
The present review provides a comprehensive assessment of ethnomedicinal knowledge associated with the use of different plant species for treatment of gastrointestinal ailments among various tribal communities of the Union Territory of Jammu and Kashmir, India. The study is based on an analysis of 34 research papers published in different journals and accessed through online databases such as Google Scholar, Scopus, Web of Science, Pub Med, Research Gate etc. A total of 235 plant species representing 83 families were documented in the present review. Asteraceae represented by 29 species was the most dominant family followed by Lamiaceae (17 spp.), Rosaceae (15 spp.) and Fabaceae (13 spp.). Among the reported therapeutic applications, diarrhoea, abdominal pain, dysentery, constipation and indigestion were the most common ailments treated by using 60, 47, 45, 38 and 37 species respectively. The leaves were identified as the most frequently utilized plant part for preparing traditional herbal remedies, contributing 23.4% of the reported uses, followed by roots (19.6%) and whole plants (17.5%). The findings reveal the rich ethnomedicinal knowledge preserved among indigenous tribal communities such as Gujjar, Bakerwal, Gaddi, Balti and other tribal populations inhabiting different ecological zones of Jammu and Kashmir.
Key words: Diarrhoea, Gujjar, Himalayan region, pastoral communities, traditional medicine.

Introduction

Ethnobotany is the study of how people and plants are linked to each other and how different cultures know, name, use, manage and value plants in their daily lives (Sarad et al., 2017). Ethnobotanical studies document how tribal communities use plants for a wide range of purposes such as food, fodder, medicine, timber, firewood, tannins, dyes, oils, fibres, alcohol, gums, resins and many more (Singh et al., 2025). This folk knowledge has developed over generations and has passed down only orally through generations (Namsa et al, 2011). When it is subjected to systematic scientific investigation and documentation holds immense potential for benefiting not only the proprietor tribal populations but also the entire humankind (Kumar et al., 2015).

India has a rich repository of medicinal plants distributed in different geographical conditions and tribal communities classify this plant wealth in intricate folk taxonomies and use hundreds of the species as medicine. Plants become the preferred choice for treating the ailments as they are abundantly available, economical and have little or no side-effects in addition to their cultural acceptability (Sinha

1996; Pal and Shukla 2003; Dubey et al, 2004). Ethnobotanical investigations in the Kumaon region (Uttarakhand) document tribal healers who treat gastrointestinal ailments, respiratory disorders and skin diseases using species such as *Berberis aristata*, *Acorus calamus*, *Azadirachta indica* and many others (Shah and Joshi, 1971). The North-East being one of the richest biodiversity zones in India also shows exceptional tribal plant knowledge. For example, Dutta & Dutta (2005) recorded over 1350 medicinal uses and hundreds of food and domestic uses, demonstrating ecological intimacy and cultural dependence on plants in this part of the country.

The Himalayan region of India, including Union territory of Jammu and Kashmir, is also enormously rich in biodiversity and medicinal plant resources (Riaz & Bhandari, 2015). This region supports a large number of plant species due to its varied topography and climatic conditions (Sarad et al., 2017). Simultaneously, Jammu and Kashmir is also inhabited by a wide range of tribal and pastoral communities who live in close association with these forests and plant resources. The region is represented by twelve major tribes, namely Gujjar, Bakarwal, Purigpa, Beda, Balti, Gaddi, Sippi, Mon, Changpa, Brokpa, Drokpa, Dard, Shin, Garra and Bot/Boto (Paul, 2026). Among these, Gujjar and Bakarwal tribes are the most widespread and thoroughly studied groups in numerous ethnomedicinal research projects (Sarad et al., 2017 ; Shah et al., 2012 ; Shah et al., 2015a; Shah et al., 2015b ; Trak & Giri, 2017 ; Singh & Khanday, 2017a ; Singh & Khanday, 2017b). These tribes are mostly nomadic or semi-nomadic and depend on locally available plants for their daily needs and health care (Yashpaul, 2026). In addition to these, other tribal and ethnic groups such as Gaddi, Sippi, Pahari, Pathan and traditional healer communities like Amchis are also reported from different parts of the region (Singh et al., 2020; Sharma & Singh, 1989). Almost all of these tribal populaces live in remote and hilly regions and have very limited access to urban modern health facilities (Yashpaul, 2026).

Like other tribal communities elsewhere, these in Jammu and Kashmir too possess rich indigenous knowledge of medicinal plants, which has developed through their long interaction with nature and is being passed orally from one generation to another (Shah et al., 2015b ; Trak & Giri, 2017). Moreover, despite the presence of high tribal diversity in Jammu and Kashmir, ethnomedicinal studies are mainly concentrated on a few tribes, especially Gujjar and Bakarwal, while many other tribes remain poorly explored. Despite the extensive use of medicinal plants, much of this traditional knowledge remains undocumented and is at risk of being lost (Trak & Giri, 2017). The knowledge is mainly held by elderly people and is not properly transferred to younger generations (Shah et al., 2012). Therefore, there is a need to document and preserve this valuable knowledge for future use (Shah et al., 2015a).

Materials and Methods

The information on ethno medicinal plants used by tribes of Jammu and Kashmir was collected from different sources of published literature. A broad search on internet was also conducted using electronic databases such as Google Scholar, Scopus, Web of Science, Pub Med etc to collect relevant research papers. A total of 34 research articles were reviewed in the present study. The inclusion criteria for the research article were studies that investigated the plants used by tribes of Jammu and Kashmir for treating their gastrointestinal ailments. The papers were checked for quality and relevance and the information was pulled out and organized carefully (Table 1).

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Table 1: Inventory of medicinal plants used by tribal communities in Jammu and Kashmir for gastrointestinal ailments.

Name of the Plant	Family	Vernacular Name	Part Used	Ailment Treated	Method of Preparation	Reference
Abrus precatorius L.	Fabaceae	Ratie	Leaf	Stomach pain	Decoction	Rashid,2012
Achillea millefolium L.	Asteraceae	Pahel- gas	Whole plant, Root	Dysentery, Gastritis, spasmodic gastrointestinal ulcers	Aqueous and alcoholic extracts	Khanday & Singh,2017, Far et al., 2023
Achyranthes aspera L.	Amaranthaceae	Puthkanda	Leaf, Root and Seed	Diarrhoea, Stomach Disorders, digestion and gas problem	Powder	Rashid,2012, Sarad et al.,2017
Achyranthes bidentata Blume	Amaranthaceae	Purkandi	Leaf, Root	Abdominal pain	Paste	Kumari et al.,2013
Aconitum heterophyllum Wall. ex Royle	Ranunculaceae	Patris	Root	Diarrhoea, Dysentery, Abdominal pain	Powder	Bano et al.,2017, Bhat et al.,2014, Dutt et al.,2015, Khanday & Singh,2017, Lone et al.,2012, Malik & Siddique
Aconitum laeve Royle	Ranunculaceae	Mohri	Root stock	Abdominal pain, diarrhea and dysentery	Toxic in raw form, Root Powder	Bhat et al.,2014
Acorus calamus L.	Araceae	Vai	Root stock	Stomach pain, Diarrhoea	Paste, Raw	Bano et al.,2017,Bhat et al.,2014,Dutt et al.,2015, Malik & Siddique
Adiantum capillus-veneris L.	Adiantaceae	Geutheer	Whole plant	Stomach pain	Extract	Bhat et al.,2014, Malik & Siddique
Adiantum venustum D. Don	Pteridaceae	Kackyew, Kakbai	Frond	Diarrhoea,Stomach pain, Vomiting	Extract/Powder	Malik & Siddique, Rajoriya et al.,2016, Rashid,2012
Adhatoda vasica Nees	Acanthaceae	Baranker	Whole plant	Diarrhoea, Dysentery	Fresh Leaf Juice,	Sarad et al.,2017

					Decoction, Medicated Ghee	
Aegle marmelos (L.) Correa	Rutaceae	Bill, Vilva	Fruit	Diarrhoea, Dysentery	Dried Fruit Powder, Fruit Pulp Decoction	Riaz & Bhandari,2015
Aesculus indica (Wall. ex Cambess.) Hook.f.	Sapindaceae	Gug Kul	Seed	Diarrhoea	Seed Powder, Decoction	Trak & Giri,2017
Ainsliaea latifolia (D.Don) Sch.Bip.	Asteraceae	Maljuri	Root	Helmentic infection, Intestinal worms	Extract	Dutt et al.,2015
Ajuga bracteosa Wall. ex Benth.	Lamiaceae	Neel kanthi, Jain-i-adam	Leaf, Whole plant	Stomachache, Worms, Diarrhoea	Decoction, Herb extract and paste	Bano et al.,2017, Jan et al.,2021, Kumari et al.,2013 ,Malik & Siddique
Albizia lebbeck (L.) Benth.	Fabaceae	Dhrienk	Fruit	Stomach Infection	Extract	Rashid,2012, Riaz & Bhandari,2015
Allium cepa L.	Liliaceae	Gande	Bulb	Diarrhoea, Loss of appetite, Acidity, Stomach pain	Bulb slices mixed with mint, salt	Khanday & Singh,2017, Peer et al.,2025, Rajoriya et al.,2016
Allium consanguineum Kunth.	Alliaceae	Wild onion	Bulb	Digestion	Decoction, boiled leaves, fresh bulb juice	Bhat et al.,2014
Allium sativum L.	Liliaceae	Rhoon	Bulb/cloves	Stomach problems, greenish diarrhoea	Roasted bulbs/cloves	Bano et al.,2017, Kanta et al.,2018, Lone & Bhardwaj,2013
Allium stoliczkii Regel.	Liliaceae	Schothach	Whole plant	abdominal gas, Stomach pain	Extract	Malik & Siddique
Althaea officinalis L.	Malvaceae	Sazposh/Sazmool	Seed	Diarrhoea	Powder	Bano et al.,2017
Amaranthus gangeticus L.	Amaranthaceae	Bari Ghanar	Seed	Dysentery, Diarrhoea	seeds cooked with maize floor, curd and salt	Rashid,2012
Amaranthus tricolor L.	Amaranthaceae	Ghanar	Root, Leaf	Dysentery, Diarrhoea	Root decoction, leaf juice, boiled leaves	Riaz & Bhandari,2015
Anemone obtusiloba D. Don.	Ranunculaceae	Rattanjog	Rhizome	Acidity	Extract	Lone et al.,2012
Angelica	Apiaceae	Mohrchhar	Root stock	Stomach pain	Root decoction,	Bhat et al.,2014

archangelica L.					root powder, seed infusion	
Angelica glauca Edgew.	Apiaceae	Chorche	Root stock	Dysentery, worm infestation	Powder	Bano et al.,2017, Jan & Khare,2015, Malik & Siddique
Anthemis cotula L.	Asteraceae	Jangli chou	Whole plant	Abdominal worms	Infusion	Dar et al.,2015
Arnebia benthamii (Wall. ex G.Don) I.M.Johnst.	Boraginaceae	Kahzaban	Whole plant	Abdominal pain, Intestinal worms	Extract	Trak & Giri,2017
Aquilegia fragrans Benth.	Ranunculaceae	Daduejaid	Flower	Indigestion	Extract with the leaf extract of Mentha arvensis	Bhat et al.,2012
Artemisia annua L.	Asteraceae	Tethwen	Leaf	Stomach pain, Intestine infection	Paste	Peer et al.,2025
Artemisia absinthium L.	Asteraceae	Tethwen	Leaf, Flower	Intestinal worms, Abdominal pain	Decoction, Extract	Bano et al.,2017,Bhat et al.,2014, Dar et al.,2018, Jan et al.,2015,Kanta et al.,2018, Lone et al.,2012, Malik & Siddique
Artemisia moorcroftiana Wall. ex DC.	Asteraceae	Jangli Teethwan	Whole herb	Abdominal pain, wormicide, loss of appetite	Extract	Bano et al.,2017,Bhat et al.,2014, Malik & Siddique
Artemisia roxburghiana Wall. ex Besser.	Asteraceae	Chuo	Whole plant	Stomachache, stomach swelling, Antihelminthic	Powder	Dangwal & Singh,2013, Dar et al.,2015
Artemisia scoparia Waldst. & Kit.	Asteraceae	Jhayoo	Leaf	Antihelminthic, dyspepsia	Decoction, leaf juice, seed powder	Dutt et al.,2015
Asparagus adscendens Roxb.	Liliaceae	Safedmusli	Root	Dysentery	Tuber	Riaz & Bhandari,2015
Asparagus racemosus Willd.	Asparagaceae	Sanspai	Root	Gastric Problem	Root powder, decoction, root juice	Sarad et al.,2017
Atropa bella-donna L.	Solanaceae	Saagangur	Whole plant, Root	Intestinal cramps	Powder	Kumari et al.,2013
Bacopa monnieri (L.) Wettst.	Scrophulariaceae	Jalneem	Stem, Leaves	Stomachache	Tea	Ahmed & Ajaz ,2017, Riaz & Bhandari,2015

Balanophora involucrata Hook.f. & Thomson	Balanophoraceae	Mastani	Whole plant	Abdominal colic (children)	Decoction	Khan & Wani,2017
Bauhinia vahlii Wight & Arn.	Caesalpiniaceae	Kalari bhel	Bark	Diarrhoea, Intestinal cramps	Extract	Rashid,2012
Bauhinia variegata L.	Caesalpiniaceae	Kachnar	Bud	Dysentery, Diarrhoea, intestinal cramps	Extract with curd	Rashid,2012, Riaz & Bhandari,2015
Berberis aristata DC.	Berberidaceae	Dandleder	Bark of roots	Diarrhoea, stomachache, Indigestion(Dyspepsia)	Powder	Bano et al.,2017
Berberis lycium Royle	Berberidaceae	Simblu	Root	Gastric tonic	Root decoction, bark powder, fruit juice	Rashid,2012, Riaz & Bhandari,2015
Bergenia ciliata (Haw.) Sternb.	Saxifragaceae	Zakhme-e-hayat	Root	Diarrhoea, Indigestion, dysentery, acidity	Powder	Ahmed & Ajaz,2017, Dangwal & Singh,2013, Lone et al.,2012,Malik & Siddique, Riaz & Bhandari,2015, Trak & Giri,2017
Bombax ceiba L.	Bombacaceae	Simbal	Root	Dysentery, Stomachache	Powder	Rashid,2012, Riaz & Bhandari,2015
Brassica campestris L.	Brassicaceae	Tilgogul	Seed	Abdominal pain	Seed oil, leaf decoction, root paste	Khanday & Singh,2017
Brassica oleracea L.	Brassicaceae	Hakh	Leaf	constipation(Children)	petiole of leaf after peeling off the rind is placed in the rectum	Rajoriya et al.,2016, Kanta et al.,2018
Bunium persicum (Boiss.) B.Fedtsch.	Apiaceae	Jangli zeera	Seed	Stomachache, Digestive disorders	As spice	Dutt et al.,2015, Malik & Siddique, Rajoriya et al.,2016
Bupleurum falcatum L.	Apiaceae	Bormuje	Root stock	Abdominal pain	Extract	Dutt et al.,2015, Malik & Siddique
Bupleurum longicaule Wall. ex DC.	Apiaceae	Neeli taari	Whole plant	Renal, colic and gastro-intestinal ailments	Decoction	Dutt et al.,2015
Butea monosperma	Fabaceae	Palas (Flame of Forest)	Seed, Flower, Root	Intestinal Worms, Diarrhoea	Seed powder, bark decoction,	Sarad et al.,2017

(Lam.) Kuntze					gum	
Calendula officinalis L.	Asteraceae	Himash bahar	Flower	Constipation	Paste	Trak & Giri,2017
Cannabis sativa L.	Cannabinaceae	Bang or Charis	Whole plant, Leaf	Diarrhoea, cholera, wormicide, loss of appetite	Extract, Decoction	Ahmed & Ajaz ,2017, Bhat et al.,2014,Malik & Siddique, Peer et al.,2025
Calotropis procera (Aiton) W.T.Aiton	Asclepiadaceae	Daryaiaak	Stem, Root	Diarrhoea, Dysentery, Intestinal worms, Cholera	Bark decoction	Ahmed & Ajaz ,2017, Sarad et al.,2017
Capsella bursa-pastoris (L.) Medik.	Brassicaceae	Kralmond	Leaf	Gastrointestinal disorders, chronic diarrhoea	Eaten raw or cooked as vegetable	Dar et al.,2018, Dutt et al.,2015, Jan et al.,2021
Cardamine Sp. L.	Brassicaceae	Pahal laish	Whole herb	Wormicide	Extract	Malik & Siddique
Cardamine impatiens L.	Brassicaceae	Buti	Leaf	Digestive complaints	Chewed	Dutt et al.,2015
Carissa opaca Stapf ex Haines	Apocynaceae	Garanda	Root	Diarrhoea, poor digestion	Extract, Powder	Rashid,2012, Riaz & Bhandari,2015
Carissa spinarum L.	Apocynaceae	Garando	Fruit	Constipation	Eaten raw	Sarad et al.,2017, Shah et al.,2015
Carpesium abrotanoides L.	Asteraceae	Ban sario	Seed	Intestinal worms	Decoction	Dutt et al.,2015
Cassia fistula L.	Caesalpiniaceae	Amaltas	Fruit	Constipation	Pulp	Rashid,2012
Castanea sativa Mill.	Fagaceae	European chestnut	Seed	Constipation	Eaten Raw	Kumari et al.,2013
Celosia argentea L.	Amaranthaceae	Mawal	Seed	Diarrhoea	Decoction with sugar	Dar et al.,2018
Cedrus deodara (Roxb. ex D.Don) G.Don	Pinaceae	Devdar	Bark	Dysentery, Diarrhoea	Powder	Rashid,2012
Celtis australis L.	Ulmaceae	Khirak	Leaf, fruit	Diarrhoea, colic disorders	Decoction	Ahmed & Ajaz ,2017, Dutt et al.,2015
Chenopodium album L.	Chenopodiaceae	Batwa	Leaf	Stomach pain, stimulate bowel movement, worms, diarrhoea	Cooked vegetable	Ahmed & Ajaz,2017, Jan et al.,2021, Rashid,2012
Chenopodium botrys L.	Chenopodiaceae	Kulkuli akh	Whole plant	Stomach disease, Antihelminthic	Extract	Malik & Siddique
Cichorium intybus L.	Asteraceae	Kasni, Nilli dudhli	Whole plant, Root	Diarrhoea, stomach diseases, loss of appetite	Powder or Decoction	Dar et al.,2018, Dutt et al.,2015, Lone et

						al.,2012, Malik & Siddique, Rajoriya et al.,2016
Clematis montana Buch.-Ham. ex DC.	Asteraceae	Ashroo	Leaf	Indigestion	Powder with black pepper	Dutt et al.,2015
Clinopodium vulgare L.	Lamiaceae	Tulsi	Whole plant	Dysentery	Decoction, herbal tea, infusion	Dutt et al.,2015
Cissampelos pareira L.	Menispermaceae	Baatal bail, Ice vine	Leaf, Root	Stomach ache	Raw, Juice	Kumari et al.,2013
Colebrookea oppositifolia Sm.	Lamiaceae	Swali	Leaf	Stomach ache(children)	Paste	Kumari et al.,2013
Commelina benghalensis L.	Commelinaceae	Kaanchatta	Root	Constipation	As vegetable	Dutt et al.,2015
Conyza bonariensis (L.) Cronquist	Asteraceae	Shashedra	Whole plant	Diarrhoea, Abdominal pain, Anthelminthic	Extract	Jan et al.,2021
Cordia myxa L.	Boraginaceae	Lasuda	Fresh leaf	Loose motions	Paste	Kumari et al.,2013
Coriandrum sativum L.	Apiaceae	Danival	Seed, Leaf	Loss of appetite(anorexia), Stomachache, IndigesIon	Powder	Bano et al.,2017, Kanta et al.,2018, Peer et al.,2025
Coronopus didymus (L.) Sm.	Brassicaceae	Puth Ajvan	Whole plant	Stomachache, vomiting	Decoction, leaf juice, whole plant paste	Dangwal & Singh,2013
Corydalis govaniana Wall.	Fumariaceae	But kesi, Bhootjati	Leaf, Root	Pain in lower abdomen, gastric pains	Decoction	Shah et al.,2012, Dutt et al.,2015
Corydalis rutifolia (Sm.) DC.	Fumariaceae	Bhooti	Whole herb	Gastric pain	Powder mixed with C. govaniana	Dutt et al.,2015
Cotula anthemoids L.	Asteraceae	Thol Babul	Root	Constipation	Decoction	Dar et al.,2018
Cucumis sativus L.	Cucurbitaceae	Laer	Fruit, seed	Stomach heatup	Infusion	Rajoriya et al.,2016
Cuminum cyminum L.	Apiaceae	Safeed zeur	Seed	Appetiser(Anorexia), abdominal pain, Indigestion	Extract	Bano et al.,2017
Cuscuta europaea L.	Cuscutaceae	Nellodhari	Whole plant	Intestinal cleaning	Whole plant decoction, seed powder, stem	Dangwal & Singh,2013

					juice	
Cynodon dactylon (L.) Pers.	Poaceae	Dramun	Whole plant	Dysentery, Indigestion	Decoction (Whole plant+seeds of Malva neglecta & Cucumis sativa)	Lone & Bhardwaj,2013, Peer et al.,2025
Cydonia oblonga Mill.	Rosaceae	Bomb chont, Behi	Seed, Fruit	Constipation, Dysentery	Decoction of "Sherbeth", Slice	Bhat et al.,2014, Khanday & Singh,2017, Rajoriya et al.,2016
Daphne cannabina Wall.	Thymeliaceae	Kanthan	Root	Intestinal problems	Root decoction, bark powder, seed oil	Bhat et al.,2014
Daucus carota L.	Apiaceae	Moharmunj Ghasa	Root	Digestive disorders,	Consumed raw	Peer et al.,2025, Rajoriya et al.,2016
Debregeasia saeneb (Forssk.) Hepper & J.R.I.Wood	Urticaceae	Sunduri	Fruit	Constipation	Eaten raw	Ahmed & Ajaz ,2017, Shah et al.,2015
Deparia allantodioides (Bedd.) M.Kato	Athyriaceae	Kandore	Young Inflorescence	Severe constipation	Mush (young tender leaves cooked with milk)	Shah et al.,2015
Desmodium polycarpon (Poir.) DC.	Fabaceae	Phalli	Leaf	Stomachache	Extract	Dutt et al.,2015
Desmodium tiliifolium (D.Don) G.Don	Fabaceae	Samber phalli	whole plant	stomach ache	Decoction	Dutt et al.,2015
Dioscorea belophylla (Prain) Voigt ex Haines	Dioscoraceae	Tarad	Tuber and Aerial portion	Diarrhoea, Constipation and Abdominal pain	Fried slices	Sarad et al.,2017, Shah et al.,2015
Dioscorea bulbifera L.	Dioscoraceae	Kalogundo/ Jatlogundo	Tuber	Dysentery	Fried slices	Ahmed & Ajaz ,2017, Shah et al.,2015
Dioscorea deltoidea Wall. ex Griseb.	Dioscoraceae	Kalo-maru	Tuber	Abdominal pain, Anthelminthic	Decoction, Powder	Lone et al.,2012, Shah et al.,2015
Dryopteris	Pteridaceae	Dade/Kunji	Leaf	Constipation	As vegetable	Lone & Bhardwaj,2013

barbigera (Hook.) Kuntze						
Duchesnea chrysantha (Zoll. & Moritzi) Miq.	Rosaceae	Mavo	Whole plant	Indigestion	Tea made from leaves	Shah et al.,2015
Erigeron canadensis L.	Asteraceae	Shankhi	Leaf	Diarrhoea, dysentery	Whole plant decoction, leaf juice, herbal infusion	Dutt et al.,2015
Erodium cicutarium (L.) L'Hér. ex Aiton	Geraniaceae	Jillo	Whole plant	Dysentery	Extract	Dutt et al.,2015
Eupatorium cannabinum L.	Asteraceae	Neela jand	Root	Stomachache	Powder	Dar et al.,2015
Euphorbia wallichii Hook.f.	Euphorbiaceae	Hirbi	Root	Severe constipation	Root infusion	Shah et al.,2015
Euphorbia helioscopia L.	Euphorbiaceae	Duduj, Gur-sochal	Seed	Cholera	Roasted	Dar et al.,2018, Rajoriya et al.,2016, Trak & Giri,2017
Euryale ferox Salisb.	Nymphaeaceae	Salisb Juwar/Kena bub	Seed	Stomach problem	Dried	Rajoriya et al.,2016
Equisetum arvense L.	Equisetaceae	Sategandie/Gandu m Gud	Whole herb	Acidity, Stomach cramps	Extract or Powder	Jan et al.,2021, Malik & Siddique
Fagopyrum esculentum Moench	Polygonaceae	Trumb		Dysentery	Seed powder, leaf decoction, infusion	Jan & Khare,2015
Ficus carica L.	Moraceae	Anjeer	Leaf, fruit	Constipation, stomach disorders	Decoction, Infusion	Jan et al.,2021, Khanday & Singh,2017, Peer et al.,2025
Ficus auriculata Lour.	Moraceae	Tussi	Fruit	Constipation	Eaten raw	Ahmed & Ajaz,2017, Shah et al.,2015
Ficus religiosa L.	Moraceae	Peepal	Bark, Leaf	Diarrhoea	Paste	Ahmed & Ajaz,2017
Foeniculum vulgare Mill.	Apiaceae	Soanfro, Jangli bodian	Seed	Constipation, Dyspepsia, acidity,	Powder with sugar	Dar et al.,2018, Peer et al.,2025, Trak & Giri,2017
Fragaria nubicola (Lindl. ex Hook.f.) Lacaita	Rosaceae	Sakhvan	Leaf	Diarrhoea	Infusion	Trak & Giri,2017
Fragaria vesca L.	Rosaceae	Kunchi	Root	Digestive disorders, bowel movement	Leaf decoction, root powder, fruit	Rashid,2012, Riaz & Bhandari,2015

					juice	
Fumaria indica (Hausskn.) Pugsley	Fumariaceae	Pugsley Shahtaur	Whole plant	Dyspepsia	Extact with milk	Bhat et al.,2012
Fumaria parviflora Lam.	Fumariaceae	Pitpapra	Whole plant	Indigestion	Juice	Dutt et al.,2015
Gentiana kurroo Royle	Gentianaceae	Neelkanthii	Whole plant	Anthelmintic	Extract	Dutt et al.,2015
Geum roylei Wall. ex F.Bolle	Rosaceae	Dharru goglimool	Root, Leaf	Stomachache	Extract	Dutt et al.,2015
Geranium wallichianum D.Don ex Sweet	Geraniaceae	Rathenjoth	Root stock	Diarrhoea	Root Extract	Malik & Siddique
Hedychium coronarium J.Koenig	Zingiberaceae	Jungli-Haldi	Rhizome	Abdominal pain	Powder	Shah et al.,2015
Holarrhena antidysenterica Wall.	Apocynaceae	Inderjoe	Seed, bark, leaf	Indigestion, dysentery	Dried, Decoction	Kumari et al.,2013
Hypericum perforatum L.	Hypericaceae	Basanti phool	Flower, Whole plant	Dysentery, Diarrhoea, Abdominal pain	Decoction	Ahmed & Ajaz,2017, Bano et al.,2017, Jan et al.,2021 Rashid,2012, Riaz & Bhandari,2015
Indigofera gerardiana Graham ex Baker	Fabaceae	Kathi Gerards Indigo	Root	Abdominal pain	Dried	Kumari et al.,2013
Indigofera heterantha Wall. ex Brandis	Fabaceae	Zand	Rhizome	Abdominal pain	Powder	Jan et al.,2021
Inula cuspidata (DC.) C.B.Clarke	Asteraceae	Aakhpatti	Root	Anthelminthic	Decoction	Dar et al.,2015
Inula racemosa Hook.f.	Asteraceae	Hasub kual	Root stock	Diarrhoea (children), abdominal pain	Extract, Powder, Paste	Bano et al.,2017, Malik & Siddique
Ipomoea nil (L.) Roth.	Convolvulaceae	Khatpavo	Seed	Abdominal pain (Children)	Powder	Shah et al.,2015
Iris kashmiriana Baker.	Iridaceae	Mazar mund	Rhizome	Diarrhoea, Abdominal pain	Decoction	Peer et al.,2025

Juniperus communis L.	Cupressaceae	Mithro	Root	Stomachache, Intestinal swelling	Powder	Dangwal & Singh,2013
Juglans regia L.	Juglandaceae	Doonkul	Drupe, root, Leaf	Constipation, diarrhoea, intestinal worms	Leaf Decoction	Jan & Khare,2015, Jan et al.,2021, Khanday & Singh,2017
Lonicera alpigena L.	Caprifoliaceae	Lhaat	Leaf, flower	Stomach complaints	Decoction	Dutt et al.,2015
Lychnis coronaria (L.) Desr.	Caryophyllaceae	Shosh Ghasa/Angaarda	Root	Constipation	Crushed	Lone & Bhardwaj,2013
Malva neglecta Wallr.	Malvaceae	Sochal	Leaf	Stomach cramps, appetizer, Constipation	Decoction, extract, as vegetable	Bhat et al.,2014, Jan et al.,2021, Malik & Siddique
Malva sylvestris L.	Malvaceae	Gur sachal	Whole plant	Stomach cramps,Diarrhoea, Dysentery	Root powder or extract	Bhat et al.,2014, Malik & Siddique
Mariscus sieberianus Nees ex Steud.	Cyperaceae	Ghaa	Leaves	Worms	Chewed	Dutt et al.,2015
Marrubium vulgare L.	Lamiaceae	Tropad	Leaves	Indigestion, Constipation	Extract	Dar et al.,2018
Matricaria discoidea DC.	Asteraceae	Thul babe	Root	Constipation	Decoction	Peer et al.,2025
Melia azadirachta L.	Meliaceae	Nemi, Kourh, Drek	Seed	Dysentery	Crushed	Rashid,2012
Melissa officinalis L.	Lamiaceae		Aerial portion	Indigestion(dyspepsia), loss of appetite(anorexia)	Tea	Bano et al.,2017
Mentha arvensis L.	Lamiaceae	Pudina	Whole plant	Indigestion, Diarrhoea, gastroenteritis	Extract, decoction or paste	Bano et al.,2017, Dar et al.,2018, Jan & Khare,2015, Jan et al.,2021, Lone & Bhardwaj,2013, Malik & Siddique, Peer et al.,2025,
Mentha longifolia (L.) L.	Lamiaceae	Pudina, Fatineh,	Leaf, Flower	Indigestion, dysentery, Diarrhoea, Flatulence, appetizer,	Powder, Decoction, Infusion	Rashid,2012, Riaz & Bhandari,2015, Trak & Giri,2017
Morchella esculenta (L.) Pers.	Helveliaceae	Guchi	Fruiting body	Stomach trouble	Powder	Lone et al.,2012

Mollugo pentaphylla L.	Aizoaceae	Milli	Leaf	Stomach trouble	Decoction	Dutt et al.,2015
Morus alba L.	Moraceae	Toot	Fruit	Dyspepsia and good for digestive system	Root bark decoction, leaf juice, fruit syrup	Rashid,2012, Riaz & Bhandari,2015
Morus nigra L.	Moraceae	Tul kul	Fruit	Anthelminthic	Paste	Peer et al.,2025
Nasturtium officinale W.T.Aiton	Brassicaceae	Pani zari	Leaf	Enhance appetite	Consumed raw	Dutt et al.,2015
Nepeta cataria L.	Lamiaceae	Gand soi	Whole plant, Leaf	Worms, abdominal pain, dysentery, Diarrhoea, Vomiting	Extract, Powder, Infusion	Bhat et al.,2014, Jan et al.,2021, Malik & Siddique
Nepeta raphanorhiza Benth.	Lamiaceae	Vangogil	Whole plant	Dysentery	Extract	Bhat et al.,2012
Nymphaea alba L.	Nymphaeaceae		Rhizome	Diarrhoea	Decoction	Rashid,2012
Nymphaea stellata Willd.	Nymphaeaceae	Bum-i-posh	Flower, Seed	Intestinal weakness	Decoction	Bano et al.,2017
Ocimum americanum L.	Lamiaceae	Ghareda, Lime basil	Leaf, seed	Stomach ache in infants	Fresh, powdered, decoction	Kumari et al.,2013
Ocimum canum Sims.	Lamiaceae	Baber	Seed, Aerial part	Constipation	Leaf juice, seed decoction, leaf infusion	Khanday & Singh,2017
Oryzopsis racemosa (Sm.) Ricker ex Hitchc.	Poaceae	Rice grass	Leaf	Indigestion	Root decoction, seed powder, leaf juice	Bhat et al.,2014
Oxalis corniculata L.	Oxalidaceae	Chok-chin, Khatti Golda	Whole plant	Chronic dysentery, Diarrhoea	decoction of leaves	Bhat et al.,2012, Dutt et al.,2015, Khanday & Singh,2017, Lone & Bhardwaj,2013, Malik & Siddique
Pedicularis pectinata Wall. ex Benth.	Scrophulariaceae	Singi phool	Leaf	Dysentery, diarrhoea	Powder	Dutt et al.,2015, Shah et al.,2012
Picea smithiana (Wall.) Boiss.	Pinaceae	Spruce	Wood	Stomachache	Needle decoction, resin tincture, needle	Bhat et al.,2014

					powder	
Picrorhiza kurroa Royle.	Scrophulariaceae	Kour, Kutki	Root, Rhizome	Stomachache	Decoction	Bano et al.,2017, Lone et al.,2012
Pinus wallichiana A.B.Jacks.	Pinaceae	Kayur	Resin	Wormicide and Intestinal infection	resin pills with milk	Lone & Bhardwaj,2013
Pistacia integerrima J.L.Stewart	Anacardiaceae	Kangar	Galls	Dysentery and Dyspepsia	Powder	Rashid,2012, Riaz & Bhandari,2015
Phyllanthus emblica L.	Euphorbiaceae	Aamla	Fruit	Stomach troubles	Fruit powder, fresh fruit juice, bark decoction	Riaz & Bhandari,2015
Phytolacca acinosa Roxb.	Phytolaccaceae	Hapat Chuiri	Root stock, Leaf	Diarrhaoea, stomach cramps, dysentery	Dried root, Cooked leaf	Bhat et al.,2014, Dutt et al.,2015, Jan et al.,2021, Malik & Siddique
Plantago erosa Wall.	Plantaginaceae	Neli Boti	Whole plant	Dysentery	Powder	Dangwal & Singh,2013
Plantago major L.	Plantaginaceae	Logout gul, Bud gull	Whole plant	Gastric ulcer, dysentery	Extract	Jan et al.,2021, Khanday & Singh,2017, Malik & Siddique
Plantago lanceolata L.	Plantagionaceae	Isabgol, Chamchipeti	Whole plant	Stomach Disorders, Dysentery, acidity, Constipation	whole plant decoction with sugar	Lone & Bhardwaj,2013, Sarad et al.,2017
Platanus orientalis L.	Platanaceae	Chinar, Booni	Bark	Diarrhoea and Dysentery	Bark powder mixed with vinegar and lemon juice	Lone et al.,2012
Podophyllum hexandrum Royle	Podophyllaceae	Wan wangun	Rhizome, fruit, leaf	Diahorrea, Constipation,Acidity, Burning sensation of stomach	Powder, Extract	Bano et al.,2017, Bhat et al., 2014, Jan & Khare,2015,Kanta et al.,2018, Khanday & Singh,2017, Malik & Siddique
Polygonum amplexicaule D.Don.	Polygonaceae	Machrum chaay	Root stock	Stomach pain, Indigestion, Constipation	Tea	Bano et al.,2017, Jan & Khare,2015, Malik & Siddique
Potentilla indica (Andrews) Th.Wolf	Rosaceae	Ringrish	Rhizome	Diarrhoea	Decoction	Jan et al.,2021
Polygonum	Polygonaceae	Chock Chine	Leaf	Abdominal pain, stomach heat	Decoction	Lone & Bhardwaj,2013

hydropiper L.				up		
Portulaca oleracea L.	Protulacaceae	Lunar, Lees haakh	Root, Whole plant	Abdominal pain, Burning sensation of stomach, Constipation	Herbal tea, Decoction	Bano et al.,2017, Peer et al.,2025, Trak & Giri,2017
Prinsepia utilis Royle	Rosaceae	Phalwaro, Burkhui	Leaf	Abdominal pain	Powder	Dangwal & Singh,2013, Shah et al.,2015
Prunus persica (L.) Batsch	Rosaceae	Chenan	Seed	Constipation, Anti-intestinal worm	Powder	Trak & Giri,2017
Prunella vulgaris L.	Lamiaceae	Kalyat	Flower, Leaf	Diarrhoea, Loss of appetite, burning sensation	Extract, Decoction	Bano et al.,2017,Dangwal & Singh,2013, Malik & Siddique, Peer et al.,2025
Punica granatum L.	Punicaceae	Dan, Dharudni	Fruit	Dysentery, Diarrhoea, appetite, against tapeworm	Juice	Jan et al.,2021,Kumari et al.,2013, Khanday & Singh,2017
Pyrus communis L.	Rosaceae	Faraish Tung	Fruit	Chronic constipation	Eaten raw	Lone & Bhardwaj,2013
Pyrus pashia Buch.-Ham. ex D.Don	Rosaceae	Batangi	Fruit	Diarrhoea	Juice	Ahmed & Ajaz,2017
Quercus leucotrichophora A.Camus	Fagaceae	Banjh, White oak	Resin	Stomach ache	Dried resin	Kumari et al.,2013
Rabdosia rugosa (Wall. ex Benth.) H.Hara	Lamiaceae	Maldah, Solie	Leaf	Stomachache and gastric dyspepsia	Decoction	Dutt et al.,2015, Kumari et al.,2013, Malik & Siddique
Ranunculus arvensis L.	Ranunculaceae	Dimm-gassh	Whole plant	Diarrhoea	Juice	Jan et al.,2021
Raphanus sativus L.	Brassicaceae	Mujh	Root	Indigestion, loss of appetite, Constipation	Juice	Lone & Bhardwaj,2013
Rhododendron arboreum Sm.	Ericaceae	Harduli	Flower and bark	Digestive disorders	Flower juice, dried flower powder, leaf decoction	Dangwal & Singh,2013
Robinia pseudoacacia L.	Papilionaceae	Kekar	Leaf	Digestive disorders	Paste or Juice	Malik & Siddique, Bhat et al.,2014
Rorippa islandica (Oeder) Borbás	Brassicaceae	Shrrii	Whole plant	Stomach ailments	Decoction	Dutt et al.,2015

Rosa brunonii Lindl.	Rosaceae	Keryrar	Whole plant	Nausea due to constipations	Extract	Dutt et al.,2015
Rosa damascena Mill.	Rosaceae	Gulab	Flower	Diarrhoea	Paste with sugar	Bano et al.,2017
Rosa webbiana Wall. ex Royle	Rosaceae	Shal Martcwangan	Fruit	Digestive problems and stomach pain	Eaten raw	Dar et al.,2018
Rubia cordifolia L.	Rubiaceae	Rubes	Root	Stomachache	Extract	Bhat et al.,2012
Rubus ellipticus Sm.	Rosaceae	Ghurcho	Fruit and Root	Constipation	Eaten raw	Sarad et al.,2017, Shah et al.,2015
Rubus fruticosus L.	Rosaceae	Alish	Leaf	Dysentery	Leaf decoction, fruit juice, root powder	Bhat et al.,2014
Rubus niveus Thunb.	Rubiaceae	Keryarri	Leaf	Dysentery	Extract	Dutt et al.,2015
Rumex acetosella L.	Polygonaceae	Abji	Leaf, Root	Gaseous bloat	Leaf infusion, root tea, fresh plant juice	Kanta et al.,2018
Rumex nepalensis Spreng.	Polygonaceae	Abhuj	Root	Stomach pain	Decoction	Dar et al.,2018, Jan et al.,2021
Sagittaria sagittifolia L.	Alismataceae	Kew	Leaf	Stomach trouble	Tuber decoction, leaf juice, root powder	Khanday & Singh,2017
Salix caprea L.	Salicaceae	Bedmushk	Bark, Leaf, Flower	Diarrhoea, gastric ulcers	Bark decoction, leaf infusion, flower decoction	Jan & Khare,2015
Salvia moorcroftiana Wall. ex Benth.	Lamiaceae	Gankual	Whole plant	Stomach pain, Dysentery	Extract	Dutt et al.,2015, Malik & Siddique
Salvia plebeia R.Br.	Lamiaceae	Kakrondha, Sage weed	Leaf	Diarrhoea	Juice	Kumari et al.,2013
Sambucus ebulus L.	Caprifoliaceae	Elder	Leaf, Fruit	Stomach disorder	Root decoction, leaf decoction, fruit juice	Bhat et al.,2014
Sambucus wightiana Wall. ex Wight & Arn.	Adoxaceae	Sir-siri	Leaf, Fruit	Digestion upset, expel poisonous substances from stomach	Powder, Fruit juice	Jan et al.,2021, Shah et al.,2015
Sarcococca saligna (D.Don)	Buxaceae	Ranthali	Root	Stomach worms	Juice	Dangwal & Singh,2013

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Saussurea costus (Falc.) Lipsch.	Asteraceae	Kuth	Rhizome	Dysentery	Powder	Peer et al.,2025
Senecio graciliflorus DC.	Asteraceae	Mongoal	Leaf, flowers	Acidity, Stomachache	Extract	Khanday & Singh,2017, Bhat et al.,2014
Senecio jacquemontianus (Decne.) Benth. ex Hook. f	Asteraceae	Haputgogej	Tuber, Leaf	Stomach trouble	Root decoction, leaf juice, whole plant paste	Khanday & Singh,2017
Skimmia laureola (DC.) Decne.	Rutaceae	Patlo, Butputer	Leaf	Colic pain, Abdominal pain, Wormicide	Powder, Extract	Sarad et al.,2017, Shah et al.,2015, Malik & Siddique
Solanum nigrum L.	Solanaceae	Kambai	Fruit	Stomach problem, constipation	Ripe fruits (berries) are eaten raw	Bano et al.,2017, Jan & Khare,2015, Lone & Bhardwaj,2013, Malik & Siddique
Solanum pseudocapsicum L.	Solanaceae	Lalmarch	Fruit	Intestinal worm	Sauce (chutney)	Shah et al.,2015
Solanum surattense Burm.f.	Solanaceae	Kandiari	Root	Abdominal pain	Powder fried with Ghee or mustard oil with water	Shah et al.,2015, Dutt et al.,2015
Solanum viarum Dunal	Solanaceae	Mokri	Fruit	Dysentery	Powder	Shah et al.,2015
Sonchus asper (L.) Hill	Asteraceae	Sonkhi	Young shoots	Constipation	Decoction	Dar et al.,2015
Sonchrus oleraceus (L.) L.	Asteraceae	Dudije	whole plant	Indigestion	Extract	Malik & Siddique
Sorghum halepense (L.) Pers.	Poaceae	Durhum	Root, Seed, Leaf	Abdominal pain	Root decoction, seed infusion, leaf juice	Bhat et al.,2014
Stellaria media (L.) Vill.	Caryophyllaceae	Nickhack	Whole herb	Stomach pain	As vegetable	Jan et al.,2021, Malik & Siddique
Syzygium cumini (L.) Skeels	Myrtaceae	Jamnu	Bark	Diarrhoea(Children)	Juice with the milk of goat	Rashid,2012
Tagetes minuta L.	Asteraceae	Guta, Zerre ni jaddi	Flower	Dyspepsia	Powder with curd	Rashid,2012

Tanacetum macrophyllum (Waldst. & Kit.) Sch.Bip.	Asteraceae	Mathrogass, Madra	Whole plant	Gastric problems, Intestinal problem	Root decoction, root juice, root powder	Dangwal & Singh,2013
Tanacetum longifolium Thunb.	Asteraceae	Ban chai	Root	Stomach pain	Powder	Dutt et al.,2015
Taraxacum officinale F.H.Wigg.	Asteraceae	Bathur Dandelion	Root, Leaf	Dysentery, Diarrohea, Gastric ulcers	Powder	Bhat et al.,2014, Dar et al.,2018, Kumari et al.,2013, Malik & Siddique
Taxus wallichiana Zucc.	Taxaceae	Barmi	Leaf, Bark	Indigestion	Bark decoction, leaf powder, bark juice	Rashid,2012, Riaz & Bhandari,2015
Tinospora cordifolia (Willd.) Hook.f. & Thomson	Menispermaceae	Guloh	Stem	Stomach trouble	Stem decoction, leaf juice	Rashid,2012, Riaz & Bhandari,2015
Thymus linearis Benth.	Lamiaceae	Jangli Javind	Whole plant	Indigestion, loss of appetite	Seed powder mixed with sugar	Lone & Bhardwaj,2013
Thymus serpyllum L.	Lamiaceae	Jangli Javind	Whole plant	Stomachache	Extract, Decoction	Dutt et al.,2015, Malik & Siddique
Trachyspermum ammi (L.) Sprague	Apiaceae	Ajwain	Seeds	Stomachache	Seed decoction, seed powder	Dutt et al.,2015
Trapa natans L.	Trapaceae	Gaer Kul	Fruit	Chronic constipation	Eaten raw	Lone & Bhardwaj,2013
Trifolium pratense L.	Fabaceae	Chat bat	Flower	IndigesIon	Juice	Peer et al.,2025
Trigonella foenum-graecum L.	Fabaceae	Meth	Seed, Leaf	Constipation, Indigestion, ulcers, abdominal pain, acidity, worms	Decoction, Spice, Powder	Jan et al.,2021, Kanta et al.,2018, Lone & Bhardwaj,2013, Peer et al.,2025
Triticum aestivum L.	Poaceae	Kaenak	Seed	Wormicide, abdominal pain(children)	Decoction	Jan et al.,2021
Urtica dioica L.	Urticaceae	Soi, Panayali, Kinji	Whole herb, Leaf	Stomach pain, hyper acidity and gastric, Indigestion	Extract, Decoction	Dangwal & Singh,2013, Jan et al.,2021,Malik & Siddique, Peer et al.,2025
Valeriana jatamansi Jones ex Roxb.	Valerianaceae	Mushkbala/Budjeeth	Root stock	Abdominal pain, wormicide, diarrhoea, dysentery	Extract or Powder	Bano et al.,2017, Malik & Siddique

Valeriana pyrolifolia Decne.	Valerianaceae	Musk-e-bala	Root	Abdominal pain	Extract	Bhat et al.,2012
Verbena officinalis L.	Verbenaceae.	Hutmool	Whole plant	Indigestion, antihelmintic	Extract	Malik & Siddique
Verbascum thapsus L.	Scarphulariaceae	Gider tamaku	Leaf	Stomach pain, constipation	Extract, Leaves mixed with bulbs of onion and decocted	Rashid,2012, Riaz & Bhandari,2015, Shah et al.,2015
Verbesina encelioides (Cav.) Benth. & Hook.f. ex A.Gray	Asteraceae	Mushkari booti	Root	Dysentery	Infusion	Dar et al.,2015
Viburnum grandiflorum Wall. ex DC.	Adoxaceae	Kuchh	Fresh Twig	Constipation	Eaten raw	Shah et al.,2015
Viola odorata L.	Violaceae	Banafsho	Whole plant, Rhizome	Digestive disorders	Tea, Decoction	Ahmed & Ajaz,2017, Jan & Khare,2015, Peer et al.,2025
Vitex negundo L.	Verbenaceae	Banna	Flower	Diarrhoea	Extract	Sarad et al.,2017
Vitis vinifera L.	Vitaceae	Dush	Fruit	Diarrhoea, Indigestion	Juice	Jan et al.,2021, Khanday & Singh,2017
Woodfordia fruticosa (L.) Kurz	Lythraceae	Tave	Flower	Constipation	Powder	Shah et al.,2015
Zanthoxylum armatum DC.	Rutaceae	Timbru	Leaf, Fruit	Antihelminthic, stomachache, digestive	Oil and fresh shoots	Dutt et al.,2015, Kumari et al.,2013
Ziziphus mauritiana Lam.	Rhamnaceae	Beer	Fruit, Bark, Leaf	Indigestion, diarrhoea and stomachache	Bark decoction, fruit powder, leaf juice	Riaz & Bhandari,2015

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Results and Discussion

The present review documented a total of 235 ethnomedicinal plant species belonging to 83 families used by tribal communities of UT of Jammu and Kashmir for the treatment of gastrointestinal (GI) diseases and disorders. The documented taxa were traditionally used for managing a wide spectrum of digestive ailments including diarrhoea, dysentery, constipation, abdominal pain, stomachache, indigestion, gastric ulcers, intestinal worms, dyspepsia, colic, acidity, gastroenteritis, anorexia, stomach infections etc. The findings reveal the rich ethnomedicinal knowledge preserved among indigenous tribal communities such as Gujjar, Bakerwal, Gaddi, Balti and other tribal populations inhabiting different ecological zones of the region.

Diversity of Medicinal Plant Families

Among the recorded families, Asteraceae represented the dominant family with the highest number of medicinal species (29 spp.) used against GI ailments. Species such as *Achillea millefolium*, *Artemisia absinthium*, *Artemisia scoparia*, *Taraxacum officinale*, *Saussurea costus*, *Inula racemosa* and *Tanacetum macrophyllum* were commonly cited for treatment of dysentery, abdominal pain, intestinal worms, gastric ulcers and other digestive disorders. Lamiacea with 17 species was the second most represented family and included important medicinal taxa such as *Thymus serphyllum, Ajuga bracteosa, Clelebrookea oppositifolia, Clinopodium vulgare, Mentha arvensis, Ocimum canum, Rabdosia rugosa* etc. which were frequently used against indigestion, diarrhoea, stomachache, dyspepsia, worms, constipation, acidity and loss of appetite.

Rosaceae (15 spp.) also contributed significantly with species such as *Cydonia oblonga, Duchesnea chrysentha, Geum roylei, Potentilla indica, Prinsepia utilis, Prunus persica etc.* that were mainly used as digestive stimulants, carminatives and remedies for dysentery, constipation, abdominal pain and dyspepsia. Other notable families included Fabaceae (13 spp.), Apiaceae (10 spp.), Brassicaceae (9 spp.).

Gastrointestinal Disorders Treated and plant species used

The review revealed that diarrhea, abdominal pain and dysentery were the most commonly treated diseases, with 60, 47 and 45 ethnomedicinal plant species used for their treatment respectively. Species frequently reported for treatment of diarrhoea included *Achyranthes aspera, Aconitum heterophyllum, Acorus calamus, Adiantum venustum, Adhatoda vesica, Aegle mermelos, Ajuga bracteosa, Berberis aristata, Bergenia ciliate, Bauhinia vahlii* etc.

The plant species most commonly used against abdominal pain were *Abrus precatorious, Achyranthes bidentata, Aconitum heterophyllum, Adiantum capillus veneris, Atremisia absinthium, Bupleurum falcatum, Chenopodium album, Corydalis govaniana* etc. Dysentery is cured by using ethnmedicinal plant species like *Cuminum cyminun, Adhatoda vesica, Amaranthus giganticus, Angelica glauca, Bombax ceiba, Cedrus deodara, Chenopodium vulgare, Dioscorea bulbifera, Fagopyrum esculentum, Foeniculum vulgare, Holarrhena antidysentrica, Hypericum perforatum, Pedicularis pectinata, Taraxicum offinale* etc. Constipation is treated by using *Juglans regia, Lychnis coronaria, Malva neglecta, Matricaria discoidea, Ocimum canum, Plantago lanceolata, Podophyllum hexandrum, Portulaca oleracea, Rosa brunoni, Solanum nigrum, Trapa natans* etc. Plants used in case of Indigestion were *Trigonella foenicum-graecum, Urtica dioica, Verbena officinalis, Vitis vinifera* etc. Several species

exhibited anthelmintic properties and were used to expel intestinal worms. Commonly cited species include *Ainsliaea latifolia, Ajuga bracteosa, Angelica glauca, Arnebia benthamii, Artemisia absinthium, Butea monosperma, Nepeta cataria, Pinus wallichiana, Prunus persica, Punica granatum, Skimmia laureola* etc. Plants used as appetizers include *Allium cepa, Atremisia moorcroftian, Cichorium intybus, Corainadrum sativum, Melisia officinalis, Nasturtium officinalis, Prunella vulgaris, Punica granatum, Thymus linearis* etc. Acidity is cured by using *Allium cepa, Anemone obtusifolia, Bergenia ciliata, Equisetum aravens, Foeniculum vulgare, Senecio graciflorus* etc. Intestinal cramps are treated by using *Atropa belladonna, Bauhinia variegata, Malve neglecta, Phytolacca acinosa* etc. Gastric ulcers are alleviated by using *Achillea millifolium, salix caparea, Taraxacum officinale etc.* The plants used for treatment of colic pain include *Bupleurum longicaule, Celtis australis* etc.

Table 2. Diseases with number of species used for their treatment.

Disease/disorder treated	No.of spp. used	Disease/disorder treated	No.of spp. used
Diarrhoea	60	intestinal cramps	7
Abdominal pain	47	Gastric ulcers	5
Dysentery	45	Colic	4
Constipation	38	Cholera	3
Indigestion and dyspepsia	37	Vomiting	3
Helminthic infection	23	Bowl movement	2
Loss of appetite	14	Abdominal swelling	2
Acidity	10		

Gastrointestinal (GI) diseases are the major public health concerns across the globe, particularly in developing countries where access to modern healthcare may be limited (WHO, 2023; Farnsworth, 1993). Locally available plants have been traditionally utilized for the prevention and treatment of these diseases due to their easy accessibility, affordability and having little or no side effect (Sofowora, 2008). The growing scientific interest in herbal medicine has further validated the therapeutic potential of numerous plant species used against gastrointestinal ailments (Rates, 2001). Several medicinal plants possess significant antidiarrhoeal and antidysenteric activities due to the presence of bioactive compounds like alkaloids, flavonoids, saponins, tannins, terpenoids and phenolic compounds (Cowan, 1999). Plants such as *Aegle marmelos* and *Punica granatum* are traditionally used for treatment of diarrhoea and dysentery and these plants exhibit antimicrobial, anti-inflammatory and intestinal motility-reducing properties, which contribute to their therapeutic effects (Palombo, 2006). Tannins present in many medicinal plants help reduce intestinal secretions and improve stool consistency, thereby help in controlling diarrhoea (Longanga Otshudi et al., 2000).

Species such as *Mentha arvense* and *Foeniculum vulgare* possess essential oils and flavonoids which help relax smooth muscles of the gastrointestinal tract and improve digestion (Ali et al., 2015). Various medicinal plants possess anti-ulcer and and anti-acidity activities by enhancing mucosal defense mechanisms, scavenging free radicals and reducing acid secretion (Borrelli and Izzo, 2000). Extracts of plants such as *Melia azadirachta* and *Allium sativum* possess antimicrobial properties against bacteria like *Escherichia coli* and *Salmonella* spp., which are causal organisms of diarrhoea and dysentery (Biswas et al., 2002). Unlike allopathic medicines that often target a single pathway, herbal medicines

may exert multitarget effects including antioxidant, antimicrobial, anti-inflammatory and antisecretory actions (Fabricant and Farnsworth, 2001). This multifaceted mechanism may enhance their efficacy in complex gastrointestinal disorders. Additionally, many herbal remedies exhibit fewer side effects as compared to allopathic medicines drugs (Ekor, 2014).

Despite promising pharmacological evidence of ethnomedicinal plants, many traditional drugs lack comprehensive scientific and clinical validation. Therefore, further scientific studies including phytochemical analysis and mechanism of action are necessary to establish clinical efficacy and safety of traditional medicine

Plant Parts Used

Analysis of plant parts used (Table 1) revealed that leaves (23.4%) were the most commonly utilized plant part, followed by roots (19.6%), whole plant (17.5%), fruits (10.7%) and seeds (10.3%) as major contributors. Leaves were preferred due to their easy accessibility and year-round availability. Harvesting leaves is generally less destructive than uprooting whole plants or collecting roots and rhizomes, allowing sustainable utilization of medicinal flora. However, several highly valued species in the review, including *Aconitum heterophyllum*, *Picrorhiza kurroa*, *Saussurea costus* and *Valeriana jatamansi* require root or rhizome harvesting, which poses serious conservation concerns because these taxa are already under pressure from overexploitation and habitat degradation in Himalayan region. Frequently used leaf-based remedies included *Mentha arvensis*, *Chenopodium album*, *Ajuga bracteosa*, and *Thymus serpyllum* etc. Roots and rhizomes were particularly important in species used for alleviating severe abdominal pain, diarrhea and dysentery such as *Aconitum heterophyllum*, *Acorus calamus, Angelica glauca, Berberis lyceum, Bergenia ciliata, Corydalis govaniana, Inula cuspidata, Picrorhiza kuroa, Saussurea costus* etc. Whole plants were also extensively used, especially in herbaceous taxa such as *Achillea millifolium, Chenopodium intybus, Clinopodium vulgare, Conyza bonariensis, Cynodon dactylon, Fumaria indica, Gentiana kurroo, Mentha arvensis, Thymus linearis, Oxalis corniculata* etc. Fruits and seeds were often consumed directly or used in the form of powders and decoctions for getting rid of digestive disorders.

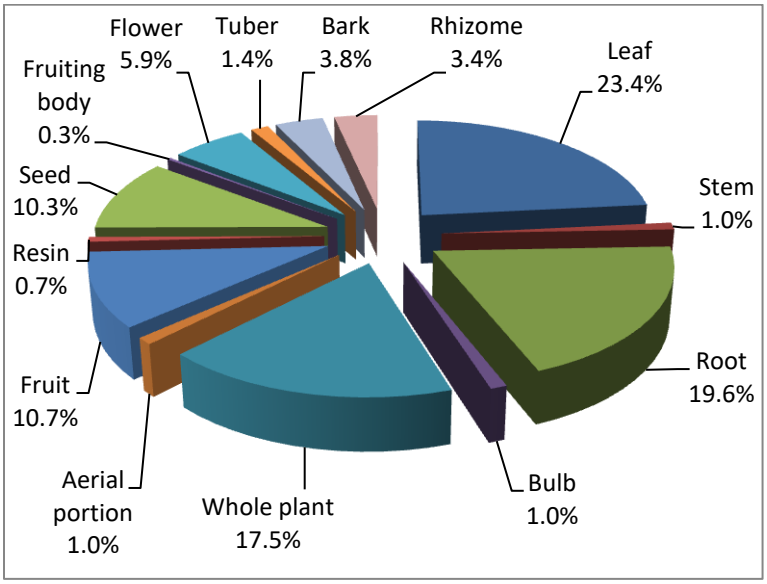

Fig. Percentage contribution of different plant parts used

Modes of Preparation and Administration

Decoction was identified as the most common mode of herbal preparation, followed by powders and juice. The other major forms of drug preparations include pastes, raw forms, infusion, herbal teas, oils and cooked vegetables. Decoctions were especially preferred for treating diarrhoea, dysentery, abdominal pain and indigestion because they were believed to extract maximum medicinal constituents. Powders prepared from roots, seeds, bark or dried fruits were commonly administered orally with water, milk, sugar, honey or curd. Many plants are consumed are nutraceuticals as they serve both food as well as medicine and are therefore also called food medicines. Oral administration was the most common route, reflecting the direct targeting of digestive ailments.

The present review highlights the remarkable ethnomedicinal wealth of Jammu and Kashmir and demonstrates the central role of traditional plant-based therapies in the management of gastrointestinal disorders among tribal communities. The extensive use of medicinal plants for digestive ailments may be linked to the high prevalence of GI infections, poor sanitation in remote mountainous areas and limited accessibility to modern healthcare facilities. The review also indicates that knowledge transmission remains largely oral and is concentrated among elderly people, pastoralists and tribal practitioners. Rapid modernization, migration, changing lifestyles, and declining interest among younger generations threaten the continuity of this valuable indigenous knowledge system. Documentation and scientific validation of these practices are therefore urgently required for biodiversity conservation and sustainable healthcare development.

Overall, the findings demonstrate that ethnomedicinal plants continue to play a crucial role in primary healthcare among tribal populations of Jammu and Kashmir. The documented species represent promising candidates for phytochemical, pharmacological and clinical investigations aimed at discovering novel gastrointestinal therapeutics. Conservation strategies, cultivation programs and community-based knowledge preservation initiatives are essential to safeguard these medicinal resources and their associated traditional wisdom for future generations.

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Authors' contributions: BPS (Bhekam Pal Singh) devised the study, framed its draft and wrote the manuscript. LS (Lakhvinder Singh) also framed the draft and helped to write the manuscript. **KK** (Kewal Kumar) participated in, editing, compiling and interpretation of data, finalizing the draft and critical revision of the manuscript before approval for final submission. **HS** (Harshitha Sharma) collected the data, helped to design, draft and edit the manuscript. HD (Harshit Dubey) interpreted the data and edited the manuscript.

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