Review Article

REVIEW ON HERBAL REMEDIES FOR DYSENTERY AND DIARRHEA FROM THE MELGHAT REGION OF MAHARASHTRA STATE, INDIA

ABSTRACT:

The rapid advancement in fast pacing lifestyle of people and more dependent on fast food is the major leading cause of the increase in stomach infections leading to dysentery and diarrhea. Diarrhoea / Diarrhea and Dysentery are major causes of morbidity and mortality in rural communities of the developing world. The current review focus on herbal remedies from the Melghat region for dysentery and diarrhea-related symptoms. A total of 287 medicinal plant species from 90 families have been compiled for Dysentery (210) and Diarrhea (243). Most reported plant families were Fabaceae contributing 11.14% plants of the total population, followed by Asteraceae (5.57%), Malvaceae (4.52%), Apocynaceae (3.48%), Rubiaceae (3.48%), Lamiaceae (3.13%), Combretaceae (3.13%), Amaranthaceae (2.78%), Euphorbiaceae (2.78%), Moraceae (2.78%), Mimosoideae (2.43%), etc. In this study, out of 287 species reviewed, trees represented 34.49% of species, followed by herbs (32.75%), shrubs (21.95%), climbers (8.01%), grasses (2.43%), and orchids (0.34%). Curated data presented along with the plant's botanical name, plant's family, category (habit), ailments, the part used with relevant traditional, folk, ethnobotanical uses, and patterns with cross citations offers scope for researchers engaged in herbal drug discovery and development to dwell into the herbal reservoir and find suitable plant compounds for fighting this disease.

Keywords: Diarrhoea, Dysentery, Herbal remedies, Melghat, Stomach infections

INTRODUCTION:

India is known for containing the most prestigious medicinal plants which makes it a definitive hotspot for the exploration of plant-based compounds to cure diseases, solutions to which are yet to be discovered using synthetic compounds. Approximately 80% of the world population relies on plant-based herbal medicine, as plant-based compounds are known to show fewer side effects, are easily available, and are cost-effective [1]. Researchers are now developing what is known as a complementary and alternative therapy (CAM), based on botanical products. With this approach, the preparation of drugs from herbal plants is predicted to be faster and more convenient as compared to other sources [2]. This review article intends to fill in for the required knowledge regarding the potential reservoir of medicinal plants, compounds from which can provide great insights into discovering natural compounds which can be used for medicinal purposes to cure dysentery and diarrhea.

Bacillary dysentery can be caused by four *Shigella* species: *S. dysenteriae, S. flexneri, S. boydii*, and *S. sonnei* [3]. *Shigella sonnei* is the most common *Shigella* species prevalent in developed countries. *S. flexneri* is more frequent in developing countries whereas *S. dysenteriae* and *S. boydii* are the least causative bacterial agent [4]. Amoebic dysentery comes from a parasite called *Entamoeba histolytica*, generally caused due to poor sanitary conditions. Symptoms of Dysentery include Diarrhoea with stomach pain, vomiting, nausea, and blood or mucus in diarrhea [5]. Due to the increase in antibiotic use for the treatment of this disease, it develops antibiotic resistance, leading to poor response to treatment in many cases [6]. Therefore, developing knowledge of treatments based on herbal plants can help defeat this concern.

The research is done on the forest flora of the Melghat region [7], reporting the colossal diversity of the contained medicinal plants. Many scientists, scholars, and researchers contributed to enlisting the plant species from Melghat, contributing to the development of the Melghat Plant databank (MPdb) [8][9] and the wild mushroom database [10]. Authors have also reviewed the medicinal properties of the Melghat flora for respiratory infection of Asthma [9].

METHODS AND MATERIAL:

2.1 DATA RETRIEVAL

Pre-defined criteria (*Figure 1*) were taken into consideration for selecting the research articles. The published literature and information obtained from international scientific databases such as Google Scholar, Medline, PubMed, PubMed Central, Research Gate, Science Direct, Scopus, and Web of Science were reviewed thoroughly keeping in mind the purpose of finding the plants which have the properties to heal the target ailment of this review. The plant species' names, synonyms, and families were thoroughly verified using sources such as books, research articles, and publicly available online sources.

2.2 DATA ANALYSIS

The literature was reviewed with qualitative and quantitative data analysis through statistical tools, which include graphs and tables. Plants found to show the medicinal properties in this review were higher than expected which offers scope for further development in this line of work including pharmacological screening, drug discovery, and development.

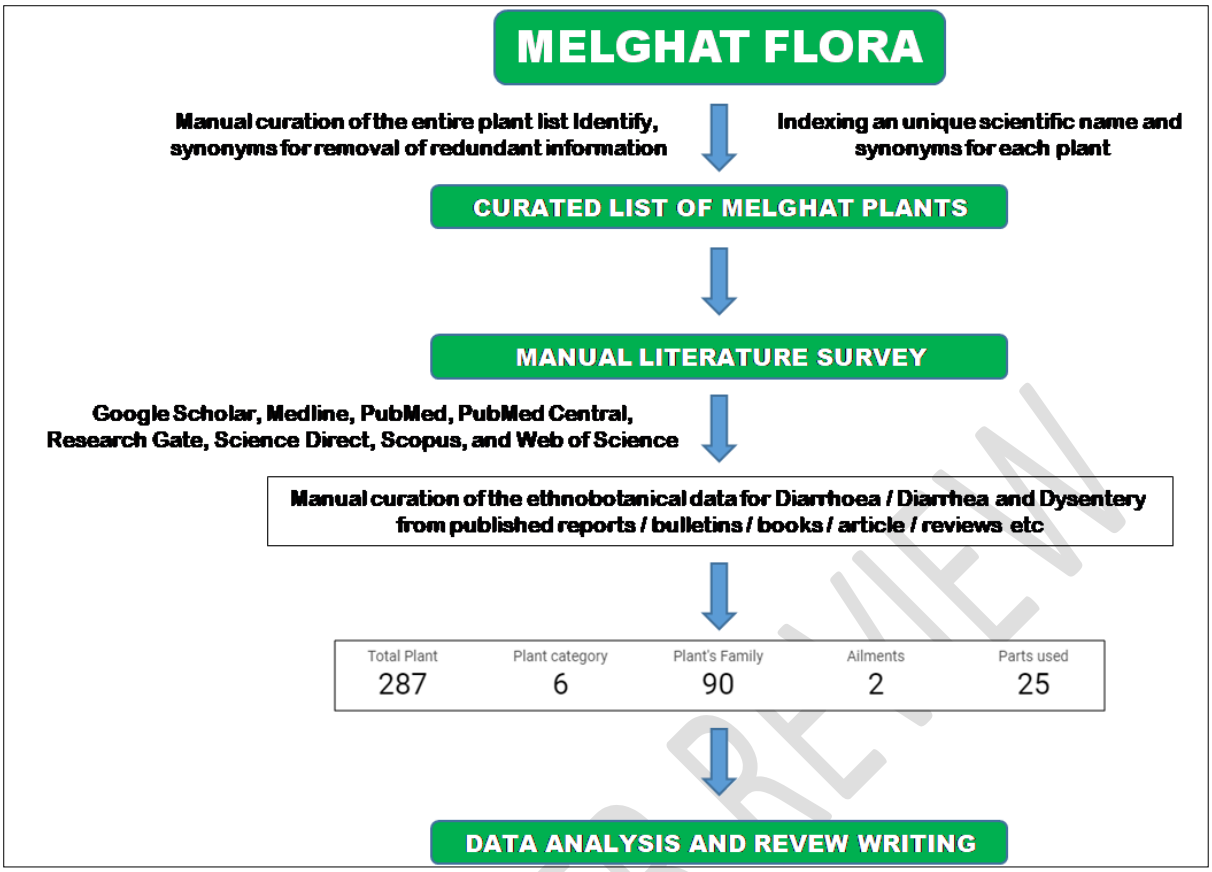

Figure 1: PROTOCOL FOR CURRENT REVIEW ON HERBAL REMEDIES FOR DYSENTERY AND DIARRHEA

RESULTS AND DISCUSSION:

This review article encircles plant species from Melghat, parts of which can be used to treat and manage diarrhea and dysentery; symptoms of dysentery include bloody diarrhea, nausea, vomiting, and excruciating stomach ache. It also includes information about botanical names, plant categories, plant family, and parts of the plant which have the herbal properties to treat the ailment.

The review article resulted in the tabulation of 287 entries (*Table 1*), data from which yielded valuable information about the herbal properties of these plants. Out of 287 plants, it was found that 243 plants (53.6%) are having curative properties to treat Diarrhoea / Diarrhea and 210 plants (46.4%) have medicinal properties to treat Dysentery, having 165 plants as common plant species.

Sr. No.	Plant's Name	Family	Category	Ailments	Parts used	References
1	*Abelmoschus ficulneus* (L.) Wight & Arn. ex Wight	Malvaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[11]
2	*Abutilon indicum* (L.) Sweet (Syn. *Sida indica* L.)	Malvaceae	Shrubs	Dysentery	Leaves, Fruits	[12]
				Diarrhoea / Diarrhea	Leaves, Fruits, Roots	[1,12–14]
3	*Abutilon pannosum* (G. Forst.) Schltdl.	Malvaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[15]
				Dysentery	Leaves, Bark, Roots	[15]
4	*Acacia catechu* (L.f.) Willd.	Fabaceae	Tree	Dysentery	Leaves	[16]
				Diarrhoea / Diarrhea	Leaves, Bark, Heartwood	[13,14,16]
5	*Acacia concinna* (Willd.) DC.	Mimosoideae	Climbers	Diarrhoea / Diarrhea	Leaves	[17]
6	*Acacia ferruginea* DC.	Mimosoideae	Tree	Diarrhoea / Diarrhea	Leaves	[18]
				Dysentery	Leaves	[18]
7	*Acacia jacquemontii* Benth	Mimosoideae	Shrubs	Diarrhoea / Diarrhea	Leaves	[19]
8	*Acacia lenticularis* Benth. (Syn. *Senegalia lenticularis* (Buch.-Ham. ex Benth.))	Mimosoideae	Tree	Diarrhoea / Diarrhea	Bark	[20]
				Dysentery	Bark	[20]
9	*Acacia nilotica* (L.) Delile (Syn. *Acacia arabica* (Lam.) Willd.)	Mimosoideae	Tree	Dysentery	Gum, Bark, Seeds	[16,21–25]
				Diarrhoea / Diarrhea	Leaves, Bark, Gum	[1,13,14,16,21,22, 25]
10	*Acalypha indica* L.	Euphorbiaceae	Herbs	Diarrhoea / Diarrhea	Leaves, Roots	[13,17]
				Dysentery	Leaves, Whole plant	[26,27]
11	*Achyranthes aspera* L.	Amaranthaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[13,28]

				Dysentery	Leaves, Roots, Whole plant	[16,21,22]
12	*Adansonia digitata* L.	Malvaceae	Tree	Diarrhoea / Diarrhea	Fruits, Seeds, Leaves	[29]
				Dysentery	Fruits, Seeds, Leaves	[29]
13	*Adina cordifolia* (Roxb.) Brandis (Syn. *Haldina cordifolia* (Roxb.) Ridsdale)	Rubiaceae	Tree	Diarrhoea / Diarrhea	Roots	[17,30]
				Dysentery	Roots	[17,30]
14	*Aegle marmelos* L.	Rutaceae	Tree	Dysentery	Fruits	[23–25,31–33]
				Diarrhoea / Diarrhea	Fruits, Leaves	[13,14,17,25,32–34]
15	*Aerva javanica* (Burm. f.) Juss. ex Schult. (Syn. *Aerva persica* (Burm. f.))	Amaranthaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[17]
				Dysentery	Whole plant	[17]
16	Aerva lanata (L.) Juss. ex Schult.	Amaranthaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[14]
17	*Agave americana* L.	Agavaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[35]
				Dysentery	Leaves	[35]
18	*Agave angustifolia* Haw.	Agavaceae	Herbs	Dysentery	Sap	[36]
19	*Ageratum conyzoides* L.	Asteraceae	Herbs	Diarrhoea / Diarrhea	Leaves	[13,37]
				Dysentery	Leaves	[31]
20	*Ailanthus excelsa* Roxb.	Simaroubaceae	Tree	Diarrhoea / Diarrhea	Bark, Stem bark	[14,38,39]
				Dysentery	Bark, Stem bark	[38,39]
21	*Alangium salviifolium* (L.f.) Wangerin	Cornaceae	Tree	Diarrhoea / Diarrhea	Leaves	[40]
				Dysentery	Leaves	[40]

22	*Albizia lebbeck* (L.) Benth.	Fabaceae	Tree	Dysentery	Bark	[17,24,41]
				Diarrhoea / Diarrhea	Bark, Seeds	[14,16,17,24,32]
23	*Alstonia scholaris* (L.) R. Br.	Apocynaceae	Tree	Dysentery	Root-bark	[17,32,33]
				Diarrhoea / Diarrhea	Root-bark, Stem bark, Leaves	[13,14,17,31–33]
24	*Alternanthera sessilis* (L.) R.Br. ex DC.	Amaranthaceae	Herbs	Diarrhoea / Diarrhea	Roots	[17,42]
				Dysentery	Roots	[17,42]
25	*Alysicarpus vaginalis* (L.) DC.	Fabaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[17]
				Dysentery	Leaves	[17]
26	*Amaranthus spinosus* L.	Amaranthaceae	Herbs	Diarrhoea / Diarrhea	Whole plant, Leaves	[13,14,43]
27	*Amorphophallus paeoniifolius* (Dennst.) Nicolson	Araceae	Herbs	Dysentery	Tubers	[13]
28	*Ampelocissus latifolia* (Roxb.) Planch.	Vitaceae	Climbers	Dysentery	Roots	[44]
29	*Anacardium occidentale* L.	Anacardiaceae	Tree	Diarrhoea / Diarrhea	Leaves, Stem, Bark	[37,45]
				Dysentery	Leaves, Stem, Bark	[45]
30	*Andrographis paniculata* (Burm. f.) Wall. ex Nees	Acanthaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[33,46]
				Dysentery	Leaves, Whole Plant, Roots	[17,33,46]
31	*Annona squamosa* Linn	Annonaceae	Tree	Diarrhoea / Diarrhea	Fruits, Seeds	[13,17,24]
				Dysentery	Fruits, Seeds	[13,17,24]
32	*Anogeissus latifolia* (Roxb. ex DC.) Wall. ex Beddome	Combretaceae	Tree	Diarrhoea / Diarrhea	Stem bark, Bark	[16,23,47]
				Dysentery	Stem bark, Bark	[16,48]

33	*Argemone mexicana* L.	Papaveraceae	Herbs	Dysentery	Leaves	[16]
34	*Argyreia nervosa* (Burm. f.) Bojer (Syn. *Argyreia speciosa* (L. f.) Sweet.)	Convolvulaceae	Climbers	Diarrhoea / Diarrhea	Tubers	[13]
35	*Artemisia vulgaris* L.	Asteraceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[13]
36	*Asparagus racemosus* Willd.	Asparagaceae	Shrubs	Diarrhoea / Diarrhea	Roots, Rhizome	[1,13,14,23,43,48]
				Dysentery	Roots, Rhizome	[23,33,48]
37	*Atylosia scarabaeoides* (L.) Benth. (Syn. *Cajanus scarabaeoides* (L.) Thouars)	Fabaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[49]
				Dysentery	Whole plant	[49]
38	*Azadirachta indica* A. Juss.	Meliaceae	Tree	Dysentery	Leaves	[22]
				Diarrhoea / Diarrhea	Leaves, Bark	[13]
39	*Azanza lampas* (Cav.) Alef.	Malvaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[50]
				Dysentery	Stem	[51]
40	*Bacopa monnieri* (L.) Pennell.	Scrophulariaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[52]
				Dysentery	Leaves	[23]
41	*Bauhinia purpurea* L.	Fabaceae	Tree	Diarrhoea / Diarrhea	Leaves	[1,14]
42	*Bauhinia racemosa* Lam.	Fabaceae	Tree	Dysentery	Bark	[24]
				Diarrhoea / Diarrhea	Leaves, Bark	[24,47]
43	*Bauhinia vahlii* Wight & Arn.	Fabaceae	Climbers	Diarrhoea / Diarrhea	Stem bark	[39]
				Dysentery	Stem bark	[39]
44	*Bauhinia variegata* L.	Caesalpiniaceae	Tree	Dysentery	Flowers	[16]

				Diarrhoea / Diarrhea	Leaves, Stem bark	[13,14]
45	*Blumea lacera* (Burm.f.) DC.	Asteraceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[13]
46	*Blumea mollis* (D.Don) Merr.	Asteraceae	Herbs	Diarrhoea / Diarrhea	Leaves	[53]
47	*Boerhavia diffusa* L.	Nyctaginaceae	Herbs	Diarrhoea / Diarrhea	Roots	[16]
				Dysentery	Roots	[16]
48	*Bombax ceiba* L.	Malvaceae	Tree	Dysentery	Calyx, Resin, Bark	[16,23,33]
				Diarrhoea / Diarrhea	Leaves, Bark, Roots, Gum, Resin	[13,16,23,33,54]
49	*Borreria articularis* (L.f.) F.N. Williams	Rubiaceae	Herbs	Diarrhoea / Diarrhea	Seeds	[33]
				Dysentery	Seeds	[33]
50	*Borreria stricta* G. Mey. (Syn. *Borreria verticillata* L. / *Spermacoce verticillata* L.)	Rubiaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[55]
51	Boswellia serrata Roxb.	Burseraceae	Tree	Diarrhoea / Diarrhea	Gum resin	[14,56]
				Dysentery	Gum resin	[56]
52	*Buchanania cochinchinensis* (Lour.) Almeida (Syn. *Buchanania lanzan* Spreng)	Anacardiaceae	Tree	Diarrhoea / Diarrhea	Bark, Leaves	[14,47,57]
				Dysentery	Bark, Stem bark	[39,57]
53	*Butea monosperma* Roxb. (Syn. *Butea frondosa* Roxb.)	Fabaceae	Tree	Dysentery	Stem bark, Flowers	[16,47]
				Diarrhoea / Diarrhea	Stem bark, Gum, Flowers, Sap	[1,14,17,27,31,47]
54	*Butea superba* Roxb.	Fabaceae	Climbers	Diarrhoea / Diarrhea	Leaves, Bark	[17]
				Dysentery	Leaves, Bark	[17]

55	*Caesalpinia bonduc* (L.)Roxb.	Caesalpinioideae	Shrubs	Diarrhoea / Diarrhea	Leaves, Stem bark	[14,39]
				Dysentery	Roots	[39]
56	*Caesalpinia pulcherrima* (L.)Sw.	Caesalpinioideae	Shrubs	Dysentery	Wood	[58]
				Diarrhoea / Diarrhea	Wood, Bark	[14,58]
57	*Caesulia axillaris* Roxb.	Asteraceae	Herbs	Dysentery	Inflorescence	[42]
58	*Cajanus scarabaeoides* (L.) Thouars	Faboideae	Herbs	Diarrhoea / Diarrhea	Whole plant	[49]
				Dysentery	Whole plant	[49]
59	*Calotropis gigantea* (L.) W.T. Aiton	Asclepiadaceae	Shrubs	Diarrhoea / Diarrhea	Leaves, Flowers, Aerial part	[13,14]
				Dysentery	Root-bark	[17,32]
60	*Calotropis procera* (Aiton) W.T. Aiton	Asclepiadaceae	Shrubs	Diarrhoea / Diarrhea	Latex	[1,14]
61	*Canavalia gladiata* Sensu Robyns.	Fabaceae	Climbers	Dysentery	Seeds	[59]
62	*Capparis spinosa* L.	Capparaceae	Shrubs	Diarrhoea / Diarrhea	Buds, Leaves	[60]
				Dysentery	Buds, Leaves	[60]
63	*Capparis zeylanica* L.	Capparaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[14]
64	*Cardiospermum halicacabum* L.	Sapindaceae	Climbers	Diarrhoea / Diarrhea	Leaves	[33]
				Dysentery	Leaves, Whole plant	[33,34]
65	*Careya arborea* Roxb.	Lecythidaceae	Tree	Diarrhoea / Diarrhea	Stem bark	[47,61]
				Dysentery	Stem bark	[24,47,61]
66	*Carissa carandas* Linn.	Apocynaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[62]

67	*Casearia elliptica* Willd.	Salicaceae	Tree	Dysentery	Bark	[27]
68	*Cassia absus* L.	Caesalpiniaceae	Herbs	Diarrhoea / Diarrhea	Seeds	[63]
				Dysentery	Seeds	[63]
69	*Cassia fistula* L.	Caesalpiniaceae	Tree	Diarrhoea / Diarrhea	Fruits	[16,24]
				Dysentery	Fruits, Seeds	[16,22,24]
70	*Cassia mimosoides* DC.	Caesalpiniaceae	Herbs	Diarrhoea / Diarrhea	Roots	[64]
				Dysentery	Roots	[64]
71	*Cassia occidentalis* L. (Syn. *Senna occidentalis* (L.))	Caesalpiniaceae	Shrubs	Diarrhoea / Diarrhea	Whole plant, Roots	[13,65]
72	*Cassia tora* L. (Syn. *Senna tora* (L.) Roxb.)	Caesalpiniaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[13,31]
				Dysentery	Leaves, Fruits	[17]
73	*Casuarina equisetifolia* L.	Casuarinaceae	Tree	Dysentery	Bark	[17,63]
				Diarrhoea / Diarrhea	Bark, Whole plant	[13,17,63]
74	*Cayratia trifolia* (L.) Domin.	Vitaceae	Climbers	Diarrhoea / Diarrhea	Leaves	[13]
75	*Celastrus paniculatus* Willd.	Celastraceae	Shrubs	Diarrhoea / Diarrhea	Bark	[24]
				Dysentery	Bark, Leaves	[17,24]
76	*Celosia argentea* L. (Syn. *Celosia cristata* L.)	Amaranthaceae	Herbs	Dysentery	Seeds, Leaves	[16,17,31]
				Diarrhoea / Diarrhea	Seeds, Leaves, Flowers	[14,16,17,31]
77	*Centratherum anthelminticum* (L.) O. Ketz. (Syn. *Vernonia anthelmintica* (L.) Willd.)	Asteraceae	Herbs	Diarrhoea / Diarrhea	Seeds	[66]

78	Chenopodium album L.	Chenopodiaceae	Herbs	Diarrhoea / Diarrhea	Leaves, Roots	[17,43]
79	*Chlorophytum borivilianum* Santapau & R.R.Fern.	Liliaceae	Herbs	Diarrhoea / Diarrhea	Roots	[25]
				Dysentery	Roots	[25]
80	*Chlorophytum laxum* R. Br.	Liliaceae	Herbs	Diarrhoea / Diarrhea	Roots	[25]
				Dysentery	Roots	[25]
81	*Chlorophytum tuberosum* (Roxb.) Baker	Liliaceae	Herbs	Diarrhoea / Diarrhea	Roots	[25]
				Dysentery	Roots	[25]
82	*Cissampelos pareira* L.	Menispermaceae	Climbers	Dysentery	Leaves, Roots	[16,17,23]
				Diarrhoea / Diarrhea	Roots, Whole plant	[23,28,34,39]
83	*Cleome gynandra* L.	Cleomaceae	Herbs	Diarrhoea / Diarrhea	Seeds	[28]
84	*Clerodendrum viscosum* Vent.	Verbenaceae	Shrubs	Dysentery	Leaves	[23]
				Diarrhoea / Diarrhea	Leaves, Roots	[13]
85	*Coccinia grandis* (L.) Voigt (Syn. *Cephalandra indica* (Wight & Arn.) Naudin.)	Cucurbitaceae	Climbers	Diarrhoea / Diarrhea	Leaves, Roots	[13,17]
86	*Cocculus hirsutus* (L.) Diels	Menispermaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[16]
				Dysentery	Leaves	[16]
87	*Cochlospermum religiosum* (L.) Alston	Bixaceae	Tree	Diarrhoea / Diarrhea	Flowers	[27]
88	*Coix lacryma-jobi* L.	Poaceae	Grasses	Diarrhoea / Diarrhea	Roots, Seeds	[13]
89	*Colocasia esculenta* (L.) Schott	Araceae	Herbs	Diarrhoea / Diarrhea	Rhizome	[13,28]

90	*Combretum decandrum* Jacq. (Syn. *Combretum roxburghii* Spreng.)	Combretaceae	Climbers	Dysentery	Stem bark	[39]
91	*Combretum ovalifolium* Roxb. (Syn. *Combretum albidum* G.Don.)	Combretaceae	Climbers	Diarrhoea / Diarrhea	Fruits	[67]
				Dysentery	Fruits	[67]
92	*Commelina paludosa* Blume	Commelinaceae	Herbs	Dysentery	Leaves	[43]
93	*Conyza canadensis* (L.) Cronquist	Asteraceae	Herbs	Diarrhoea / Diarrhea	Aerial parts	[21,22]
				Dysentery	Aerial parts	[21,22]
94	*Corallocarpus epigaeus* (Rottl.) C.B.Clark	Cucurbitaceae	Herbs	Dysentery	Roots, Rhizomes	[68]
95	*Corchorus tridens* L.	Tiliaceae	Herbs	Diarrhoea / Diarrhea	Oil	[69]
96	*Cordia dichotoma* Forster. f., Prodr.	Boraginaceae	Tree	Diarrhoea / Diarrhea	Leaves, Stem bark	[70]
97	*Crotalaria retusa* L.	Fabaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[71]
98	*Cucumis callosus* (Rottb.) Cogn.	Cucurbitaceae	Herbs	Diarrhoea / Diarrhea	Roots	[72]
99	*Cucumis setosus* Cogn. (Syn. *Cucumis hardwickii* Royle.)	Cucurbitaceae	Climbers	Dysentery	Fruits	[73]
100	*Curculigo orchioides* Gaertn.	Hypoxidaceae	Herbs	Diarrhoea / Diarrhea	Roots	[23,31]
				Dysentery	Roots	[16]
101	*Cuscuta reflexa* Roxb.	Cuscutaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[13]
102	*Cyathula prostrata* (L.) Blume	Amaranthaceae	Herbs	Dysentery	Whole plant	[74]
103	*Cynodon dactylon* (L.) Pers.	Poaceae	Grasses	Diarrhoea / Diarrhea	Leaves	[33]
				Dysentery	Whole plant, Roots, Leaves	[13,16,21,22,33]

104	*Cyperus rotundus* L.	Cyperaceae	Herbs	Diarrhoea / Diarrhea	Rhizome, Tubers, Roots	[1,13,21,43]
				Dysentery	Whole plant, Roots	[22,43]
105	*Dactyloctenium aegyptium* (L.) Willd.	Poaceae	Grasses	Diarrhoea / Diarrhea	Seeds	[43]
				Dysentery	Seeds	[17]
106	*Dalbergia lanceolaria* L.f.	Fabaceae	Tree	Diarrhoea / Diarrhea	Bark	[14]
107	*Dalbergia latifolia* Roxb.	Fabaceae	Tree	Diarrhoea / Diarrhea	Bark	[75]
108	*Dalbergia sissoo* DC.	Faboideae	Tree	Diarrhoea / Diarrhea	Leaves	[1]
				Dysentery	Leaves, Bark	[16,23,24]
109	*Datura inoxia* Mill.	Solanaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[76]
110	*Datura metel* L.	Solanaceae	Shrubs	Dysentery	Fruits	[12]
				Diarrhoea / Diarrhea	Seeds	[77]
111	*Dendrophthoe falcata* (L.f.) Ettingsh. (Syn. *Loranthus falcatus* L.f.)	Loranthaceae	Shrubs	Diarrhoea / Diarrhea	Leaves, Whole plant	[39,78]
				Dysentery	Leaves, Whole plant	[78]
112	*Desmodium gangeticum* (L.) DC.	Fabaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[33]
				Dysentery	Roots	[24,33]
113	*Desmodium triflorum* (L.) DC.	Fabaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[31,33]
				Dysentery	Leaves	[31,33]
114	*Dichrostachys cinerea* (L.)Wight & Arn.	Mimosoideae	Shrubs	Diarrhoea / Diarrhea	Bark, Shoots	[79]
				Dysentery	Bark, Shoots	[79]

115	*Dicliptera verticillata* (Forssk.) C. Christensen	Acanthaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[80]
116	*Dillenia pentagyna* Roxb	Dilleniaceae	Tree	Diarrhoea / Diarrhea	Leaves	[47]
				Dysentery	Leaves	[47]
117	*Dioscorea belophylla* (Prain) Voigt ex Haines	Dioscoreaceae	Climbers	Dysentery	Tubers	[81]
118	*Dioscorea bulbifera* L.	Dioscoreaceae	Climbers	Dysentery	Roots, Tubers	[16], [33], [81]
				Diarrhoea / Diarrhea	Tubers	[33]
119	*Diospyros melanoxylon* Roxb.	Ebenaceae	Tree	Diarrhoea / Diarrhea	Bark, Leaves	[39,82]
120	*Eclipta prostrata* (L.) L. (Syn. *Eclipta alba* (L.) Hassk.)	Asteraceae	Herbs	Diarrhoea / Diarrhea	Leaves, Whole plant	[17,23,83]
121	*Ehretia laevis* (Rottler ex G. Don) Roxb.	Boraginaceae	Tree	Diarrhoea / Diarrhea	Roots	[84]
				Dysentery	Roots, Leaves	[84]
122	*Elephantopus scaber* L.	Asteraceae	Herbs	Diarrhoea / Diarrhea	Leaves, Roots	[33]
				Dysentery	Leaves, Roots	[17,33]
123	*Eleusine indica* (L.) Gaertn.	Poaceae	Grasses	Dysentery	Whole plant	[43]
124	*Emblica officinalis* Gaertn. (Syn. *Phyllanthus emblica* L)	Euphorbiaceae	Tree	Dysentery	Fruits, Bark	[17,23,33]
				Diarrhoea / Diarrhea	Fruits, Bark, Leaves	[1,17,23,33]
125	*Emilia sonchifolia* (L.) DC.	Asteraceae	Herbs	Diarrhoea / Diarrhea	Roots	[17,34]
				Dysentery	Whole plant	[17]
126	*Erythrina suberosa* Roxb. (Syn. *Erythrina stricta* Roxb.)	Fabaceae	Tree	Dysentery	Leaves, Roots	[32]

127	*Eugenia jambolana* Lam.	Myrtaceae	Tree	Diarrhoea / Diarrhea	Fruits, Seeds	[85]
				Dysentery	Fruits, Seeds	[85]
128	*Euphorbia hirta* L.	Euphorbiaceae	Herbs	Diarrhoea / Diarrhea	Whole plant, Roots	[1,22,33,86]
				Dysentery	Whole plant, Roots, Leaves	[16,17,23,31,33]
129	*Euphorbia parviflora* L.	Moraceae	Tree	Diarrhoea / Diarrhea	Fruits, Bark	[43]
				Dysentery	Fruits, Bark	[43]
130	*Euphorbia thymifolia* L.	Euphorbiaceae	Herbs	Dysentery	Whole plant	[16]
131	*Evolvulus alsinoides* (L.) L.	Convolvulaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[87]
				Dysentery	Whole plant	[48,87]
132	*Ficus arnottiana* (Miq.) Miq.	Moraceae	Tree	Diarrhoea / Diarrhea	Bark	[88]
133	*Ficus benghalensis* L.	Moraceae	Tree	Diarrhoea / Diarrhea	Leaves, Roots, Latex, Aerial roots, Bark	[1,16,21,22,24,31–33,39]
				Dysentery	Stem bark, Latex, Aerial roots, Stem, Bark	[16,21–23,31,33]
134	*Ficus exasperata* Vahl.	Moraceae	Tree	Diarrhoea / Diarrhea	Leaves	[89]
				Dysentery	Leaves	[89]
135	*Ficus hispida* L. f.	Moraceae	Tree	Dysentery	Fruits, Latex	[17,34]
				Diarrhoea / Diarrhea	Fruits, Latex, Stem bark	[17,34,39]
136	*Ficus racemosa* L. (Syn. *Ficus glomerata* Roxb.)	Moraceae	Tree	Dysentery	Latex	[16]
				Diarrhoea / Diarrhea	Roots, Latex, Leaves	[16,24,31,90]

137	*Ficus religiosa* L.	Moraceae	Tree	Diarrhoea / Diarrhea	Bark, Stem bark	[39,91]
				Dysentery	Bark, Stem bark	[39,91]
138	*Flacourtia indica* (Burm. f.) Merr.	Flacourtiaceae	Tree	Diarrhoea / Diarrhea	Leaves, Bark, Fruits	[1,24]
139	*Gardenia gummifera* L.f.	Rubiaceae	Shrubs	Diarrhoea / Diarrhea	Gum	[31]
140	*Gardenia latifolia* Aiton	Rubiaceae	Tree	Diarrhoea / Diarrhea	Fruits, Bark	[92]
				Dysentery	Fruits, Bark	[92]
141	*Garuga pinnata* Roxb.	Burseraceae	Tree	Diarrhoea / Diarrhea	Fruits	[93]
				Dysentery	Roots, Bark, Fruits	[24]
142	*Getonia floribunda* Roxb. (Syn. *Calycopteris floribunda* (Roxb.))	Combretaceae	Climbers	Dysentery	Leaves	[90]
143	*Glinus lotoides* L.	Molluginaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[94]
144	*Glinus oppositifolius* (L.) Aug.DC.	Molluginaceae	Herbs	Diarrhoea / Diarrhea	Aerial parts	[95]
145	*Gmelina arborea* Roxb.	Verbenaceae	Tree	Diarrhoea / Diarrhea	Bark, Stem bark	[17,39]
146	*Grewia flavescens* Juss.	Tiliaceae	Shrubs	Diarrhoea / Diarrhea	Root bark	[96]
147	*Grewia hirsuta* Vahl	Tiliaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[17]
				Dysentery	Roots	[17,24]
148	*Grewia rothii* DC.	Tiliaceae	Shrubs	Dysentery	Root bark	[39]
149	*Grewia tiliifolia* Vahl.	Malvaceae	Tree	Diarrhoea / Diarrhea	Stem bark	[97]
				Dysentery	Stem bark	[31]
150	*Helicteres isora* L.	Malvaceae	Shrubs	Diarrhoea / Diarrhea	Fruits	[16,23,24,31,34]

				Dysentery	Fruits, Seeds	[16,17,23,31,34,54]
151	*Hemidesmus indicus* (L.) R. Br.	Apocynaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[1,39]
152	*Holarrhena antidysenterica* (L.) Wall. ex A. DC. (Syn. *Holarrhena pubescens* Wallich ex A. DC.)	Apocynaceae	Tree	Diarrhoea / Diarrhea	Stem bark, Bark, Seeds, Roots	[31–33,39,47]
				Dysentery	Stem bark, Bark, Seeds, Roots	[16,17,23,31–34,39,54]
153	*Holoptelea integrifolia* Planch.	Ulmaceae	Tree	Diarrhoea / Diarrhea	Leaves, Fruits	[98]
				Dysentery	Leaves, Stem bark	[39]
154	*Hybanthus enneaspermus* (L.) F. Muell.	Violaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[99]
				Dysentery	Whole plant	[99]
155	*Ichnocarpus frutescens* (L.) W.T.Aiton. (Syn. *Ichnocarpus ovatifolius* A. DC.)	Apocynaceae	Shrubs	Dysentery	Roots	[17]
156	*Impatiens balsamina* L.	Balsaminaceae	Herbs	Dysentery	Roots	[100]
157	*Imperata cylindrica* (L.) P. Beauv.	Poaceae	Grasses	Diarrhoea / Diarrhea	Roots	[43]
				Dysentery	Roots	[43]
158	*Indigofera cassioides* DC.	Fabaceae	Shrubs	Dysentery	Flowers, Roots	[23]
159	*Indigofera linnaei* Ali	Fabaceae	Herbs	Dysentery	Whole plant	[24]
160	*Ipomoea obscura* (L.) Ker Gawl.	Convolvulaceae	Climbers	Diarrhoea / Diarrhea	Leaves	[28]
				Dysentery	Leaves	[101]
161	*Ipomoea quamoclit* L.	Convolvulaceae	Climbers	Dysentery	Whole plant	[101]
162	*Jatropha curcas* L.	Euphorbiaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[1]
				Dysentery	Stem	[32]

163	*Juglans regia* L.	Juglandaceae	Tree	Diarrhoea / Diarrhea	Leaves	[102]
164	*Kyllinga brevifolia* Rottb.	Cyperaceae	Herbs	Diarrhoea / Diarrhea	Leaves, Tubers	[103]
165	*Kyllinga nemoralis* (J.R. Forst. & G. Forst.) Dandy ex Hutch. & Dalziel	Cyperaceae	Herbs	Diarrhoea / Diarrhea	Rhizome	[104]
166	*Lannea coromandelica* (Houtt.) Merr.	Anacardiaceae	Tree	Diarrhoea / Diarrhea	Leaves, Bark	[17]
				Dysentery	Leaves, Bark, Stem bark	[17,39]
167	*Lantana camara* L.	Verbenaceae	Shrubs	Dysentery	Leaves	[23]
				Diarrhoea / Diarrhea	Stem	[28]
168	*Leea macrophylla* Roxb. ex Hornem.	Vitaceae	Herbs	Dysentery	Roots	[17]
169	*Leonotis nepetifolia* (L.) R.Br.	Lamiaceae	Shrubs	Diarrhoea / Diarrhea	Whole plant	[105]
				Dysentery	Whole plant	[86]
170	*Leptadenia reticulata* (Retz.) Wight	Apocynaceae	Shrubs	Diarrhoea / Diarrhea	Seeds	[72]
171	*Leucas cephalotes* (Roth) Spreng.	Lamiaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[17]
				Dysentery	Leaves	[17]
172	*Limnophila indica* (L.) Druce	Scrophulariaceae	Herbs	Dysentery	Aerial parts	[42]
173	*Limonia acidissima* Linn.	Rutaceae	Tree	Diarrhoea / Diarrhea	Fruits	[106]
				Dysentery	Fruits	[106]
174	*Lindernia crustacea* (L.) F. Muell.	Scrophulariaceae	Herbs	Dysentery	Whole plant	[27,42]
175	*Litsea glutinosa* (Lour.) C. B. Rob.	Lauraceae	Tree	Diarrhoea / Diarrhea	Leaves, Bark	[33]
				Dysentery	Leaves, Bark	[33]

176	*Litsea monopetala* (Roxb. ex Baker) Pers (Syn. *Litsea sebifera* (Willd.) Persoon)	Lauraceae	Tree	Diarrhoea / Diarrhea	Bark	[33]
				Dysentery	Leaves, Bark	[32,33]
177	*Ludwigia octovalvis* (Jacq.) P.H. Raven	Onagraceae	Shrubs	Diarrhoea / Diarrhea	Whole plant	[107]
				Dysentery	Whole plant	[107]
178	*Madhuca indica* J.F. Gmel. (Syn. *Madhuca longifolia* (J. Konigex L.))	Sapotaceae	Tree	Diarrhoea / Diarrhea	Bark, Stem bark, Flowers	[1,16,31,39]
179	*Mallotus philippensis* (Lam.) Mull. Arg.	Euphorbiaceae	Tree	Dysentery	Fruits	[17]
180	*Mangifera indica* L.	Anacardiaceae	Tree	Diarrhoea / Diarrhea	Bark, Leaves, Flowers, Fruits, Seeds	[1,24,33,37,65]
				Dysentery	Bark, Leaves, Flowers, Fruits, Seeds	[24,32–34]
181	*Melia azedarach* Linn.	Meliaceae	Tree	Diarrhoea / Diarrhea	Bark, Leaves	[28,65]
182	*Melilotus indica* (L.) All. (Syn. *Melilotus indicus* (L.) All.)	Fabaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[43]
183	*Melochia corchorifolia* L.	Sterculiaceae	Herbs	Dysentery	Leaves, Roots	[108]
184	*Mesua ferrea* L.	Calophyllaceae	Tree	Diarrhoea / Diarrhea	Bark	[109]
				Dysentery	Bark	[109], [110]
185	*Mimosa hamata* Willd.	Fabaceae	Shrubs	Dysentery	Roots	[111]
				Diarrhoea / Diarrhea	Roots	[111]
186	*Mimusops elengi* L.	Sapotaceae	Tree	Dysentery	Fruits	[27,31]
				Diarrhoea / Diarrhea	Fruits, Seeds	[17,27,31]
187	*Mitragyna parvifolia* (Roxb.) Korth.	Rubiaceae	Tree	Dysentery	Stem bark	[39]

188	*Moghania bracteata* (Roxb.) H.L.Li (Syn. *Flemingia strobilifera* (L.))	Fabaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[112]
				Dysentery	Roots, Tuber	[112]
189	*Momordica balsamina* sensu W. & A.	Cucurbitaceae	Climbers	Diarrhoea / Diarrhea	Leaves	[113]
190	*Moringa oleifera* Lam	Moringaceae	Tree	Dysentery	Leaves, Whole plant	[12,24]
191	*Mucuna pruriens* (L.) DC. (Syn. *Mucuna prurita* Wight.)	Fabaceae	Shrubs	Dysentery	Roots	[17]
192	*Murraya koenigii* (L.) Spreng.	Rutaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[16,31,37]
				Dysentery	Leaves, Roots	[16,31,39,54]
193	*Mussaenda frondosa* L. (Syn. *Mussaenda macrophylla* Wall.)	Rubiaceae	Tree	Diarrhoea / Diarrhea	Stem bark	[114]
				Dysentery	Stem bark	[114]
194	*Nepeta hindostana* (Roth) Haines (Syn. *Nepeta ruderalis* Buch.-Ham.)	Lamiaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[115]
				Dysentery	Whole plant	[115]
195	*Nervilia aragoana* Comm. ex Gaudich.	Orchidaceae	Orchid	Diarrhoea / Diarrhea	Whole plant	[116]
196	*Nyctanthes arbor-tristis* L.	Oleaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[17,47]
197	*Ocimum canum* Sims. (Syn. *Ocimum americanum* auct.)	Lamiaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[33,37]
				Dysentery	Leaves	[33]
198	*Ocimum gratissimum* L.	Lamiaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[37,117]
199	*Oroxylum indicum* (L.) Kurz	Bignoniaceae	Tree	Diarrhoea / Diarrhea	Root-barks	[17,32,33]
				Dysentery	Seeds, Root-barks, Stem bark	[16,17,23,33,39]
200	*Ougeinia oojeinensis* (Roxb.) Hochr.	Fabaceae	Tree	Diarrhoea / Diarrhea	Gum, Bark	[24]

				Dysentery	Gum, Bark	[16,24]
201	*Oxalis corniculata* L.	Oxalidaceae	Herbs	Dysentery	Leaves, Fruits, Roots	[21,23,32,34,43]
				Diarrhoea / Diarrhea	Leaves, Fruits, Roots, Whole plant	[22,32,43]
202	*Passiflora foetida* L.	Passifloraceae	Climbers	Diarrhoea / Diarrhea	Aerial parts	[118]
203	*Pergularia daemia* (Forssk.) Chiov.	Asclepiadaceae	Climbers	Diarrhoea / Diarrhea	Leaves	[31,39]
				Dysentery	Roots	[39]
204	*Phoenix sylvestris* (L.) Roxb.	Arecaceae	Tree	Diarrhoea / Diarrhea	Leaves, Gum, Fruits, Sap	[119]
				Dysentery	Leaves, Roots, Seeds	[119]
205	*Phyllanthus amarus* Schum & Thonn.	Euphorbiaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[16,31]
				Dysentery	Whole plant	[16,31,34]
206	*Phyllanthus fraternus* G.L.Webster	Euphorbiaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[33]
				Dysentery	Whole plant	[33]
207	*Phyllanthus maderaspatensis* L.	Phyllanthaceae	Shrubs	Diarrhoea / Diarrhea	Seeds	[120]
				Dysentery	Seeds	[120]
208	*Phyllanthus reticulatus* Poir.	Phyllanthaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[33]
				Dysentery	Roots	[33]
209	*Phyllanthus urinaria* L.	Phyllanthaceae	Herbs	Dysentery	Shoots or Roots	[121]
				Diarrhoea / Diarrhea	Whole plant, Shoots or Roots	[121]
210	*Pithecellobium dulce* (Roxb.)Benth.	Mimosoideae	Tree	Dysentery	Bark	[122]

				Diarrhoea / Diarrhea	Roots, Bark	[25], [122]
211	*Plectranthus rugosus* Wall. ex Benth. (Syn. *Isodon rugosus* (Wall. ex Benth.))	Lamiaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[123]
212	*Plumbago zeylanica* L.	Plumbaginaceae	Shrubs	Dysentery	Roots, Leaves	[17,54]
				Diarrhoea / Diarrhea	Roots, Whole plant	[17,28,31,37]
213	*Pogostemon benghalensis* (Burm.f.) Kuntze	Lamiaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[124]
				Dysentery	Leaves	[124]
214	*Pongamia pinnata* (L.)Pierre (Syn. *Pongamia glabra* Vent.)	Fabaceae	Tree	Dysentery	Bark	[12]
				Diarrhoea / Diarrhea	Leaves	[31]
215	*Portulaca oleracea* L.	Portulacaceae	Herbs	Diarrhoea / Diarrhea	Aerial parts	[125]
				Dysentery	Aerial parts	[125]
216	*Portulaca quadrifida* L.	Portulacaceae	Herbs	Dysentery	Aerial parts	[126]
217	*Prunus persica* (L.) Stokes	Rosaceae	Tree	Dysentery	Leaves	[16]
218	*Pseudarthria viscida* (L.)Wight & Arn.	Fabaceae	Herbs	Diarrhoea / Diarrhea	Roots	[127]
219	*Psoralea corylifolia* L. (Syn. *Cullen corylifolium* (L.) Medik.)	Fabaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[17]
220	*Pterocarpus marsupium* Roxb.	Fabaceae	Tree	Diarrhoea / Diarrhea	Bark, Gum	[24]
				Dysentery	Bark, Stem bark	[23,39]
221	*Pterospermum acerifolium* (L.) Willd.	Malvaceae	Tree	Dysentery	Bark	[47]
				Diarrhoea / Diarrhea	Bark, Flowers	[47]

222	*Pupalia lappacea* (L.) Juss.	Amaranthaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[128]
223	*Quercus incana* W. Bartram	Fagaceae	Tree	Diarrhoea / Diarrhea	Fruits	[21]
				Dysentery	Fruits	[21]
224	*Rauvolfia tetraphylla* L.	Apocynaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[33]
				Dysentery	Roots	[33]
225	*Rubia cordifolia* L.	Rubiaceae	Herbs	Diarrhoea / Diarrhea	Roots	[28]
				Dysentery	Roots	[17]
226	*Salvia plebeia* R.Br.	Lamiaceae	Herbs	Diarrhoea / Diarrhea	Seeds	[129]
227	*Santalum album* L.	Santalaceae	Tree	Diarrhoea / Diarrhea	Heartwood	[1,17]
228	*Schleichera oleosa* (Lour.) Oken	Sapindaceae	Tree	Dysentery	Stem bark	[39]
229	*Scoparia dulcis* L.	Plantaginaceae	Herbs	Diarrhoea / Diarrhea	Leaves, Roots	[17,33,43,83]
				Dysentery	Leaves, Roots, Whole plant	[17,33,34,43,83]
230	*Securinega virosa* (Roxb. ex Willd.) Baill.	Phyllanthaceae	Shrubs	Diarrhoea / Diarrhea	Leaves, Stem bark	[37]
231	*Semecarpus anacardium* L.	Anacardiaceae	Tree	Diarrhoea / Diarrhea	Stem bark	[39]
232	*Sesamum indicum* L. (Syn. *Sesamum orientale* L.)	Pedaliaceae	Herbs	Dysentery	Seeds, Oil	[17,32]
				Diarrhoea / Diarrhea	Seeds, Oil	[130]
233	*Shorea robusta* Gaertn.	Dipterocarpaceae	Tree	Diarrhoea / Diarrhea	Fruits, Bark	[16,31]
				Dysentery	Gum	[16]
234	*Sida acuta* Burm. f.	Malvaceae	Shrubs	Diarrhoea / Diarrhea	Aerial parts	[37]

				Dysentery	Roots, Whole plant	[131]
235	*Sida cordifolia* L.	Malvaceae	Shrubs	Dysentery	Leaves, Root bark	[23,31]
236	*Sigesbeckia orientalis* L.	Asteraceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[132]
237	*Smilax zeylanica* L.	Smilacaceae	Climbers	Dysentery	Roots	[33]
238	*Solanum nigrum* L.	Solanaceae	Herbs	Dysentery	Fruits	[22]
				Diarrhoea / Diarrhea	Whole plant, Leaves	[28,31]
239	*Sonchus oleraceus* L.	Asteraceae	Herbs	Diarrhoea / Diarrhea	Shoots	[133]
240	*Sorghum bicolor* (L.) Moench	Poaceae	Grasses	Diarrhoea / Diarrhea	Seeds	[28]
241	*Soymida febrifuga* (Roxb.) Juss.	Meliaceae	Tree	Diarrhoea / Diarrhea	Bark	[24]
				Dysentery	Bark	[23]
242	*Sphaeranthus indicus* L.	Asteraceae	Herbs	Dysentery	Whole plant	[134]
				Diarrhoea / Diarrhea	Whole plant	[134]
243	*Spilanthes calva* DC.	Asteraceae	Herbs	Dysentery	Whole plant	[42]
244	*Spondias pinnata* (L. f.) Kurz	Anacardiaceae	Tree	Diarrhoea / Diarrhea	Fruits, Bark	[16,23,32,33]
				Dysentery	Fruits, Bark	[16,17,33]
245	*Stachytarpheta jamaicensis* (L.) Vahl. (Syn. *Stachytarpheta indica* (L.) Vahl)	Verbenaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[31]
				Dysentery	Leaves	[31]
246	*Sterculia urens* Roxb.	Sterculiaceae	Tree	Dysentery	Gum	[24]
247	*Streblus asper* Lour.	Moraceae	Tree	Diarrhoea / Diarrhea	Bark, Seeds	[17,33]

				Dysentery	Stem bark, Roots, Seeds, Leaves	[17,23,31,33]
248	*Stylosanthes fruticosa* (Retz.) Alston.	Fabaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[28]
249	*Syzygium cumini* (L.) Skeels (Syn. *Eugenia jambolana* Linn)	Myrtaceae	Tree	Diarrhoea / Diarrhea	Stem bark, Roots, Seeds, Fruits	[12,16,17,22,23,33]
				Dysentery	Stem bark, Roots, Seeds, Leaves	[16,17,23,33,54]
250	*Syzygium heyneanum* (Duthie) Wall. ex Gamble (Syn. *Eugenia heyneana* Wall.)	Myrtaceae	Tree	Diarrhoea / Diarrhea	Bark	[135]
251	*Tacca leontopetaloides* (L.) Kuntze	Taccaceae	Herbs	Diarrhoea / Diarrhea	Tubers	[136]
				Dysentery	Tubers	[136]
252	*Tamarindus indica* L.	Fabaceae	Tree	Diarrhoea / Diarrhea	Fruits, Whole plant, Seeds	[17,25,28]
				Dysentery	Seeds	[17]
253	*Tamarix troupii* Hole (Syn. *Tamarix indica* Willd.)	Tamaricaceae	Shrubs	Dysentery	Bark, Fruits	[137]
254	*Tectona grandis* L. f.	Verbenaceae	Tree	Diarrhoea / Diarrhea	Bark	[17]
255	*Tephrosia purpurea* (L.) Pers.	Fabaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[17]
256	*Terminalia alata* Heyne ex Roth	Combretaceae	Tree	Diarrhoea / Diarrhea	Bark	[138]
				Dysentery	Bark	[138]
257	*Terminalia arjuna* (Roxb.) Wight & Arn.	Combretaceae	Tree	Dysentery	Bark, Leaves	[16,34]
258	*Terminalia bellirica* (Gaertn.) Roxb.	Combretaceae	Tree	Dysentery	Bark, Fruits	[23,33]
				Diarrhoea / Diarrhea	Fruits	[16,17,33]
259	*Terminalia chebula* Retz.	Combretaceae	Tree	Diarrhoea / Diarrhea	Fruits, Bark	[17,32]

				Dysentery	Fruits, Bark	[17,32]
260	*Terminalia tomentosa* Wight & Arn.	Combretaceae	Tree	Diarrhoea / Diarrhea	Bark	[17]
261	*Tinospora cordifolia* auct. non (DC). Miers: Hook f. & Thoms.	Menispermaceae	Herbs	Dysentery	Roots, Stem	[16,33,48]
				Diarrhoea / Diarrhea	Roots, Stem, Whole plant	[1,23,33,48]
262	*Trema orientalis* (L.) Blume	Ulmaceae	Tree	Diarrhoea / Diarrhea	Roots	[24,31]
				Dysentery	Roots	[139]
263	*Tribulus terrestris* L.	Zygophyllaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[12]
264	*Trichodesma indicum* (L.) R. Br.	Boraginaceae	Herbs	Dysentery	Roots	[27,31]
265	*Trichodesma zeylanicum* (Burn. fil.) R. Br.	Boraginaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[140]
				Dysentery	Whole plant	[140]
266	*Tridax procumbens* (L.) L.	Asteraceae	Herbs	Diarrhoea / Diarrhea	Leaves	[31]
				Dysentery	Leaves	[16,31]
267	*Triumfetta pilosa* Wall.	Malvaceae	Herbs	Diarrhoea / Diarrhea	Leaves	[141]
268	*Triumfetta rhomboidea* Jacq.	Tiliaceae	Shrubs	Diarrhoea / Diarrhea	Leaves, Bark	[17,33,34]
				Dysentery	Leaves, Bark	[17,33,34]
269	*Uraria picta* (Jacq.)DC.	Fabaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[142]
270	*Urena lobata* L.	Malvaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[17]
				Dysentery	Roots	[17]
271	*Vallaris solanacea* (Roth) Kuntze	Apocynaceae	Climbers	Diarrhoea / Diarrhea	Leaves, Bark	[143]

272	*Vernonia cinerea* (L.) Less	Asteraceae	Herbs	Dysentery	Whole plant	[16]
273	*Vetiveria zizanioides* (L.) Nash	Poaceae	Grasses	Diarrhoea / Diarrhea	Roots	[144]
				Dysentery	Roots	[144]
274	*Vitex negundo* L.	Verbenaceae	Shrubs	Dysentery	Leaves, Flowers	[12,16,17]
				Diarrhoea / Diarrhea	Leaves, Whole plant	[12,16,24]
275	*Vitex trifolia* L.	Lamiaceae	Shrubs	Dysentery	Leaves	[17]
276	*Waltheria americana* L. (Syn. *Waltheria indica* L.)	Sterculiaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[145]
				Dysentery	Roots	[145]
277	*Withania somnifera* (L.) Dunal	Solanaceae	Shrubs	Diarrhoea / Diarrhea	Leaves	[28]
278	*Woodfordia fruticosa* (L.) Kurz	Lythraceae	Shrubs	Diarrhoea / Diarrhea	Flowers	[39]
				Dysentery	Flowers, Bark, Leaves, Fruits	[16,17,33,39]
279	*Wrightia tinctoria* Roem.	Apocynaceae	Tree	Diarrhoea / Diarrhea	Bark, Seeds	[146]
				Dysentery	Bark, Seeds	[146]
280	*Wrightia tomentosa* (Roxb.) Roem. & Schult. (Syn. *Wrightia arborea* (Dennst.) Mabb.)	Apocynaceae	Tree	Dysentery	Roots	[17]
281	*Xeromphis spinosa* (Thunb.) Keay (Syn. *Catunaregam spinosa* (Thunb.))	Rubiaceae	Tree	Diarrhoea / Diarrhea	Bark	[147]
				Dysentery	Bark	[147]
282	*Xeromphis uliginosa* (Retz.) Maheshw (Syn. *Tamilnadia uliginosa* (Retz.))	Rubiaceae	Tree	Diarrhoea / Diarrhea	Fruits, Roots	[17]
				Dysentery	Fruits, Roots	[17]

283	*Ziziphus mauritiana* Lam.	Rhamnaceae	Tree	Dysentery	Leaves	[32]
				Diarrhoea / Diarrhea	Seeds, Bark	[16,28,34]
284	*Ziziphus nummularia* (Burm. f.) Wight & Walk.-Arn.	Rhamnaceae	Shrubs	Diarrhoea / Diarrhea	Roots	[16]
				Dysentery	Roots	[16]
285	*Ziziphus rugosa* Lam.	Rhamnaceae	Tree	Diarrhoea / Diarrhea	Bark	[17]
286	*Ziziphus xylopyrus* (Retz.) Willd.	Rhamnaceae	Tree	Diarrhoea / Diarrhea	Stem bark	[39]
287	*Zornia gibbosa* Span.	Fabaceae	Herbs	Diarrhoea / Diarrhea	Whole plant	[148]
				Dysentery	Whole plant	[148]

TABLE 1: LIST OF 287 MEDICINAL PLANTS FROM THE MELGHAT REGION USED AS HERBAL REMEDIES FOR DYSENTERY AND DIARRHEA

3.1 TYPES OF PLANTS

From this study, it was found that concerning different plant parts used for formulation, 89 plant records were used for diarrhea and 80 plant records were used for dysentery, were trees; 76 plant records were used for diarrhea and 66 plant records were used for dysentery, were herbs; 56 plant records were used for diarrhea and 43 plant records were used for dysentery, were shrubs; 15 plant records were used for diarrhea and 16 plant records were used for dysentery, were climbers; 6 plant records were used for diarrhea and 5 plant records were used for dysentery, were from grasses category; and only 1 orchid was used for diarrhea (*Figure 2*).

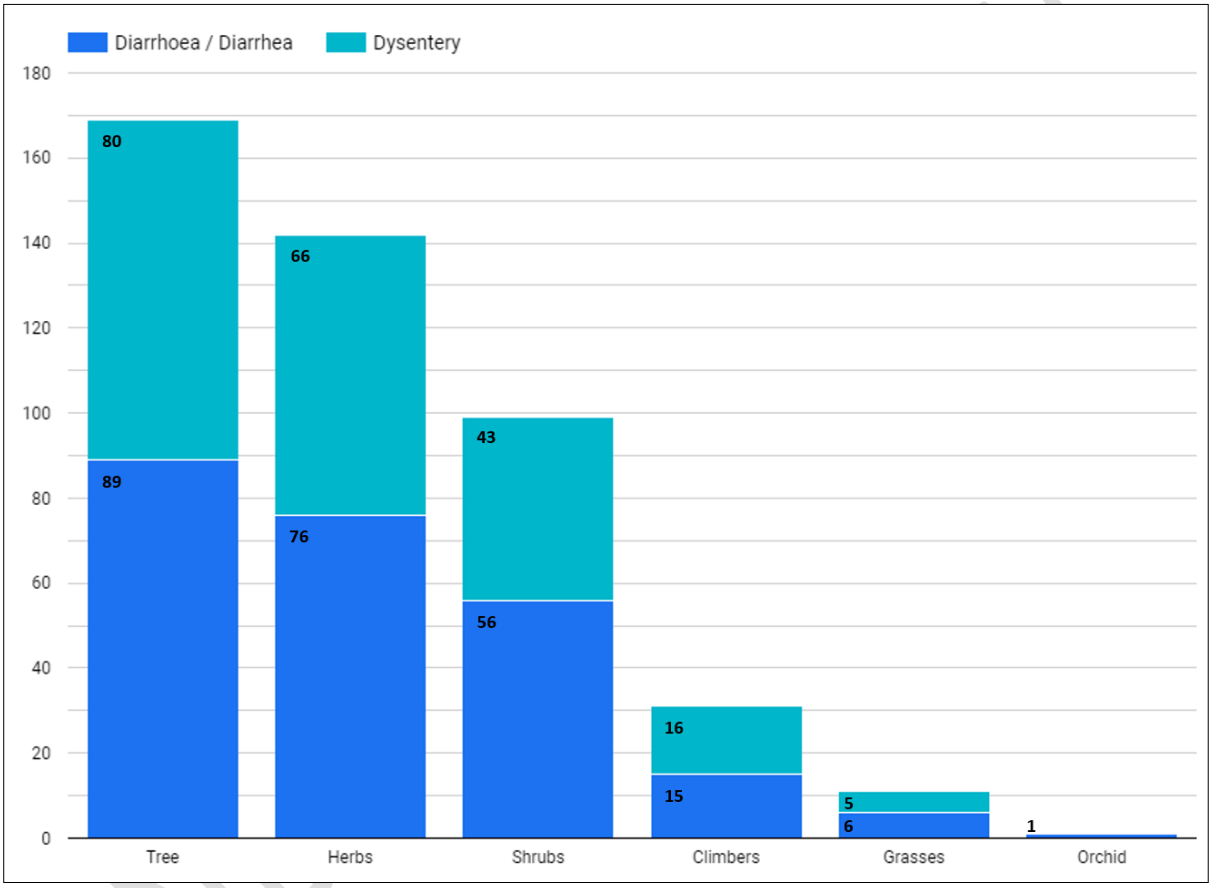

Figure 2: Plant Category wise distribution for Diarrhea and Dysentery records

3.2 FAMILY OCCUPANCY

A total of 287 plants belonging to 90 families were found and confirm with the cross-literature survey. The maximum number of plants were found to be part of the Fabaceae family, which has 32 plants (11.14%) of total plant records, following which Asteraceae contributes 16 plants (5.57%), Malvaceae contributes 13 plants (4.52%), Apocynaceae and Rubiaceae contribute 10 plants (3.48%) each, Combretaceae and Lamiaceae contribute 9 plants species (3.13%) each, Amaranthaceae, Euphorbiaceae, and Moraceae contribute 8 plants (2.78%) each. Many more families contributed as shown in *table 2*, different families

carry different herbal properties, making them an important factor to consider in this review study.

Sr No	Plant's Family	Records	%
1	Fabaceae	32	11.14982578
2	Asteraceae	16	5.574912892
3	Malvaceae	13	4.529616725
4	Apocynaceae	10	3.484320557
5	Rubiaceae	10	3.484320557
6	Lamiaceae	9	3.135888502
7	Combretaceae	9	3.135888502
8	Euphorbiaceae	8	2.787456446
9	Amaranthaceae	8	2.787456446
10	Moraceae	8	2.787456446
11	Mimosoideae	7	2.43902439
12	Poaceae	7	2.43902439
13	Caesalpiniaceae	6	2.090592334
14	Verbenaceae	6	2.090592334
15	Anacardiaceae	6	2.090592334
16	Tiliaceae	5	1.742160279
17	Cucurbitaceae	5	1.742160279
18	Boraginaceae	4	1.393728223
19	Rhamnaceae	4	1.393728223
20	Solanaceae	4	1.393728223
21	Phyllanthaceae	4	1.393728223
22	Convolvulaceae	4	1.393728223
23	Scrophulariaceae	3	1.045296167
24	Rutaceae	3	1.045296167
25	Myrtaceae	3	1.045296167
26	Asclepiadaceae	3	1.045296167
27	Sterculiaceae	3	1.045296167
28	Menispermaceae	3	1.045296167
29	Meliaceae	3	1.045296167
30	Vitaceae	3	1.045296167
31	Cyperaceae	3	1.045296167
32	Liliaceae	3	1.045296167
33	Dioscoreaceae	2	0.696864111
34	Agavaceae	2	0.696864111
35	Ulmaceae	2	0.696864111
36	Araceae	2	0.696864111
37	Sapotaceae	2	0.696864111
38	Faboideae	2	0.696864111
39	Sapindaceae	2	0.696864111
40	Burseraceae	2	0.696864111
41	Portulacaceae	2	0.696864111

42	Caesalpinioideae	2	0.696864111
43	Capparaceae	2	0.696864111
44	Lauraceae	2	0.696864111
45	Molluginaceae	2	0.696864111
46	Acanthaceae	2	0.696864111
47	Loranthaceae	1	0.348432056
48	Lythraceae	1	0.348432056
49	Commelinaceae	1	0.348432056
50	Cleomaceae	1	0.348432056
51	Chenopodiaceae	1	0.348432056
52	Celastraceae	1	0.348432056
53	Lecythidaceae	1	0.348432056
54	Casuarinaceae	1	0.348432056
55	Moringaceae	1	0.348432056
56	Cornaceae	1	0.348432056
57	Nyctaginaceae	1	0.348432056
58	Oleaceae	1	0.348432056
59	Onagraceae	1	0.348432056
60	Orchidaceae	1	0.348432056
61	Oxalidaceae	1	0.348432056
62	Papaveraceae	1	0.348432056
63	Passifloraceae	1	0.348432056
64	Pedaliaceae	1	0.348432056
65	Calophyllaceae	1	0.348432056
66	Plantaginaceae	1	0.348432056
67	Plumbaginaceae	1	0.348432056
68	Juglandaceae	1	0.348432056
69	Hypoxidaceae	1	0.348432056
70	Flacourtiaceae	1	0.348432056
71	Rosaceae	1	0.348432056
72	Bixaceae	1	0.348432056
73	Bignoniaceae	1	0.348432056
74	Salicaceae	1	0.348432056
75	Santalaceae	1	0.348432056
76	Fagaceae	1	0.348432056
77	Cuscutaceae	1	0.348432056
78	Balsaminaceae	1	0.348432056
79	Simaroubaceae	1	0.348432056
80	Smilacaceae	1	0.348432056
81	Asparagaceae	1	0.348432056
82	Arecaceae	1	0.348432056
83	Taccaceae	1	0.348432056
84	Tamaricaceae	1	0.348432056
85	Dilleniaceae	1	0.348432056
86	Ebenaceae	1	0.348432056

87	Annonaceae	1	0.348432056
88	Violaceae	1	0.348432056
89	Dipterocarpaceae	1	0.348432056
90	Zygophyllaceae	1	0.348432056
TOTAL		**287**	**100 %**

Table 2: Plant family name and percentage of record contributed by each family

3.3 PARTS OF PLANTS USED

From the data analysis of the current review articles, it was found that 25 different parts used in various herbal formulation preparation traditionally to treat diarrhoea / diarrhea and dysentery. The leaves were the most used part as 98 records (40.32%) are having leaves as their main part used in the treatment or capable of treating the ailment of diarrhoea / diarrhea, following which stem bark shows herbal traits from 68 records (32.38%) and roots from 52 records (21.39%), the whole plant is also used in case of 33 records (13.58%). 28 records (11.52%) have fruits, 25 records (10.28%) have seeds, and 8 records (3.29%) have flowers as an herbal plant part for diarrhea. Further, 7 records (2.88%) have gum, 6 records (2.46%) have aerial parts, 5 records (1.66%) have tubers; rhizome, latex contribute 4 records each; stems, root bark, shoots contribute 3 records each; oil, sap, heartwoord contribute 2 records each, and buds, wood, resin, gum resin, aerial roots contribute 1 record each as medicinal plant parts.

For the treatment of dysentery, the most used plant part was found to be leaves as 66 out of 210 (31.42%) records. Followed by roots from 59 records (28.09%), stem bark from 56 records (26.66%), whole plants from 33 records (15.71%), fruits from 29 records (13.80%) and seeds from 21 records (10%). Further, 6 records (2.85%) have flowers; root bark, tubers contribute 5 records each; stems, aerial parts, gum contribute 4 records each; latex contribute 3 records; rhizomes, shoots contribute 2 records each; and buds, wood, gum resin, calyx, resin, aerial roots, inflorescence, sap, oil contribute 1 records each as medicinal plant parts. The hierarchy of the plant parts capable of treatment of both ailments is shown in *Figure 3.*

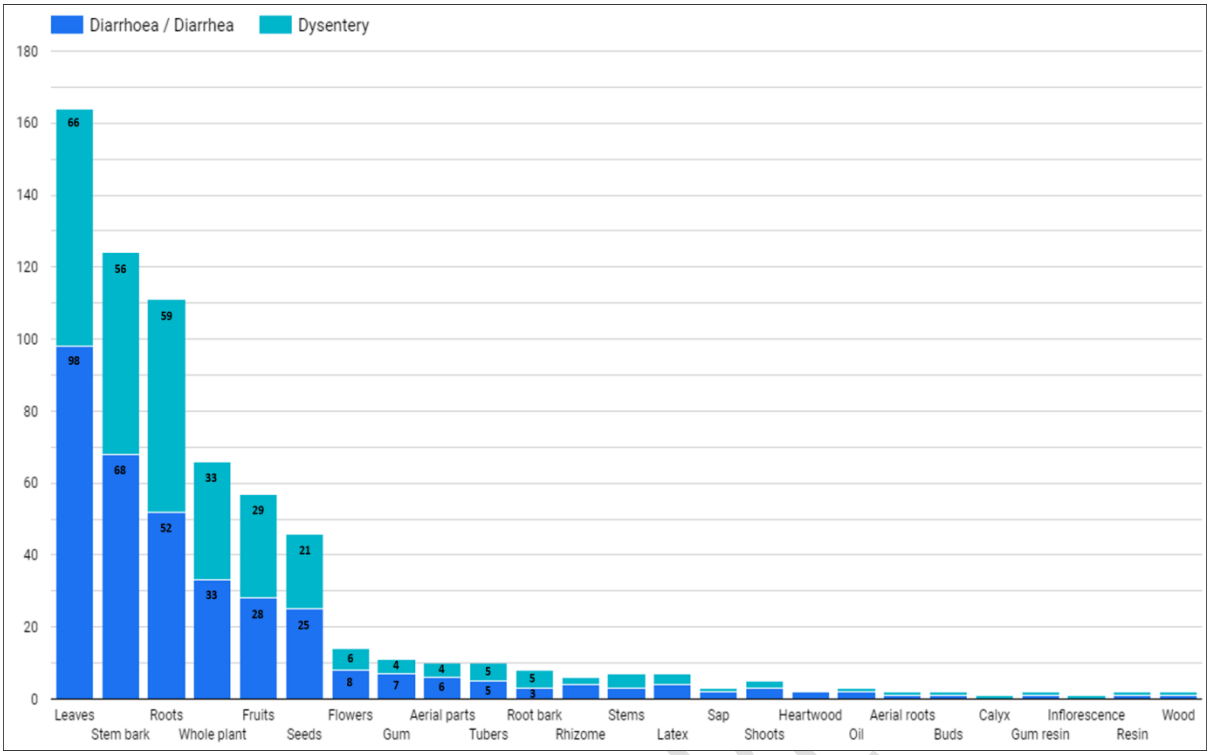

Figure 3: Plant part used for Diarrhea and Dysentery records

During the current review, a total of 287 plants were recorded to be used against diarrhoea / diarrhea and dysentery from the Melghat region which is best known as 'Tiger Reserve' from Amravati district of Maharashtra state, India. The results of the study were presented in *Tables 1-2*, comprising botanical name (synonyms), family, category, and part(s) used, with cross-reference literature.

All the herbal uses of medicinal plants from the Melghat region recorded in this study are either not reported earlier or not widely recorded in important publications. It has been already established from previously done studies that phytochemicals such as alkaloids, terpenes, flavonoids, and tannins increase colonic water and electrolyte reabsorption, thereby having anti-diarrheal activity [149], some are also known to act by decreasing intestinal motility. The acute toxicity effect of the hydroalcoholic extract of *Sida cordifolia* L. (100-400mg/kg) produced dose-dependent and significant protection[150]. The stem bark of *Acacia nilotica* (L.), *Albizia lebbeck* (L.) Benth., *Bombax ceiba* L., *Butea monosperma* Roxb., *Syzygium cumini* (L.); fruits of *Aegle marmelos* L., *Emblica officinalis* Gaertn., *Mangifera indica* L.; rhizomes of *Asparagus racemosus* Willd.; roots of *Cissampelos pareira* L., *Cyperus rotundus* L., *Euphorbia hirta* L., *Helicteres isora* L., *Holarrhena antidysenterica* (L.), *Scoparia dulcis* L.; aerial roots of *Ficus benghalensis* L. were most referred plant parts for both the ailments. Study of the phytochemicals derived from these plants can lead to the extraction of potential drug targets for the treatment of both diarrhoea and dysentery as there are 165 common plant species whose plant parts are used to treat both ailments.

CONCLUSIONS:

The main purpose of herbal remedies is to provide the solution with the least side effects, plant species that are proven to be useful in the treatment of ailments such as dysentery and diarrhea can provide a strong scientific foundation for researchers to create drugs with higher potential using now available ad developed bioinformatics tools. The current investigation specifies medicinal plants, parts of which are traditionally used to treat the discussed ailments. The present information may serve as the baseline, cross-referred new information on many medicinal plants and their uses to initiate further research for the discovery of new compounds and biological activities of these potential plants from the Melghat region.

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