



FLORA OF TELANGANA – THE 29TH STATE OF INDIA

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Telangana State is one of the 29 states of India. It was separated from the erstwhile Andhra Pradesh on 2nd June 2014. Telangana State is situated in the central stretch of the eastern seaboard of the Indian Peninsula. Telangana state has an area of 114,840 square kilometres (44,300 sq mi). The area is divided into two main regions, the Eastern Ghats and the plains. Telangana lies between 15° 50' – 19° 55' North latitudes and 77° 14' – 78° 50' East longitudes. Telangana is bordered by the states of Maharashtra to the north and north-west, Karnataka to the west, Chattisgarh to the north-east and Odisha to the east and Andhra Pradesh to the south. The state is drained by two major rivers, with about 79% of the Godavari river catchment area and about 69% of the Krishna catchment area, but most of the land is arid. It is an extensive plateau with an average elevation of about 400 m above sea level. This plateau consists mainly of the ranges of erosional surface: (i) above 600 mt, (ii) from 300 – 450 mt and (iii) from 150 – 300 mt. The State Telangana has the monsoon type of tropical climate. On the whole State enjoys warm climate. In northern Telangana tropical rainy type of climate prevails. Hot Steppe type of climate is noticed in the southern parts of the State. In Tropical Rainy type, the mean daily temperature is above 20°C with an annual rainfall of 150 to 200 cms, mostly in summer and South-West monsoon. In the Hot Steppe type, the mean daily temperature is 18°C and less. In the state of Telangana Maximum temperature in the summer season varies between 37°C and 44°C and minimum temperature in the winter season ranging between 14°C and 19°C. The State has a wide

variety of soils and they form into three broad categories - red, black and laterite.

The type of forests met within Telangana, as per the classification of Champion and Seth (1968) are Tropical moist deciduous forests, Southern dry deciduous forests, Northern mixed dry deciduous forests, Dry savannah forests and Tropical dry evergreen scrub. *Tectona grandis* and *Anogeissus latifolia* are perhaps the commonest trees in these forests. *Boswellia serrata*, *Butea monosperma*, *Cochlospermum religiosum*, *Diospyros melanoxylon*, *Gardenia latifolia*, *Givotia rottleriformis*, *Gyrocarpus americanus*, *Lannea coromandelica*, *Sterculia urens*, *Strychnos potatorum*, *Ziziphus xylopyrus*, *Terminalia* spp., *Chloroxylon swietenia*, *Pterocarpus marsupium*, *Albizia odoratissima*, *Haldina cordifolia*, *Cassia fistula*, *Diospyros melanoxylon* etc. are some of the typical trees.

Past Work

Systematic studies of the erstwhile Hyderabad state came from two principal sources, the State Forest Department and the Department of Botany, Osmania University, Hyderabad. Before independence Telangana region was in Hyderabad State. The study of the flora of Hyderabad State dates back to the 19th century when Walker (1849) and Bradley (1849) published their pioneer work, which included agricultural, medicinal and other economically important species of Daulatabad and Warangal districts of the State. Campbell in 1898 included a list of forest plants of Hyderabad State in his "Glimpses of the Nizams Dominions". During the same period Bisco, a Forest officer listed 128 chief timber-yielding

and other economically important plants of the state. Patridge (1911) published a book entitled "Forest Flora of Hyderabad State". He described 450 species belonging to 69 families and provided keys to taxa, information on local names and economic importance of plants. The book was later revised by Khan (1953), who added some more information on the vegetation and described 567 wild and cultivated species. Sayeeduddin (1935, 1938, 1941a, b, 1954) published a series of papers on the flora of Hyderabad State and reported a total of 370 species. Sayeeduddin (1936) described some of the common flowering plants of the Hyderabad state, their distribution, economic and medicinal importance. Suxena (1947) listed 115 grasses from Hyderabad State. Other works on the flora of Telangana region include Santapau (1954), Sebastine and Henry (1966) etc.

Botanical explorations were revived with the reorganisation of Botanical Survey of India in 1955. Collections were made and interesting results were published. G.V. Subba Rao, K. Subramanyam, N.P. Balakrishnan, K. Thothathri, K.M. Sebastine are some of the important contributors from Botanical Survey of India to the flora of Telangana. Sebastine *et al.* (1960) enumerated 268 species from Medak district. In 1966 Sebastine and Henry studied the Flora of Pakhal and surrounding regions of Narasampet taluk in Warangal district and reported 254 species of 198 genera belonging to 70 families. Thothathri (1964) studied Nagarjunakonda and surroundings and noted 251 species. Subba Rao and Kumari (1967) published a small account of 434 species from Kodimal, Manthani and Raikal of Karimnagar district. Kapoor and Kapoor (1973) enumerated an additional list of 66 species from Karimnagar district. Seshagiri Rao (2012) reported 734 species of flowering plants in University of Hyderabad campus. Satyanarayana Rdddy and Rajagopal (1993) gave an account of new records of flowering plants of Telangana.

Telangana was earlier a part of former Andhra

Pradesh. Flora of former Andhra Pradesh was studied by Pullaiah (1997), Pullaiah and Chennaiah (1997), Pullaiah and Moulali (1997), Pullaiah and Karuppusamy (2008) and Pullaiah and Surya Prakash Babu (1998). Supplement to the flora of former Andhra Pradesh was brought out by Reddy *et al.* (2008). Trees of former Andhra Pradesh were enumerated by Pullaiah and Sandhya Rani (1999). Eastern Ghats extend into the districts of Khammam and Mahabubnagar districts in Telangana. Flora of Eastern Ghats was studied by Pullaiah and Sri Rama Murthy (2001), Pullaiah and Muralidhara Rao (2002) and Pullaiah *et al.* (2007, 2010).

District floras of Telangana in the former Andhra Pradesh were reviewed by Pullaiah *et al.* (2008). Salient features of these district-wise floristic wealth is as follows:

Adilabad District

Adilabad district lies within the tropical deciduous belt which occupies 43.9% of total geographic area of the district. In this district Pullaiah *et al.* (1992) reported 673 species belonging to 422 genera and 118 families. Fabaceae (Leguminosae) is the dominant family, represented by 88 species, followed by Poaceae (85 species), Cyperaceae (39) and Euphorbiaceae (34). The dominant genera are *Fimbristylis* (12 species), *Cyperus* and *Eragrostis* (9 species each), *Euphorbia*, *Ficus* and *Acacia* (8 species each). *Dactyloctenium aristatum* and *Digitaria radicata* were recorded from this district as new reports to South India, *Argyreia sericea*, *Asphodelus tenuifolius*, *Brachiaria milliformis*, *Curcuma decipiens*, *Dichanthium filiculme*, *Kyllingia hyalina*, *Fimbristylis tetragona* and *Rhynchospora wightiana* are additions to the Flora of Andhra Pradesh. Prabhakar Raju and Venkata Raju (1999) described a new species *Cyathocline manilaliana* from Pochera fields.

Hyderabad District

Rajagopal (1973) enumerated 951 species under 583 genera and 124 families in Hyderabad district. The largest families are

Poaceae (108) followed by Fabaceae (including Faboideae, Caesalpinioideae and Mimosoideae 103 species), Asteraceae (38), Cyperaceae (32), Euphorbiaceae (30 species), Malvaceae (28), Verbenaceae (28) Acanthaceae (22), Convolvulaceae (22) and Rubiaceae (20). The largest genera are *Cyperus* (16 species), *Cassia* (15 species), *Ipomoea* (11), *Euphorbia* (10) and *Crotalaria* (9). In addition he investigated the epidermal features in relation to taxonomy.

Ramana (2010) reported 1335 species (including cultivated ornamentals) in Greater Hyderabad, of which 536 species had appeared new and 77 species had disappeared. These 1335 species are spread over 724 genera and 160 families. The dominant families are Fabaceae (Leguminosae – 164 species), Poaceae (118), Arecaceae (78), Asteraceae (65), Cyperaceae (59), Euphorbiaceae (48), Malvaceae (38), Acanthaceae (36), Verbenaceae (28) and Rubiaceae (27). The dominant genera in Flora of Hyderabad are *Cyperus* (19 species), *Fimbristylis* (15), *Crotalaria* (15), *Eragrostis* (13), *Hibiscus* (12), *Ficus* (12), *Senna* (12), *Acacia* (11), *Indigofera* (11) and *Ipomoea* (11 species). Vascular plants of Hyderabad was given by Ramana *et al.* (2012b) while Prasanna *et al.* (2012) gave a pictorial account of Trees of Hyderabad.

Karimnagar District

Naqvi (2001) worked on Flora of Karimnagar district for his Ph.D. thesis. He reported 1055 species of Angiosperms (including cultivated plants) belonging to 601 genera and 135 families. Fabaceae (Leguminosae) is the dominant family with 161 species followed by Poaceae (100 species), Euphorbiaceae (57), Cyperaceae (45), Asteraceae (44), Acanthaceae (35), Malvaceae (35) and Lamiaceae (23). Dominant genera include *Crotalaria* (20 species), *Euphorbia* (18), *Cyperus* (15), *Cassia* (13), *Indigofera* (12), *Ficus* (11), *Grewia* (9), *Acacia* (8) and *Phyllanthus* (7). Naqvi and Raju (1995, 1998) gave additions to the flora of Karimnagar district.

Khammam District

There is no systematic study on flora of Khammam district except for stray collections and reports by V.S. Raju.

Mahabubnagar District

Ramachandrachary (1980) studied the flora of Achampet taluk in Mahabubnagar district. A floristic study of Mahabubnagar district was undertaken by Raghava Rao during 1983-89. A total of 1042 species occurring in the wild were recorded for the district (Raghava Rao, 1989). Based on his collections one new species *Alysicarpus mahabubnagarensis* has been described (Raghava Rao, 1990). *Habenaria ramayyana*, a new species was described from this district by Ramachandrachary and Wood (1981).

Medak District

In Flora of Medak district Pullaiah *et al.* (1998) reported 708 wild naturalized species belonging to 414 genera and 119 families. Family Fabaceae (Leguminosae) is the dominant family which comprised about 104 species followed by Poaceae (83), Cyperaceae (49), Asteraceae (37), Euphorbiaceae (31) and Acanthaceae (22), Genus wise dominance include *Cyperus* and *Eragrostis* (12 species), *Crotalaria* and *Fimbristylis* (11), *Indigofera* (10), *Cassia* and *Ipomoea* (9) *Desmodium*, *Phyllanthus*, *Euphorbia* and *Schoenoplectus* (7 species). Some rare taxa for Telangana recorded from this district are *Plantago asiatica*, *Asparagus laevis*, *Elytrophorus spicatus*, *Leersia hexandra*, *Pseudoraphis spinescens*, *Sehima sulcatum* and *Neanotis montholonii*. Floristic studies in the Narsapur taluk of Medak district by Narasimha Rao (1985) yielded 616 taxa of Angiosperms including cultivated species. Biksham *et al.* (2010) gave an account of biodiversity in ICRISAT campus located in Medak district.

Nalgonda District

Flora of Nalgonda district was carried out by Rao *et al.* (2001). They recorded 506 species under 329 genera and 96 families. Fabaceae

(Leguminosae) is the dominant family in this district which comprises 46 species followed by Poaceae (44), Euphorbiaceae (34), Cyperaceae (25) and Asteraceae (22). *Cyperus* and *Crotalaria* are dominant genera represented by 10 species each, followed by *Indigofera*, *Cleome*, *Corchorus*, *Acacia*, *Chamaesyce*, *Phyllanthus* and *Fimbristylis* (6 species each). *Abrus fruticulosus*, *Corchorus urticifolius*, *Fuirena wallichiana*, *Ludwigia hyssopifolia*, *Mariscus sumatrensis*, *M. tenuifolius*, *Rhynchopora rubra* and *Seseli diffusum* are the new records to the State of Andhra Pradesh from this district. Reddy (2001) described a new species *Hybanthus vatsavayi* from Nalgonda district.

Nizamabad District

The district is with good irrigation resulting in nearly 40% of the total geographical area under cultivation. The cultivated fields harbour good number of weeds. A total of 708 species wild and naturalized species were reported in the district, belonging to 436 genera and 123 families (Pullaiah and Ravi Prasad Rao 1995). The family Fabaceae (Leguminosae) with 108 species is dominant family in the district. An analysis of the dominant genera in the district indicates that as many as 20 genera are represented by 5 or more than 5 species. *Cyperus* is the largest genus with 12 species, followed by *Euphorbia* (11). *Crotalaria* and *Ipomoea* (10 species each). *Chrysanthellum americanum*, *Rumex dentatus* and *Potamogeton crispus* are recorded in this district as new reports for Andhra Pradesh. Some species recorded as rare include *Malachra capitata*, *Crotalaria hirta*, *Indigofera nummularifolia*, *Acacia polyacantha*, *Sutera dissecta*, *Rotala serpyllifolia*, *Euphorbia laeta*, *Homonoia retusa* and *Tenagocharis latifolia*.

Ranga Reddi District

Pullaiah and Silar Mohammed (2000) explored Ranga Reddi district and brought out the District Flora. A total of 698 wild and naturalized species belonging to 414 genera and 110 families have been reported in Ranga Reddi

district. The family Fabaceae (Leguminosae) with 109 species is dominant followed by Poaceae (70), Cyperaceae (56), Euphorbiaceae (33) and Asteraceae (32). *Cyperus* is the largest genus with 16 species, followed by *Fimbristylis* (14), *Cassia* (10), *Eragrostis*, *Euphorbia*, *Indigofera* and *Ipomoea* (9 species each). Some rare taxa found in this district are *Utricularia stellaris*, *Drosera burmannii*, *D. indica* and *Arisaema leschenaultii*. From this district some taxa are additions to Flora of Andhra Pradesh such as *Fimbristylis albiviridis*, *F. dichotoma* subsp. *podocarpa* and *Alysicarpus ovalifolius*.

Warangal District

In 1966, Sebastine and Henry studied the Flora of Pakhal and surrounding regions of Narasampet taluk in Warangal district and reported 254 species of 198 genera belonging to 70 families. Reddy *et al.* (1999) described Angiospermic flora and biological spectrum of Jakaram Reserve forest in Warangal district. Later Satyanararayana Reddy (1985) and C.S. Reddy (2001b) made floristic study of Warangal and reported 715 species belonging to 431 genera and 111 families. Murthy *et al.* (2006) gave additions to the flora of Warangal district.

Floristic Analysis

A total of 1945 taxa (including 163 cultivated taxa) spread over 1891 species belonging to 794 genera and 147 families occur in Telangana state. The largest families are Fabaceae (Leguminosae) (273 species; 191+40 +42), Poaceae (208 species), Cyperaceae (126 species), Euphorbiaceae (118), Asteraceae (84), Acanthaceae (60), Rubiaceae (50), Malvaceae (47), Lamiaceae (42), Convolvulaceae (39), Asclepiadaceae (36) and Scrophulariaceae (29). Orchidaceae, one of the top ten families in Flora of India is represented by only 12 species in the State of Telangana. Largest genera are *Cyperus* (42 species), *Euphorbia* (29), *Crotalaria* (28), *Fimbristylis* (25 species), *Indigofera* (20), *Ficus* (18), *Ipomoea* (18), *Acacia*, *Eragrostis* and

Phyllanthus (17 species each).

Endemic Plants

Plants Endemic to Peninsular India found in the State of Telangana include *Abelmoschus manihot* subsp. *tetraphyllus* (Roxb. ex Hornem) Borss., *Abutilon neelgherrense* Munro ex Wight, *Adenostemma lavenia* (L.) Kuntze, *Aglaia elaeagnoidea* (A. Juss.) Benth. var. *beddomei* (Gamble) K.K.N.Nair, *Albizia thompsonii* Brandis, *Alysicarpus longifolius* (Rottl. ex Spreng.) Wight & Arn., *A. racemosus* Benth., *A. roxburghianus* Thoth. & Pramanik, *A. tetragonolobus* Edgew., *Amischophacelus cucullata* (Roth) Rolla Rao & Kammathy, *Andrographis serpyllifolia* (Rottl. ex Vahl) Wight, *Anisochilus verticillatus* Hook.f., *Argyreia cuneata* (Willd.) Ker.Gawl, *A. kleiniana* (Roem. & Schult.) Raizada, *A. pilosa* Arn., *Aristida redacta* Stapf, *Arthraxon lanceolatus* (Roxb.) Hochst var. *echinatus* (Nees) Hack., *Aschopholis gamblei* Fischer, *Asparagus laevissimus* Steud. ex Baker, *Aspidopterys indica* (Roxb.) Hochr., *Barleria longiflora* L.f., *Barleria montana* Nees, *B. prattensis* Sant., *Begonia trichocarpa* Dalz., *Blepharispermum subsessile* DC., *Bridelia retusa* (L.) A.Juss., *Cajanus lineatus* Maesen (Syn.: *Atylosia lineata* Wight & Arn.), *Caralluma adscendens* (Roxb.) R.Br. var. *adscendens*, *C. adscendens* (Roxb.) R.Br. var. *attenuata*, *C. adscendens* (Roxb.) R.Br. var. *fimbriata*, *Ceropegia candelabrum* L. var. *candelabrum*, *C. hirsuta* Wight & Arn., *C. pusilla* Wight & Arn., *C. spiralis* Wight, *Chloris bournei* Rang. & Tad., *Cleome viscosa* L. var. *nagarjunakondnsis* Sudara Raghavan, *C. simplicifolia* (Cambess.) Hook.f. & Thoms., *Commelina hirsuta* Clarke, *Cordia macleodii* Hook.f. & Thoms., *Crotalaria epunctata* Dalzell, *C. filipes* Benth., *C. hirsuta* Willd., *C. orixensis* Willd., *C. willdenowiana* DC. subsp. *willdenowiana*, *Curcuma decipiens* Dalz., *C. inodora* Blatter, *C. pseudomontana* Graham, *Cymbopogon coloratus* (Nees) Stapf, *C. gidarba* (Ham. ex Hook.f.) Haines, *Cynodon barberi* Rang. & Tad., *Cyperus clarkei* Cooke, *Decalepis hamiltonii* Wight & Arn., *Deccania*

pubescens (Roth) Tirveng. var. *candolleana* (Wight & Arn.) Tirveng., *Dendrophthoe falcata* (L.f.) Etting var. *pubescens* (Hook.f.) Chandra., *Desmodiastrum racemosum* Benth A. Pramanik & Thoth. (Syn. *Alysicarpus racemosus* Benth.) *Dichanthium filiculme* (Hook.f.) Jain & Deshpande, *D. huegelli* (Hack.) Jain & Deshpande, *D. maccanii* Blatter, *Dicliptera cuneata* Nees, *Digitaria tomentosa* (Koen. ex Willd.) Henry, *Dimeria kanjirapalliana* Jacob, *D. ornithopoda* Trin. var. *khasiana* Bor, *Dolichandrone atrovirens* (Heyne ex Roth) Sprague, *Dyschoriste vagans* (Wight) Kuntze, *Ehretia canarensis* (Clarke) Gamble, *Eragrostiella brachyphylla* (Stapf) Bor, *E. riparia* (Willd.) Nees, *Eriolaena lushingtonii* Dunn, *E. quinquelocularis* (Wight & Arn.) Cleghorn, *Eriocaulon diana* Fyson var. *richardiana* Fyson, *E. santapau* Mold., *Euphorbia sebastinei* Binojk. & N.P.Balacr., *Fimbristylis albicans* Nees, *F. arnottiana* Boeck, *Flemingia nana* Roxb., *Gantelbua urens* (Heyne ex Roth) Bremek., *Habenaria lawii* (Wight) Hook.f. (*Peristylus lawii* Wight), *H. longicorniculata* Graham, *H. roxburghii* Nicolson, *Hemigraphis latebrosa* (Heyne ex Roth) Nees, *Heterophragma quadriloculare* (Roxb.) Schum., *Indigofera mysorensis* Rottl. ex DC., *Indoneesiella longipedunculata* (Sreemadh.) Sreemadh., *Iphigenia mysorensis* Arekal & Swamy, *I. pallida* Baker, *Ischaemum pilosum* (Klein ex Willd.) Wight, *Iseilema anthephoroides* Hackel, *Lepidagathis mitis* Dalzell, *Leucas hirta* (Heyne ex Roth) Spreng., *L. nepetaefolia* Benth., *Lophopogon tridentatus* (Roxb.) Hubb., *Maba nigrescens* Dalz., *Maerua apetala* (Roth) Jacobs, *Mariscus clarkei* (Cook) T. Koyama (*M. bulbosus* Clarke), *Mimosa prainiana* Gamble, *Mucuna pruriens* (L.) DC. var. *hirsuta* (Wight & Arn.) Wilmot-Dear, (Syn.: *M. hirsuta* Wight & Arn.), *Murdannia juncooides* (Wight) Rolla Rao & Kammathy, *M. semiteres* (Dalz.) Santapau, *Neanotis lancifolia* (Hook.f.) Lewis, *N. montholoni* (Hook.f.) Lewis, *Ochna gamblei* King ex Brandis, *Piper hymenophyllum* Miq., *Plectranthus caninus* Roth, *Polyalthia cerasoides* (Roxb.) Bedd., *Polycarpaea aurea*

Wight & Arn., *Polygala wightiana* Wall. ex Wight & Arn., *Pouzolzia wightii* Benn., *Radermachera xylocarpa* (Roxb.) Schum., *Rhynchosia aurea* (Willd.) DC., *Rostellularia crinita* (Nees) Nees, *Senna montana* (Heyne ex Roth) V. Singh, *Sesamum laciniatum* Klein ex Willd., *Sesbania procumbens* (Roxb.) Wight & Arn., *Sophora glauca* Lesch. ex DC., *S. interrupta* Bedd., *Syzygium heyneanum* (Duthie) Wall. ex Gamble, *Taxillus heyneanus* (Schult.) Danser, *Tephrosia roxburghiana* Drum., *Tephrosia strigosa* (Dalzell) Santapau & Maheshw., *Terminalia coriacea* Roxb., *Thereoponum dalzelli* Schott., *T. infaustum* N.E. Br., *Torenia indica* Saldanha, *Tragus roxburghii* Panigrahi, *Tribulus subramanyamii* P.Singh, *Tricholepis radicans* (Roxb.) DC., *Trichosanthes anaimalaiensis* Bedd., *Tripogon jacquemontii* Stapf, *Vetiveria lawsonii* (Hook.f.) Blatter & McCann, *Wendlandia gamblei* Cowan and *Zingiber roseum* Roscoe.

New taxa described from the state are *Alysicarpus mahabubnagarensis* Raghava Rao & al. (1989), *Cleome chelidonii* L.f. var. *pallai* C.S.Reddy & V.S.Raju, *Crotalaria paniculata* Willd. var. *nagarjunakondensis* Thoth., *Cyathocline manilaliana* Prabhakar Raju & Venkata Raju (from Pochera, Adilabad district), *Habenaria ramayyana* Ramachandrachary & Wood, *Hybanthus vatsavayii* C.S.Reddy, *Ledebouria hyderabadensis* M.V.Ramana & al. (2012). *Lipocarpa reddyi* Hooper, *Polycarpaea corymbosa* var. *yadgiriense* C.S.Reddy & al. (from Nalgonda district).

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