



RESEARCH ARTICLE

# A systematic survey of asters (asteraceae) of Ballari and Vijayanagara districts, Karnataka

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## Abstract

Plants are the main source of the human life on the earth so the inventory study of native flora provides a basic knowledge for future taxonomic, medicinal, horticultural, economical, ethnobotanical, ecological, conservation and management. Asteraceae is one of the biggest family of the angiosperms in the world with 30000 species under 900 genera. The study area (Ballari and Vijayanagara Districts) reveals 128 species in 82 genera of the Asteraceae family. The life form of the collected species shows dominant by Herbs with 119 species and followed by Shrub with 05 species, subshrub with 02 species and climbing shrub with 02 species.

**Keywords:** Ballari, Vijayanagara, Asteraceae, Economical, Conservation.

## Introduction:

Asteraceae (Aster, Daisy, Composite, Sunflower) is the biggest family of the flowering plants in the world, containing 30000 accepted species under 1900 genera in 13 subfamily (The plant list, 2016). The species of this family are cosmopolitan in distribution except Polar Regions i.e. Arctic and Antarctic. In India, the species are highly distributed in tropical and subtropical regions with 1172 species under 193 genera (Kartikeyan *et al.* 2020). Most members of this family are herbs, subshrubs, shrubs, vines and rarely trees with different habitats occurring in arid and semi-arid regions of the sub tropic and lower temperate latitudes (Barkley *et al.* 2006). Majority of the species are with high medicinal, commercial, horticulture and economic value.

The study aimed to document by collecting, identifying and preparing herbarium of the Asteraceae species of Ballari and Vijayanagara districts. The study also examined the habit

description, habitat, phenology, updated nomenclature, synonyms and vernacular names where ever available.

## Study Area

Ballari and Vijayanagara are the districts of the Karnataka state (Figure 1) in India and located in Kalyana Karnataka region. The district Ballari is located at North East part of the Karnataka, with five Talukas i.e. Ballari, Kampli, Sanduru, Siruguppa and Kurugodu. The district covers with 8447 Sq. Kms. with forests and non forest areas. The district Vijayanagara is located in the state of Karnataka, this district was carved out of Ballari district officially on 2<sup>nd</sup> October 2021 to become a district, with six Talukas i.e. Hosapete, Harapanahalli, Kudligi, Hoovina Hadagali, Hagaribommanahalli and Kotturu. The district is covered by 4252 square kilometers with forest and non forest areas. Both the districts are mainly covered by scrub-thorny and dry deciduous forest.

## Methods and Materials

The intensive qualitative field surveys were conducted throughout Ballari and Vijayanagara districts from 2020 to 2022. All the plants growing naturally in various habitats including ornamental and cultivated plants were also documented. The collected plant species were identified by using National Floras (Hooker 1872-1897 & Gamble 1915), State Floras (Singh NP 1988 & Sharma BD *et al.* 1984), Local and District floras (Seetharam *et al.* 2000 & Ramaswamy *et al.* 1973), Books (Kavitha Sagar and Rajanna, 2015), recent literatures (Kavitha Sagar, 2018, 2019, and Kavitha Sagar *et al.*

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2015, 2021) and check lists. The collected specimens were photographed (Figure 2), pressed, dried and herbarium were prepared following standard method of Rao and Jain (1977) and were deposited at Mahatma Gandhi Botanical Garden, GKVK, UAS, Bengaluru.

**Results**

The intensive qualitative field survey of species of the family Asteraceae of Ballari and Vijayanagara districts shows 128 species under 82 genera with different Habit. Of which Blumea was dominant genera with 11 species; followed by Acmella with 5 species; Acilepis, Launaea and Sonchus each with 4 species; Cosmos, Pluchea and Sphaeranthus each with 3 species and other genera having 1 or 2 species. The catalog of plant species along with the Botanical name, synonyms, habit, colour of the flower, phenology and herbarium number are presented in Table 1. Based on life form classification the collected species showed more dominant with Herbs (119 Species, 92.96 %) followed by Shrub (05 Species, 3.90%), Subshrub (02 Species, 1.56%) and Climbing Shrub (02 Specie, 1.56%) (Figure 3).

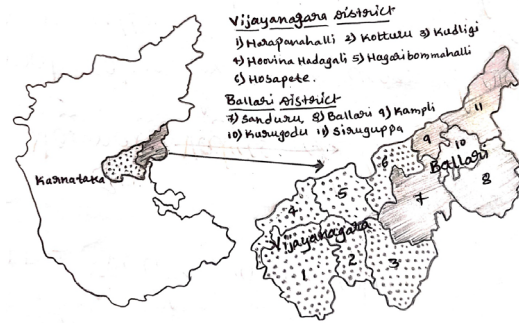


Figure 1: Map of Ballari and Vijayanagara districts in Karnataka

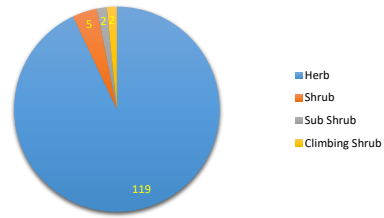


Figure 3 : Life Form Classification

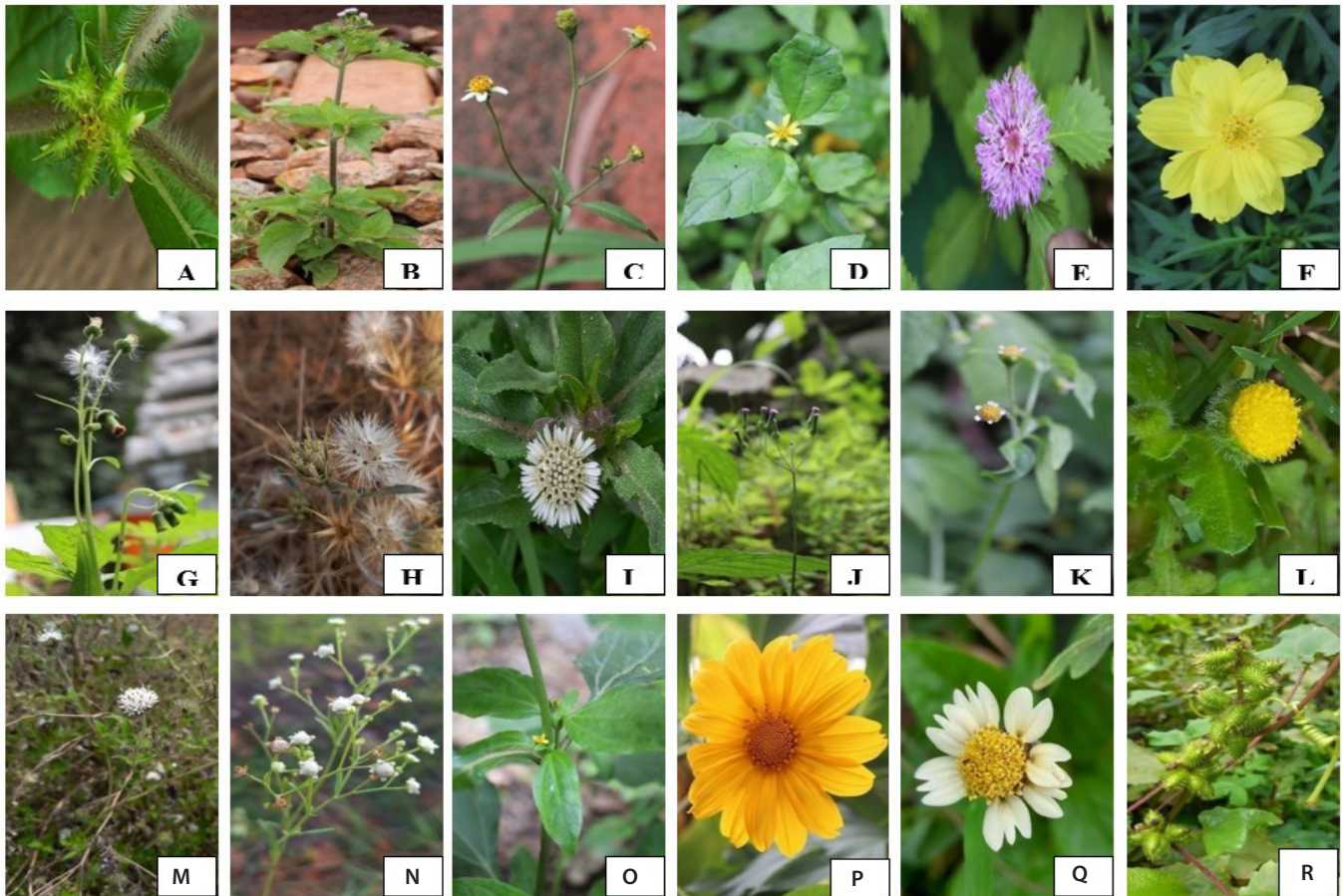


Figure 2: Photography of few species of Asteraceae family - (A).Acanthospermum hispidum DC. (B).Ageratum conyzoides L. (C).Bidens pilosa L. (D).Calyptocarpus vialis Less. (E).Centratherum punctatum Cass. (F).Cosmos sulphureus Cav. (G).Crassocephalum crepidioides S.Moore (H). Dicoma tomentosa Cass. (I). Eclipta prostrata (L.) L. (J). Emilia sonchifolia (L.) DC. (K).Galinsoga parviflora Cav. (L).Grangea maderaspatana (L.) Poir. (M).Lagascea mollis Cav. (N).Parthenium hysterophorus L. (O).Synedrella nodiflora Gaertn. (P).Tithonia diversifolia (Hemsl.) A.Gray (Q).Tridax procumbens L. (R).Xanthium strumarium L.

**Table 1:** List of Asteraceae of Ballari and Vijayanagara Districts.

Sl. No	Botanical name	Synonyms	Habit	Colour of the flower	Phenology	Aromatic / Non Aromatic
1	<i>Acanthospermum hispidum</i> DC.	<i>Acanthospermum humile</i> Var. <i>hispidum</i> (DC.) Kuntze	Herb	Yellow – white	August – March	Aromatic
2	<i>Acanthospermum consobrinum</i> S.F.Blake		Herb	Yellow	August – January	Non Aromatic
3	<i>Acilepis aspera</i> (Buch.-Ham.) H.Rob.	<i>Cacalia pyramidale</i> Kuntze	Shrub	Pink	November – January	Non Aromatic
4	<i>Acilepis dendigulensis</i> (DC.) H.Rob.	<i>Vernonia indica</i> Wall. ex C.B.Clarke	Herb	Pink	November – January	Non Aromatic
5	<i>Acilepis divergens</i> (DC.) H.Rob. & Skvarla	<i>Cacalia divergens</i> Kuntze	Subshrub	Purple	December – March	Non Aromatic
6	<i>Acilepis gardneri</i> (Thwaites) H.Rob. & Skvarla	<i>Vernonia gardneri</i> Thwaites	Herb	Pink	February – May	Non Aromatic
7	<i>Acmella calva</i> (DC.) R.K.Jansen	<i>Spilanthes calva</i> DC.	Herb	Yellow	Throughout the year	Non Aromatic
8	<i>Acmella ciliata</i> (Kunth) Cass.	<i>Spilanthes ciliata</i> Kunth	Herb	Yellow	June – September	Non Aromatic
9	<i>Acmella oleracea</i> (L.) R.K.Jansen	<i>Bidens fusca</i> Lam.	Herb	Golden yellow with red tips	January – April	Aromatic
10	<i>Acmella paniculata</i> (Wall. ex DC.) R.K.Jansen	<i>Spilanthes paniculata</i> DC.	Herb	orange	July – September	Aromatic
11	<i>Acmella radicans</i> (Jacq.) R.K.Jansen	<i>Acmella radicans</i> var. <i>radicans</i>	Herb	White – yellow	August – January	Non Aromatic
12	<i>Adenostemma lavenia</i> (L.) Kuntze	<i>Verbesina lavenia</i> L.	Herb	White	September – Jun	Aromatic
13	<i>Ageratina adenophora</i> (Spreng.) R.M.King & H.Rob.	<i>Eupatorium adenophorum</i> Spreng.	Herb	white	February – March	Non Aromatic
14	<i>Ageratina riparia</i> (Regel) R.M.King & H.Rob.	<i>Fleischmannia repens</i> B.L.Rob.	Herb	White	February – March	Non Aromatic
15	<i>Ageratum conyzoides</i> L.	<i>Ageratum ciliare</i> L.	Herb	White to blue	July – February	Aromatic
16	<i>Ageratum houstonianum</i> Mill.	<i>Cacalia mentrasto</i> Vell.	Herb	Blue	Septem – March	Aromatic
17	<i>Ambrosia psilostachya</i> DC.	<i>Ambrosia rugelii</i> Rydb.	Herb	Whitish	June – November	Aromatic
18	<i>Anaphalis subdecurrens</i> Gamble	<i>Gnaphalium subdecurrens</i> DC.	Herb	White	April – December	Aromatic
19	<i>Arctotis stoechadifolia</i> P.J.Bergius	<i>Arctotis decumbens</i> Thunb.	Herb	Light yellow	September – January	Aromatic
20	<i>Argyranthemum frutescens</i> (L.) Sch. Bip.	<i>Chrysanthemum frutescens</i> var. <i>frutescens</i>	Herb	White - Yellow	November – may	Aromatic
21	<i>Artemisia princeps</i> Pamp.	<i>Artemisia princeps</i> var. <i>princeps</i>	Herb	Buff	July –December	Aromatic
22	<i>Baccharoides anthelmintica</i> (L.) Moench	<i>Vernonia anthelmintica</i> (L.) Willd.	Herb	Purple	October – January	Aromatic
23	<i>Bartlettina sordida</i> (Less.) R.M.King & H.Rob.	<i>Conoclinium ianthinum</i> C.Morren	Herb	Reddish pink	July – Desember	Aromatic
24	<i>Bidens biternata</i> (Lour.) Merr. & Sherff	<i>Actinea biternata</i> Spreng.	Herb	Yellow	August – November	Aromatic
25	<i>Bidens pilosa</i> L.	<i>Kerneria tetragona</i> Moench	Herb	White – yellow	October – March	Aromatic
26	<i>Blainvillea acmella</i> (L.) Philipson	<i>Acmella linnaei</i> Cass.	Herb	White	August – October	Aromatic
27	<i>Blainvillea dichotoma</i> (Murray) Stewart	<i>Verbesina dichotoma</i> Murray	Herb	White	September – November	Non Aromatic
28	<i>Blumea axillaris</i> DC.	<i>Blumea mollis</i> Merr.	Herb	Pink	December – February	Aromatic

29	<i>Blumea bifoliata</i> DC.	<i>Conyza bifoliata</i> L.	Herb	Yellow	December – March	Aromatic
30	<i>Blumea hamiltonii</i> DC.	<i>Conyza hamiltonii</i> Steud.	Herb	Yellow	September – December	Aromatic
31	<i>Blumea lacera</i> (Burm.f.) DC.	<i>Blumea musra</i> DC.	Herb	Bright yellow	March – September	Aromatic
32	<i>Blumea lanceolaria</i> Druce	<i>Blumea spectabilis</i> DC.	Herb	Yellow	December – May	Aromatic
33	<i>Blumea malcolmii</i> Hook.f.	<i>Placus lanuginosus</i> Kuntze	Herb	Yellow	November – February	Aromatic
34	<i>Blumea obliqua</i> (L.) Druce	<i>Placus obliquus</i> Kuntze	Herb	yellow	November – March	Aromatic
35	<i>Blumea oxyodonta</i> DC.	<i>Blumea bovina</i> Edgew.	Herb	Yellowish	January – March	Aromatic
36	<i>Blumea sessiliflora</i> Decne.	<i>Conyza floresiana</i> Sch.Bip.	Herb	Yellow	June – October	Aromatic
37	<i>Blumea sinuata</i> (Lour.) Merr.	<i>Placus laciniatus</i> Kuntze	Herb	Yellow	Septemberv-December	Aromatic
38	<i>Blumea virens</i> DC.	<i>Placus virens</i> Kuntze	Herb	Blue	February – September	Aromatic
39	<i>Caesulia axillaris</i> Roxb.	<i>Caesulia lancifolia</i> Sweet	Herb	White	October – March	Aromatic
40	<i>Calendula officinalis</i> L.	<i>Caltha officinalis</i> (L.) Moench	Herb	Purplish yellow	November – March	Aromatic
41	<i>Callistephus chinensis</i> Nees	<i>Diplopappus chinensis</i> Less.	Herb	White	November – March	Non Aromatic
42	<i>Calyptocarpus vialis</i> Less.	<i>Zexmenia hispidula</i> Buckley	Herb	Yellow	September – December	Non Aromatic
43	<i>Carthamus tinctorius</i> L.	<i>Calcitrapa tinctoria</i> Roehl.	Herb	Yellow	August- October	Aromatic
44	<i>Centratherum punctatum</i> Cass.	<i>Vernonia brachylepis</i> Griseb.	Herb	Blue	April – September	Aromatic
45	<i>Chromolaena odorata</i> (L.) R.M.King & H.Rob.	<i>Eupatorium odoratum</i> L.	Shrub	White	December – March	Aromatic
46	<i>Chrysanthemum indicum</i> L.	<i>Dendranthema indicum</i> (L.) Des Moul.	Herb	Yellow	June – November	Aromatic
47	<i>Chrysanthemum morifolium</i> Ramat.	<i>Pyrethrum sinense</i> var. <i>sinense</i>	Herb	Yellow	August – December	Aromatic
48	<i>Coleostephus myconis</i> (L.) Rchb.f.	<i>Tanacetum myconis</i> (L.) Schenk	Herb	Yellow	May – December	Aromatic
49	<i>Coreopsis tinctoria</i> Nutt.	<i>Diplosastera tinctoria</i> Tausch	Herb	Yellow-brown	June – September	Aromatic
50	<i>Cosmos bipinnatus</i> Cav.	<i>Cosmea bipinnata</i> (Cav.) Willd.	Herb	White -yellow	January – June	Aromatic
51	<i>Cosmos caudatus</i> Kunth	<i>Bidens berteroaana</i> Spreng.	Herb	Purple, yellowish	June – December	Aromatic
52	<i>Cosmos sulphureus</i> Cav.	<i>Bidens sulphurea</i> Sch.Bip.	Herb	Goden Yellow	August – November	Aromatic
53	<i>Crassocephalum crepidioides</i> S.Moore	<i>Gynura crepidioides</i> Benth.	Herb	Orange	July – December	Non Aromatic
54	<i>Cyanthillium albicans</i> (DC.) H.Rob.	<i>Vernonia albicans</i> DC.	Herb	Pink	July – October	Non Aromatic
55	<i>Cyanthillium cinereum</i> (L.) H.Rob.	<i>Blumea chinensis</i> DC.	Herb	Pink	July – February	Aromatic
56	<i>Dahlia pinnata</i> Cav.	<i>Coreopsis georgina</i> Cass.	Herb	Pink, deep purple	June – November	Non Aromatic
57	<i>Dichrocephala chrysanthemifolia</i> (Blume) DC.	<i>Dichrocephala tibestica</i> Quézel	Herb	Creamy – Red	July – September	Aromatic
58	<i>Dichrocephala integrifolia</i> (L.f.) Kuntze	<i>Cotula latifolia</i> var. <i>latifolia</i>	Herb	Pink – yellow	September – March	Aromatic
59	<i>Dicoma tomentosa</i> Cass.	<i>Xeropappus lanuginosus</i> Wall.	Herb	Creamy white – yellow	Augu – February	Aromatic

60	Echinops echinatus Roxb.	<i>Echinops spinosus</i> Herb.Madr. ex Wall.	Herb	White	September – March	Aromatic
61	Eclipta prostrate (L.) L.	<i>Eclipta alba</i> Hassk.	Herb	White	July – March	Aromatic
62	Elephantopus scaber L.	<i>Scabiosa cochinchinensis</i> Lour.	Herb	Purple	August – November	Aromatic
63	Emilia sonchifolia (L.) DC.	<i>Senecio sonchifolius</i> var. <i>sonchifolius</i>	Herb	Purple	September – February	Non Aromatic
64	Emilia zeylanica C.B.Clarke	<i>Emilia zeylanica</i> var. <i>zeylanica</i>	Herb	Purple	August – December	Aromatic
65	Enydra fluctuans Lour.		Herb	White	November – January	Non Aromatic
66	Epaltes divaricata Cass.	<i>Poilonia laggeroides</i> Gagnep.	Herb	Pink	December – February	Non Aromatic
67	Erechtites valerianifolius (Wolf) DC.	<i>Erechtites valerianifolius</i> f. <i>valerianifolius</i> DC.	Herb	Pink	June – November	Aromatic
68	Erigeron bonariensis L.	<i>Conyza linifolia</i> (Willd.) Tackh.	Herb	White – Yellow	August – January	Aromatic
69	Erigeron sublyratus Roxb. Ex DC.	<i>Conyza jerdoni</i> C.B.Clarke	Herb	Purplish	April – September	Aromatic
70	Ethulia gracilis Delile	<i>Ethulia conyzoides</i> var. <i>gracilis</i> (Dalile) Asch. & Schweinf.	Herb	purple	July – November	Non Aromatic
71	Flaveria trinervia (Spreng.) C.Mohr	<i>Oedera trinervia</i> Spreng.	Herb	Yellow	September - ,May	Aromatic
72	Gaillardia pulchella Foug.	<i>Gaillardia picta</i> Sweet	Herb	Yellow	May – August	Aromatic
73	Galinsoga parviflora Cav.	<i>Galinsoga hirsuta</i> Baker	Herb	White – Yellow	May – October	Aromatic
74	Glebionis carinata (Schousb.) Tzvelev	<i>Ismelia carinata</i> (Schousb.) Sch.Bip.	Herb	Blue	September – December	Aromatic
75	Glossocardia bosvallia DC.	<i>Bidens minuta</i> Miré & H.Gillet	Herb	Yellow	August – December	Aromatic
76	Gnaphalium polycaulon Pers.	<i>Gnaphalium strictum</i> Roxb.	Herb	Green	Throughout the year	Aromatic
77	Gnomophalium pulvinatum (Delile) Greuter	<i>Homognaphalium pulvinatum</i> (Delile) Fayed & Zareh	Herb	Shining white	June – December	Aromatic
78	Goniocaulon indicum C.B.Clarke	<i>Amberboa goniocaulon</i> DC.	Herb	Rose purple	December – March	Aromatic
79	Grangea maderaspatana (L.) Poir.	<i>Artemisia maderaspatana</i> L.	Herb	Yellow	August – March	Aromatic
80	Guizotia abyssinica Cass.	<i>Buphthalmum ramtilla</i> Buch.-Ham. ex Wall.	Herb	Pale Yellow	August – November	Aromatic
81	Helianthus annuus L.	<i>Helianthus tubaeformis</i> Nutt.	Subshrub	Yellow	July – September	Aromatic
82	Helichrysum indicum (L.) Grierson	<i>Gnaphalium indicum</i> L.	Herb	Yellow	October – February	Aromatic
83	Helichrysum luteoalbum (L.) Rchb.	<i>Gnaphalium luteoalbum</i> L.	Herb	White	January – April	Aromatic
84	Kleinia grandiflora (wallich ex DC.) N.Rani	<i>Cacalia crassissima</i> Wall.	Shrub	White	March – September	Aromatic
85	Lactuca serriola L.	<i>Hieracium lactuca</i> E.H.L.Krause	Herb	Pale yellow	July – September	Aromatic
86	Lagascea mollis Cav.	<i>Nocca mollis</i> Jacq.	Herb	White	July – March	Aromatic
87	Laggera alata (DC.) Oliv.		Herb	Pink	December – March	Aromatic
88	Launaea aspleniifolia Hook.f.	<i>Ammoseris aspleniifolia</i> D.Dietr.	Herb	Yellow	September – March	Aromatic
89	Launaea intybacea (Jacq.) Beauverd	<i>Brachyramphus sonchifolius</i> DC.	Herb	Yellow – white	September – August	Aromatic
90	Launaea nudicaulis Less.		Herb	Yellow	April – June	Aromatic
91	Launaea procumbens (Roxb.) Amin	<i>Ammoseris nudicaulis</i> D.Dietr.	Herb	Yellow	October – February	Aromatic

92	<i>Leucoblepharis subsessilis</i> Arn.	<i>Blepharispermum subsessile</i> DC.	Herb	white	July – November	Non Aromatic
93	<i>Mikania cordata</i> (Burm.f.) B.L.Rob.	<i>Eupatorium cordatum</i> Burm.f.	Climbing shrub	White	Throughout the year	Aromatic
94	<i>Mikania micrantha</i> Kunth	<i>Eupatorium orinocense</i> (Kunth) M.Gómez	Climbing shrub	White	November – April	Aromatic
95	<i>Oligochaeta divaricata</i> K.Koch	<i>Amberboa ramosa</i> (Roxb.) Jafri	Herb	Pink	April – December	Aromatic
96	<i>Parthenium hysterophorus</i> L.	<i>Argyrochaeta bipinnatifida</i> Cav.	Herb	White	Throughout the year	Aromatic
97	<i>Pluchea paniculata</i> (Willd.) Karthik. & Moorthy	<i>Blumea membranacea</i> DC.	Herb	Yellow	October – January	Aromatic
98	<i>Pluchea paniculata</i> var. <i>jacquemontii</i> (Hook.f.) Randeria	<i>Blumea jacquemontii</i> Hook.f.	Herb	Yellow	January – April	Aromatic
99	<i>Pluchea tomentosa</i> DC.	<i>Conyza tomentosa</i> Wall.	Shrub	Pinkish white	October – April	Aromatic
100	<i>Pulicaria angustifolia</i> DC.	<i>Callistephus concolor</i> Dalzell	Herb	Yellow	August – September	Aromatic
101	<i>Pulicaria wightiana</i> C.B.Clarke	<i>Aster indicus</i> B.Heyne	Herb	Yellow	August – February	Aromatic
102	<i>Pseudoconyza viscosa</i> (Mill.) D'Arcy	<i>Blumea viscosa</i> (Mill.) V.M.Badillo	Herb	Purplish	November – December	Aromatic
103	<i>Senecio tenuifolius</i> Burm.f.	<i>Doronicum tenuifolium</i> Wight	Herb	Yellow	August – October	Aromatic
104	<i>Sigesbeckia orientalis</i> L.	<i>Minyanthes heterophylla</i> Turcz.	Herb	Yellow	October – March	Non Aromatic
105	<i>Sonchus asper</i> (L.) Hill		Herb	Yellow	March - November	Non aromatic
106	<i>Sonchus arvensis</i> L.	<i>Sonchus arvensis</i> f. <i>arvensis</i>	Herb	Bright yellow	June – November	Non Aromatic
107	<i>Sonchus brachyotus</i> DC.	<i>Sonchus arenicola</i> Vorosch.	Herb	Yellow	September – March	Non Aromatic
108	<i>Sonchus oleraceus</i> L.	<i>Sonchus zacinthoides</i> DC.	Herb	Bright yellow	February – March	Aromatic
109	<i>Sphaeranthus africanus</i> L.	<i>Sphaeranthus africanus</i> var. <i>africanus</i>	Herb	Purple	November – May	Aromatic
110	<i>Sphaeranthus indicus</i> L.	<i>Oligolepis indicus</i> Cass. ex Steud.	Herb	Purple	November – March	Aromatic
111	<i>Sphaeranthus senegalensis</i> DC.	<i>Polycephalos suaveolens</i> Forssk.	Herb	Purple	Throughout the year	Aromatic
112	<i>Sphaeromorphaea australis</i> (Less.) Kitam.	<i>Centipeda orbicularis</i> C.B.Clarke	Herb	Purple	Throughout the year	Aromatic
113	<i>Sphagneticola calendulacea</i> (L.) Pruski	<i>Complaya chinensis</i> (Osbeck) Strother	Herb	yellow	February – May	Aromatic
114	<i>Sphagneticola trilobata</i> (L.) Pruski	<i>Wedelia trilobata</i> (L.) Hitchc.	Herb	Yellow	Throughout the year	Aromatic
115	<i>Synedrella nodiflora</i> Gaertn.	<i>Blainvillea latifolia</i> var. <i>latifolia</i>	Herb	Yellow	August – November	Aromatic
116	<i>Tagetes erecta</i> L.	<i>Tagetes tenuifolia</i> Millsp.	Herb	Yellow	Throughout the year	Aromatic
117	<i>Tagetes tenuifolia</i> Cav.	<i>Tagetes patula</i> L.	Herb	Bright Yellow	Throughout the year	Aromatic
118	<i>Tanacetum cinerariifolium</i> Sch.Bip.	<i>Pyrethrum willemotii</i> Duch.	Herb	White – Yellow	June – November	Aromatic
119	<i>Tanacetum coccineum</i> (Willd.) Grierson	<i>Pyrethrum roseum</i> var. <i>roseum</i>	Herb	Pink – Yellow	July – October	Aromatic
120	<i>Tithonia diversifolia</i> (Hemsl.) A.Gray	<i>Tithonia diversifolia</i> var. <i>glabriuscula</i> S.F.Blake	Shrub	Yellow	September – May	Aromatic

121	<i>Tricholepis radicans</i> DC.	<i>Carduus radicans</i> Roxb.	Herb	Pink	August – January	Aromatic
122	<i>Tridax procumbens</i> (L.) L.	<i>Amellus pedunculatus</i> Ortega ex Willd.	Herb	Yellow – White	Throughout the year	Aromatic
123	<i>Vicoa indica</i> DC.	<i>Pentanema indicum</i> (L.) Y.Ling	Herb	Yellow	February – April	Non Aromatic
124	<i>Wedelia urticaefolia</i> (Blume) Dc. ex Wight		Herb	Yellow	August – October	Aromatic
125	<i>Xanthium strumarium</i> L.	<i>Xanthium chinense</i> Mill.	Herb	White	August – October	Non Aromatic
126	<i>Youngia nilgiriensis</i> Babt.		Herb	Yellow	November – December	Aromatic
127	<i>Zinnia angustifolia</i> Kunth	<i>Crassina angustifolia</i> Kuntze	Herb	White, Yellow	March – September	Aromatic
128	<i>Zinnia elegans</i> L.	<i>Crassina elegans</i> Kuntze	Herb	White, red, purple	August – September	Aromatic

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