

FLORISTIC STUDIES IN COIMBATORE CITY AND ITS ENVIRONS

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INTRODUCTION

The study on the flora of Coimbatore city and surrounding areas was taken up to assess its plant wealth, and to prepare a manual for guidance of students and research workers in various fields of botany, druggists and pharmacists in the correct identification and correct naming of plants. It is interesting that Coimbatore city area itself is the type locality for as many as 6 new taxa. Since 1826 Barber, Cherian Jacob, Cox, Ellis, Girija Lakshman, Somasundaram, Subramanyam, Sunanda-Kamath and others have made sporadic collections in the area. Chandrasekaran & Girija Lakshman (1950) reported 100 species of trees from Coimbatore city. Somasundaram (1967) recorded 197 species from the Forest Ranger's College Estate. Other accounts pertaining to the flora of Coimbatore are given under references. Agricultural College Research Institute, Central Institute for Cotton Research, Forest Research Institute and Sugarcane Breeding Institute, all have produced a large number of hybrid varieties of various cultivated plants.

TOPOGRAPHY

Coimbatore is the headquarters of the district in Tamil Nadu. It is situated in 11° N and 76° 58' E at an altitude of 467 m. The area under study is about 62 sq. km adjoining of the Bolampatti Valley, with the lofty blue hills of the Western Ghats rising on the west, the Noyil river running to the south, and with vast stretches of fields towards the east and the north.

The area under study consists mainly of black cotton soil which retains moisture for a long time.

The hottest months are April and May and the maximum temperature is 36.6° C. The average minimum temperature is 27.8° C during December. The annual rainfall is less than 60 cm. The rainfall from the south-west monsoon is irregular. In October the north-east monsoon sets in and very heavy rains are experienced usually towards the end of October and throughout November, swelling the Noyil river and ponds like Muthannamkulam and Valankulam. Rainfall is low in December when weather is chill. During February to May the rivers and ponds get dried. Comparatively cool westerly winds blow across Coimbatore during May-October.

PRESENT STUDY

Intensive plant collections have been made for about 9 years at intervals of a week or fortnight. Altogether 1,339 field numbers belonging to 909 species spread over 124 families have been collected. It is observed that many exotics have gradually become naturalised, and many new ornamental plants are being freshly introduced. The present study reveals that of the 100 tree species earlier reported by Chandrasekharan and Girija Lakshman (1950) only 76 are now exist in this area. But 31 additional species of trees have been observed. The flora of Coimbatore has been dealt with under the following heads : 1. Weed flora. 2. Flora of relatively undisturbed

areas. 3. Flora of Noyil river banks. 4. Flora of Noyil river, ponds and canals. 5. Flora of Wet lands. 6. Flora of Dry lands. 7. Flora of the hedges. 8. Flora of the open play grounds roadside ditches and old walls and 9. Introduced flora.

1. *Weed flora* : Out of 172 weeds reported by Rajasekhara Mudaliar & Sakharam Rao (1955) for the entire Madras Presidency, 136 have been collected from the town area itself. About 100 additional weed species have also been collected. In the wet lands around the town, common weeds that occur with cultivated crops are *Blainvillea acmella* (L.) Philipson, *Blumea lacera* (Burm. f.) DC. var. *glandulosa* Hook. f., *Boerhavia diffusa* L., *Chloris barbata* Sw., *Cynodon dactylon* (L.) Pers., *Hygrophila auriculata* (Schum.) Heine, *Panicum repens* L., *Sphaeranthus indicus* L. and *Synedrella nodiflora* (L.) Gaertn. A new weed species *Polygala jacobii* Chandrab. (Chandrabose, 1967) has been described.

In dry lands, *Acalypha indica* L., *Amaranthus spinosus* L., *Celosia argentea* L., *Chloris barbata* Sw., *Cynodon dactylon* (L.) Pers., *Euphorbia hirta* L., *E. hypericifolia* L., *Mollugo cerviana* (L.) Ser., *Trianthema portulacastrum* L., *Tridax procumbens* L. etc., are predominant, along with the various cultivated cereals, millets, and oil seeds. Along the roadsides, railway lines and waste places, large number of weeds grow luxuriantly after the rains. Some of the common weeds found in these areas are *Achyranthes aspera* L., *Alternanthera pungens* H. B. K., *Amaranthus spinosus* L., *A. tricolor* L., *Ecobolium viride* (Forsk.) Alston var. *rotundifolia* (C. B. Cl.) Raizada, *Lagasca mollis* Cav. and *Tribulus terrestris* L. Plants like *Abutilon indicum* (L.) Sweet, *Martynia annua* L., *Xanthium strumarium* L. etc., grow densely along the fences.

Parthenium hysterophorus L., a South American Weed was first observed in Coimbatore by 1969 near Ramanathapuram and Singa-

nallur areas. Now it has spread becoming a very common weed in all cultivated fields, fallow lands, waste places and along roadsides.

2. *Flora of relatively undisturbed areas* : Though most of the areas are disturbed by man there are some more or less undisturbed areas such as Forest College Estate, burial place of Muslims etc. In such areas, the vegetation is xerophytic in character. Trees and shrubs like *Acaçia leucophlaea* Willd., *Balanites aegyptiaca* (L.) Del., *Capparia divaricata* Lamk., *C. sepiaria* L., *Dichrostachys cinerea* (L.) W. & A., *Prosopis cineraria* (L.) Druce and *P. juliflora* (Sw.) DC., are found to be predominant. Amidst these, tall undershrubs like *Abutilon hirtum* (Lamk.) Sweet and *Ecobolium viride* (Forsk.) Alston are abundant. Weeds also occur in large number. *Cordia diffusa* Jacob a diffuse shrub in this type locality is becoming rare.

3. *Flora of Noyil river banks* : Noyil river originates from Vellingiri hills of the Bolampatti valley and runs along the southern side of the town. The vegetation along the banks of Noyil river is more or less undisturbed forming fences for the Coconut groves. Trees like *Pongamia pinnata* (L.) Pierre and *Trewia polycarpa* Benth., are common. Clumps of *Bambusa arundinacea* Willd. and *Pandanus fascicularis* Lamk., are abundant. The deep and dense rootsystem of these plants protect gully erosion during floods. Tall grasses like *Arundo donax* L.; shrubs like *Azima tetracantha* Lamk., *Breynia rhamnoides* (Retz.) Muell.-Arg., *Capparis sepiaria* L. and *Kirganelia reticulata* Poir.) Baill. from thickets. Climbers like *Argyreia pomacea* Choisy, *Ipomoea sumatrana* (Miq.) Ooststr., *Mucuna hirsuta* Wight & Arn. and *M. monosperma* DC., grow gregariously over trees and shrubs.

4. *Flora of Noyil river, ponds and canals* : The Noyil river, and ponds like Muthannamkulam and Valankulam as also the canals get flooded during heavy rains. Here, aquatic plants usually begin to grow from September

onwards. The following plant communities are seen :

i. *Submerged aquatics* : Plants like *Ceratophyllum demersum* L., *Hydrilla verticillata* (L. f.) Royle, *Ottelia alismoides* (L.) Presl., *Potamogeton nodosus* Poir., *P. pectinatus* L. and *Vallisneria spiralis* L., are mostly rooted in the muddy or sandy bottom and grow at different depths.

ii. *Attached floating aquatics* : Plants such as *Ipomoea aquatica* Forsk., *Monochoria vaginalis* (Burm. f.) Presl. and *Nymphaea nouchali* Burm. f., are rooted in the soil and their stems and petioles are usually slender and long so as to enable the leaves to reach the water surface and float.

iii. *Free floating aquatics* : The common free floating plants are *Eichhornia crassipes* (Mart.) Solms and *Lemna paucicostata* Hegelm.

iv. *Reed swamp vegetation* : The margins of the ponds are covered with pure stands of a number of different species, forming reed swamp vegetation. Plants like *Colocasia esculenta* (L.) Schott, *Cyperus alopecuroides* Rottb., *C. articulatus* L., *Echinochloa crusgalli* (L.) Beauv., *Typha angustata* Chaub., Bory et al. etc., form such a community.

During summer, the river and canals, ponds dry up and the plants disappear. During this period the top soil of the ponds are ploughed and plants such as *Cucumis sativus* L., *Momordica charantia* L., *Phaseolus aconitifolius* Jacq., *Vigna unguiculata* (L.) Walp. etc., are cultivated. Amidst these cultivated plants, occur weeds like *Argemone mexicana* L., *Chloris barbata* Sw., *Cleome chelidonii* L. f., *C. felina* L. f., *Coldenia procumbens* L. and *Setaria verticillata* (L.) Beauv.

5. *Flora of Wet-Lands* : Many improved hybrid varieties of *Oryza sativa* L. and *Saccharum officinarum* L., are mainly cultivated in wet lands. Species of *Musa*, *Gossypium*, *Sesbania* and *Piper betle* L., are also cultivated.

On the bunds and canals, trees like *Acacia leucophlaea* (Roxb.) Willd., *A. nilotica* (L.) Del. ssp. *indica* (Benth.) Brenan, *Borassus flabellifer* L. and clumps of *Bambusa arundinacea* Willd., are seen sporadically. A terrestrial orchid, *Eulophia graminea* Lindl., is found in sugarcane fields during the rainy season. Numerous weeds also grow here.

6. *Flora of Dry-Lands* : Vast stretches of dry lands with red or red loamy soil are found near Ganapathy, beyond Peelamedu, Kurichi, Pudur and Sankanur. Various hybrid varieties and improved strains of species of *Arachis*, *Penisetum* and *Sorghum* are being cultivated as primary crops. Among these, some secondary crops like *Cajanus cajan* (L.) Druce, *Cyamopsis tetragonoloba* (L.) Taub. etc., are grown. Trees like *Acacia leucophlaea* (Roxb.) Willd., *Borassus flabellifer* L. and *Tamarindus indica* L., occur sporadically. Here also occur many weeds mentioned earlier.

7. *Flora of the hedges* : All the cultivated lands are mostly enclosed by protective hedges of some armed and bushy shrubs or poisonous plants. Trees like *Euphorbia antiquorum* L., *E. tirucalli* L., *Parkinsonia aculeata* L., *Prosopis glandulosa* Torr., *P. juliflora* (Sw.) DC., *Thevetia peruviana* (Pers.) Merr. and bushy plants like *Acanthocereus pterogonus* (L.) Britt. & Rosc., *Agave americana* L., *A. vera-curz* Miller, *Cylindropuntia ramosissima* (Engl.) Kunth, *Opuntia elatior* Mul. etc., are frequently seen along the hedges. Shrubs like *Azima tetracantha* Lamk., *Breynia rhamnoides* (Retz.) Muell.-Arg., *Capparis sepiaria* L., *Kirganelia reticulata* (Poir.) Baill. etc., grow in dense bushes. The common climbers found along the hedges are *Argyrea pomacea* Choisy, *Ipomoea sumatrana* (Miq.) Ooststr., *Cardiospermum halicacabum* L., *Cissus quadrangularis* L. and *Coccinia grandis* (L.) Voigt.

8. *Flora of the open play grounds, roadside ditches and old walls* : As there is much biotic interference daily in open play grounds, the

flora is very poor and only a few herbaceous species like *Alternanthera pungens* H. B. K., *Chloris barbata* Sw., *Cynodon dactylon* (L.) Pers., *Justicia prostrata* (Cl.) Gamble, *Portulaca quadrifida* L., and *Tribulus terrestris* L., occur. Since there is no underground drainage system so far in the town area, open ditches are common in all the streets. Bordering the ditches, herbs like *Alternanthera sessilis* (L.) R. Br. ex R. & S., *Amaranthus gracilis* Desf., *A. spinosus* L., *Chloris barbata* Sw., *Eclipta prostrata* (L.) L., are quite common. On the semi-demolished buildings and mud walls *Boerhavia diffusa* L., *Chloris barbata* Sw., *Tridax procumbens* L., etc., and saplings of *Ficus benghalensis* L. and *F. religiosa* L., are found.

9. *Introduced flora*: A large number of cultivated ornamental trees, shrubs, climbers and herbs are found in private compounds, botanic garden and public parks. One third of the plants found in the area are introduced. Some of the common avenue trees are *Cassia roxburghii* DC., *Delonix regia* (Boj.) Raf., *Peltophorum pterocarpum* (DC.) Backer ex K. Heyne., and *Samanea saman* (Jacq.) Merr. Trees such as *Araucaria excelsa* R. Br., *Cassia renigera* Wall., *Plumeria alba* Jacq., *Polyalthia longifolia* (Sonn.) Thw., *Roystonea regia* (H. B. K.) O. F. Cook and *Terminalia catappa* L., are grown in private compounds, parks and Botanic Garden as shade and ornamental trees. Shrubs such as *Acalypha wilkesiana* Muell.-Arg., *Cestrum parqui* L' Herit, varieties of *Codiaeum variegatum* Bl., *Ixora macrothyrsa* Moore etc., are grown as ornamentals. Climbers and creepers are grown as screens or along walls or as twiners around pillars. The common ornamental climbers are *Antigonon leptopus* Hook. & Arn., different varieties of *Bougainvillea spectabilis* Willd., *Merremia dissecta* (Jacq.) Hall. f. and *Vernonia elaeagnifolia* DC. Some of the common ornamental herbs found are *Aster amellus* L., *Eupatorium triplinerve* Vahl, *Impatiens balsamina* L., *Zinnia elegans* Jacq. etc.

CONCLUSION

The flora of Coimbatore and its environs obviously is much disturbed due to regular biotic interference. The presence of certain remnant species like *Aerva javanica* (Burm. f.) Juss. ex Schult., *A. lanata* (L.) Juss., *Cadaba fruticosa* (L.) Druce, *Capparis divaricata* Lamk., *C. sepiaria* L., *Cardiospermum halicacabum* L., *Cissus quadrangularis* L., *Dichrostachys cinerea* (L.) Wight & Arn., *Euphorbia antiquorum* L., *Ziziphus mauritiana* Lamk., *Z. oenoplia* (L.) Mill. etc., in more or less undisturbed, protected areas and along the banks of Noyil river indicate that presumably southern tropical thorn forest existed here in the past before urbanisation. Such a type of forest is found even now at the foot hills of Maruthamalai which is just 10 km away from the town.

New plant records such as *Abutilon theophrastii* Medic., *Acalypha malabarica* Muell.-Arg., *Brachiaria deflexa* (Schum.) C. E. Hubb. ex Robyns and *Indigofera hochstetteri* Baker are of phytogeographical interest. Plants such as *Phyllanthus fraternus* Webster and *Tylophora indica* (Burm. f.) Merr., are much in local use for jaundice and asthma respectively and their places of occurrence could be correctly recorded during this intensive study.

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