

Urban trees of the Nilgiris district, Tamil Nadu, India

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Abstract. The study presents the current status of trees in urban landscapes of the Nilgiris district. In this study, 171 species belonging to 127 genera and 59 families were identified. The angiosperms were represented by 156 species and the gymnosperms by 15 species, identified as potential urban trees, including both wild and ornamental tree species. Among the 171 species, the Fabaceae were the dominant family (19 species), followed by the Myrtaceae (13 species) and Cupressaceae (6 species). Ornamentals accounted for 24% of all the species. A complete list of the recorded urban trees is provided, supplemented with their potential economic value.

Keywords: urban trees, wild trees, ornamental trees, economic value, urban forestry, urbanization

1. Introduction

Since 1823, the British occupancy of the Nilgiri Mountains created a landscape with alien trees and shrubs in and around churchyards, cemeteries, residences, and later developed plantations of tea and coffee, followed by vegetables and fruits as hill cultivation (Bidie 1880; Samraj 1981). In 1871, tree plantations of *Cinchona*, *Eucalyptus*, *Acacia*, *Cyprus*, and *Pinus* species were established by McIvor and Sir William Denison, former Governor of Madras, with an aggregate area of 1200 acres across the Nilgiris district (Bidie 1880; Krishnamurthy 1953; Menon *et al.* 1963). Earlier, botanical gardens and an arboretum were created in different landscapes for their ornamental potential and later developed into the conservation of rare, endangered, and threatened species. In urban areas, tree growth is negatively affected by many factors, such as pollutants, soil erosion, concrete pavers, and intensive pruning for bitumen tar roads (Samraj & Haldorai 1977; Ferrini *et al.* 2014). Recently, urbanization rapidly accelerated, with unauthorized developments, deforestation, expansion in land use and other anthropogenic activities, so it is now a serious risk factor in many cities (e.g. Nagendra & Gopal 2011; Pandey & Kumar 2018; Divakara *et al.* 2022). In recent conservation techniques, urban forestry is one of the green ways to enrich the

environment in different climatic conditions, considering both landscape and wildlife (Smith 1981; Kohli *et al.* 1998). In India, urban green cover has increased in several cities, like New Delhi (20%), Noida (58%), Gandhinagar (57.13%), Chandigarh (35%) Hyderabad (33%), Kolkata (40%), Bangalore (19.9%), and Coimbatore (36%) (Nagendra & Gopal 2010; United Nations 2018; Panchal & Paneria 2021).

The exotic trees in the Nilgiris have now acclimatized to the existing environmental conditions, and most of the ornamental plants form the cosmopolitan flora of the plateau (Samraj 1977; Ramachandran 2013). The variation in tree phenology in urban areas is strongly related to seasonal changes in rainfall and temperature (Ramachandran 2013; Jeevith & Kunnikannan 2019). Wild and exotic tree species have succeeded in many parts of the world, with altitudinally varied urban landscapes, avenues, parks, schools, and college campuses (Dar & Dar 2006; Jeevith *et al.* 2014). Recent plant explorations in the Nilgiris district revealed a change in tree diversity in various forest types from the different altitudinal ranges. In this study, an inventory of wild and ornamental trees was conducted in the urban areas of the Nilgiris district, with particular reference to species distribution, potential value, threats, and conservation management practice.

2. Study area

The Nilgiris district of Tamil Nadu is located at $11^{\circ}10' - 11^{\circ}43'N$ and $76^{\circ}14' - 77^{\circ}00'E$, with an area of 2565 km² and an elevation of 900-2636 m a.s.l. It is a major part of the Nilgiris Biosphere Reserve of the Western Ghats. The district consists of six major taluks, including 18 towns and 40 villages. It consists of 582 km² of urban and 1983 km² of rural landscapes. The British-settled towns in this district include Udhagamandalam (Ootacamund, 879 km²), south India's most famous hill station, followed by Coonoor (232 km²), Kotagiri (398 km²), Kundah (331 km²), Gudalur (507 km²), and Pandalur (218 km²) (Fig. 1). The Nilgiris district lies in the tropical zone, with the climate ranging from sub-

tropical to temperate and the mean monthly temperature fluctuating from the minimum of 2°C to the maximum of 25°C. Nilgiris hosts a diversity of habitats and vegetation types, including scrub forest, dry and moist deciduous forest, semi-evergreen forest, evergreen forest (Shola), montane grasslands, bamboo windbreaks, and riparian forest (Champion & Seth 1968).

3. Material and methods

The study of the urban tree flora of the Nilgiris district was carried out from August 2018 to September 2022. Several field trips were conducted during different seasons of the years. The studied urban areas were Udhagamandalam, Coonoor, Kotagiri, Kundah, Gudalur

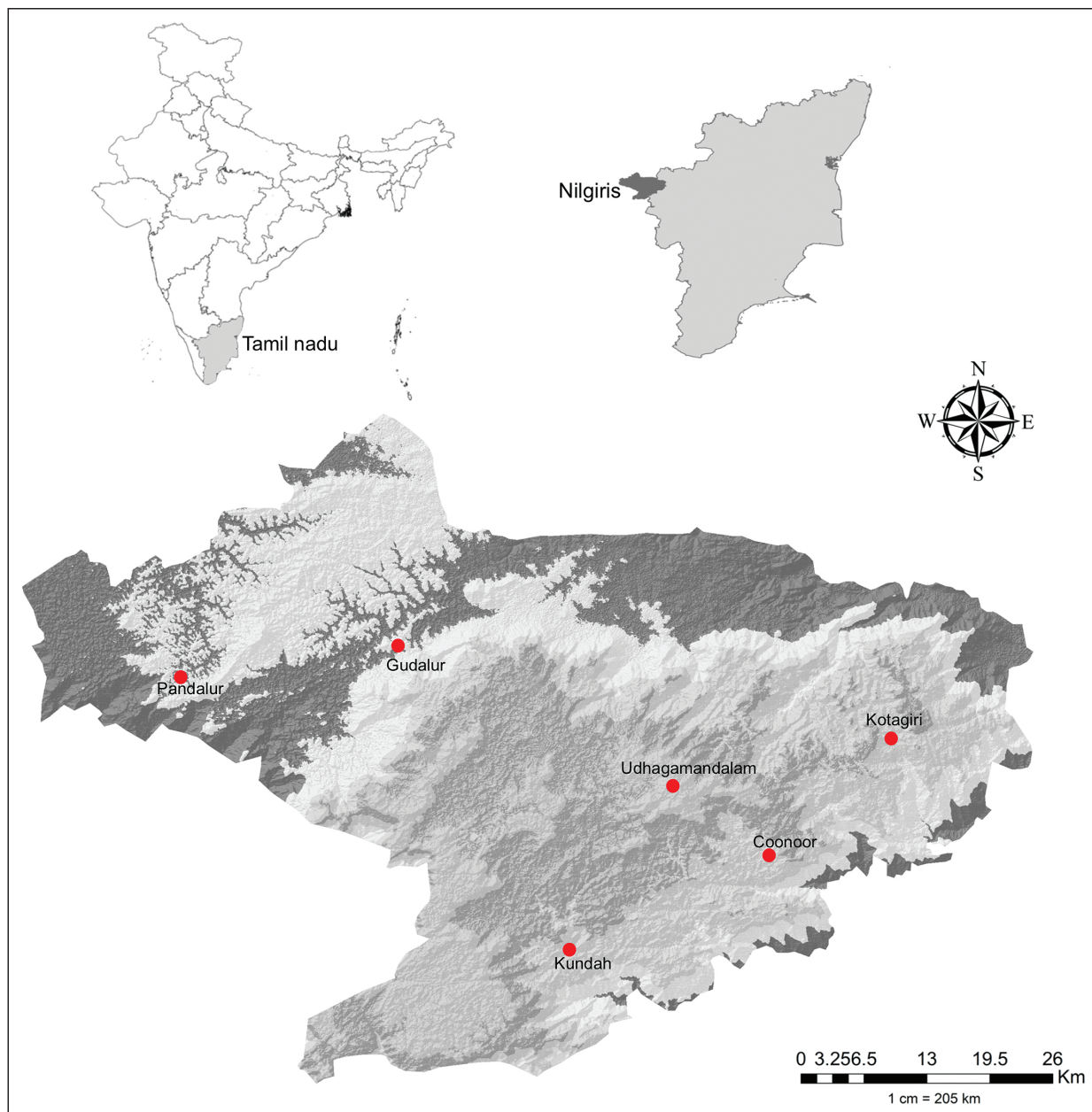


Fig. 1. Location of the study sites in Nilgiris district, Tamil Nadu

and Pandalur taluk. Tree species in urban landscapes, botanic gardens, arboreta, avenues, agroforestry, plantations, ornamental and roadside plants were identified with the help of taxonomic literature and field guides (Gamble & Fischer 1915-1936; Fyson 1933; Henry *et al.* 1987; Sharma *et al.* 1977). Field observations were collected, e.g. habit, inflorescence, phenology status, and economic value of each of the species. Online databases, such as POWO (2023) and IPNI (2023), were used for nomenclature updates. Photographs taken *in situ* are provided as figures in plates.

4. Results and discussion

A total of 171 urban tree species of 127 genera and 59 families were found in the six towns located in Nilgiris district. The dendroflora of the surveyed cities includes 156 species of angiosperms and 15 of gymnosperms. The most numerously represented families of angiosperm trees (Table 1) were the Fabaceae with 19 species, followed by the Myrtaceae with 13 species, and the Cupressaceae with six species.

Table 1. Urban tree families dominant in the Nilgiris district

Family	Genera	Species
Fabaceae	14	19
Myrtaceae	6	13
Rosaceae	4	7
Moraceae	2	7
Bignoniaceae	6	6
Meliaceae	5	6
Cupressaceae	4	6
Arecaceae	5	5
Malvaceae	5	5
Rutaceae	4	5
Lauraceae	3	5
Magnoliaceae	1	5

There are also trees of the families Sapindaceae and Rubiaceae (with four species each), Annonaceae, Apocynaceae, Combretaceae, Ericaceae, and Sapotaceae (with three species each), Anacardiaceae, Asparagaceae, Betulaceae, Clusiaceae, Elaeocarpaceae, Ericaceae, Fagaceae, Lamiaceae, Lythraceae, Oxalidaceae, Phyllanthaceae, Rhamnaceae, Sabiaceae, and

Salicaceae (with two species each), as well as Actinidiaceae, Berberidaceae, Cannabaceae, Caricaceae, Euphorbiaceae, Icaciaceae, Juglandaceae, Moringaceae, Muntingiaceae, Musaceae, Myristicaceae, Oleaceae, Paulowniaceae, Pittosporaceae, Plantanceae, Proteaceae, Quillajaceae, Schisandraceae, Simaroubaceae, Solanaceae, Sterculiaceae, Theaceae, Ulmaceae, and Vacciniaceae (with one species each).

Gymnosperm trees were represented by the Cupressaceae (six species), Araucariaceae and Pinaceae (four species each), and Podocarpaceae (one species).

In the present study, 62 tree species were wild and distributed in different forest landscapes of Nilgiris, from the lower plains to the higher elevations (Fig. 2). Species like *Celtis tetrandra*, *Cinnamomum wightii*, *Elaeocarpus variabilis*, *Berberis napaulensis*, *Magnolia nilagirica*, *Meliosma pinnata*, *M. simplicifolia*, *Nothapodytes nimmoniana*, *Rhododendron arboreum* subsp. *nilagiricum*, *Trichilia connaroides*, *Trema orientale*, and *Vaccinium symplocifolium* are distributed in the shola forests of Nilgiris and the Western Ghats. *Alstonia scholaris*, *Bombax ceiba*, *Butea monosperma*, *Ceiba pentandra*, *Dalbergia latifolia*, *Garcinia gummi-gutta*, *Gliricidia sepium*, *Gmelina arborea*, *Elaeocarpus tectorius*, *Melia dubia*, *Neolamarckia cadamba*, *Pterocarpus marsupium*, *Pongamia pinnata*, *Terminalia arjuna*, *T. bellirica* and *T. chebula* are widely distributed at the lower altitudes, in the moist deciduous forests of Nilgiris.

Most of the tree species in the urban areas are used for various, often multiple purposes (Figs. 3-4, Table 2), primarily as ornamentals (87%), for traditional medicine or urban forestry (about 60% each), and in sacred groves (54%). About 30% are grown for edible fruit crop or timber.

Anacardium occidentale, *Artocarpus heterophyllus*, *Areca catechu*, *Cocos nucifera*, *Mangifera indica*, *Musa ×paradisiaca*, *Theobroma cacao* are cultivated in commercial plantations in the Nilgiri plains. The fruit trees are propagated by advanced techniques. Species like *Annona reticulata*, *A. squamosa*, *Carica papaya*, *Citrus maxima*, *C. medica*, *Durio zibethinus*, *Garcinia mangostana*, *Litchi chinensis*, *Malus domestica*, *Nephelium lappaceum*, *Persea americana*, *Phyllanthus emblica*, *Psidium guajava*, *Punica granatum*, *Pyrus communis*, and *Syzygium cumini* are grown by the department of pomiculture in Coonoor, Burliyar, Kallar, and Gudalur of the Nilgiris district.

Table 2. Utilization and economic value of urban trees in the Nilgiris district

Ornamental	Traditional medicine	Urban forestry	Sacred grove	Fruit crop	Timber value	Other food or spice
148 (87%)	107 (63%)	102 (60%)	92 (54%)	51 (30%)	46 (27%)	6 (4%)

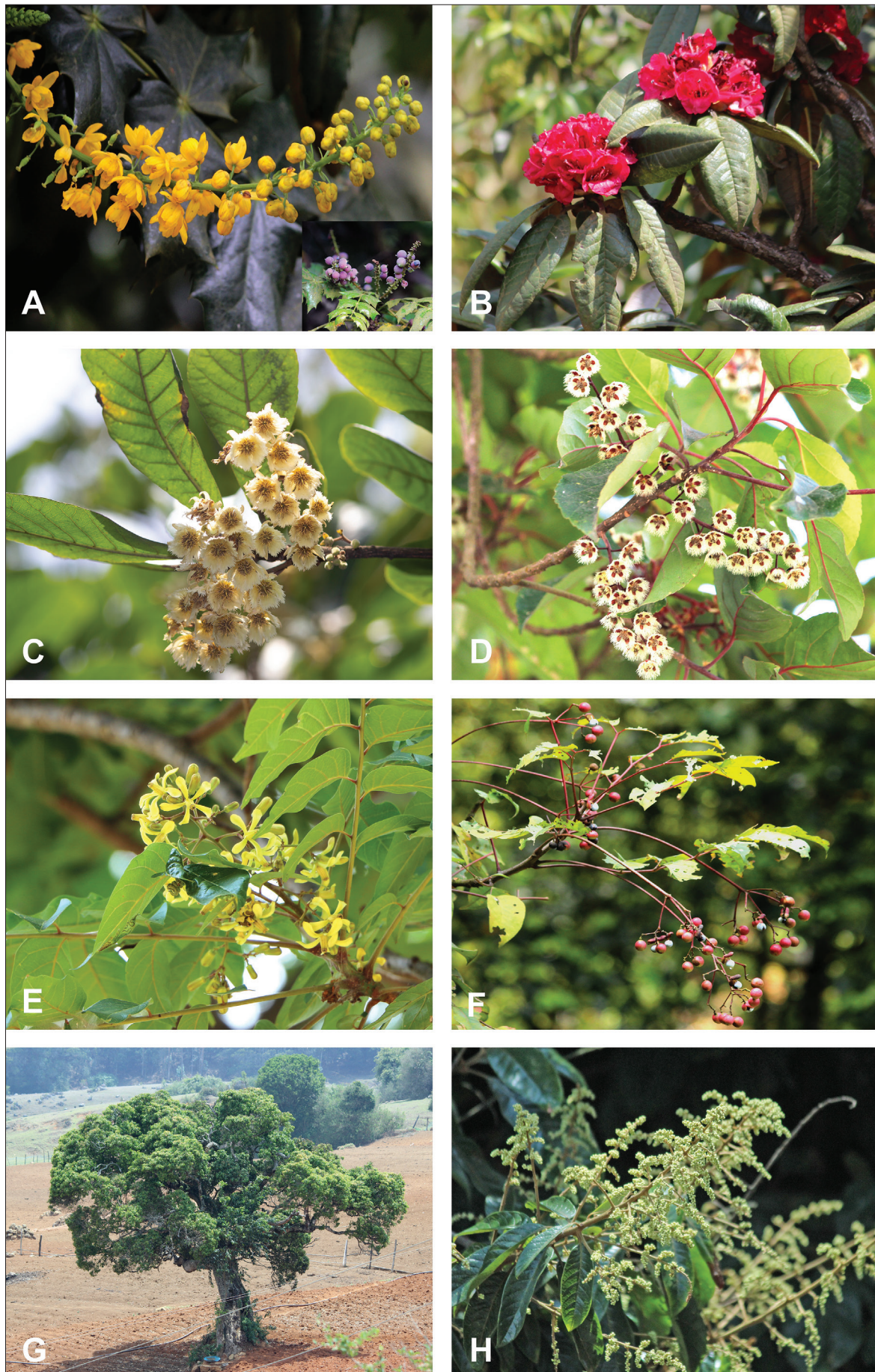


Fig. 2. Sample tree species of forest landscapes in Nilgiris District

Explanations: A – *Berberis napaulensis*, B – *Rhododendron arboreum* subsp. *nilagiricum*, C – *Elaeocarpus tectorius*, D – *Elaeocarpus variabilis*, E – *Melia dubia*, F – *Trichilia connaroides*, G-H – *Meliosma simplicifolia* (photograph by S. Jeevith)

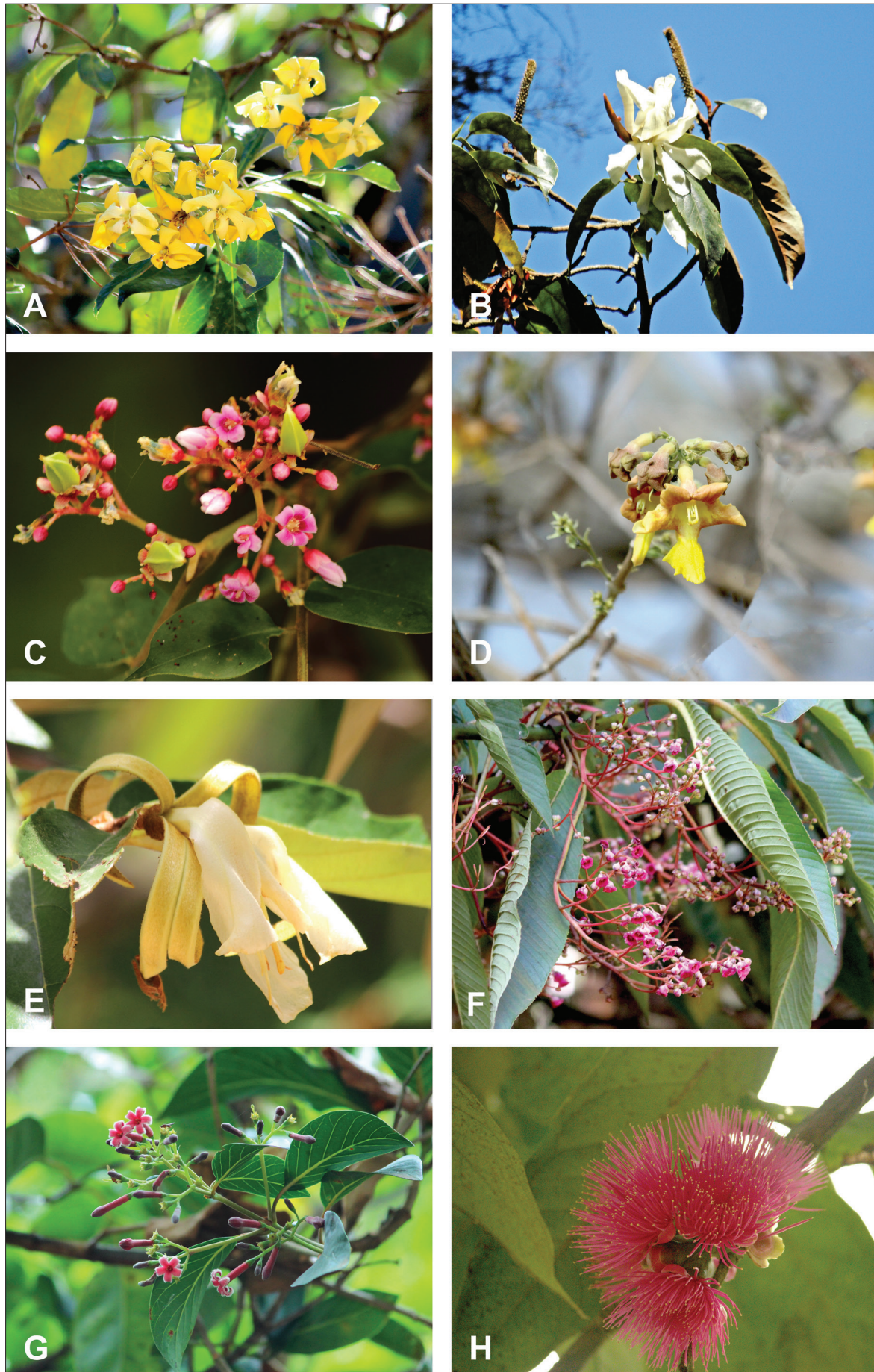


Fig. 3. Some selected species of ornamental angiosperm trees in the Nilgiris District

Explanations: A – *Hymenosporum flavum*, B – *Magnolia doltsopa*, C – *Averrhoa carambola*, D – *Gmelina arborea*, E – *Pterospermum acerifolium*, F – *Saurauia napaulensis*, G – *Cinchona officinalis*, H – *Syzygium samarangense* (photograph by S. Jeevith)

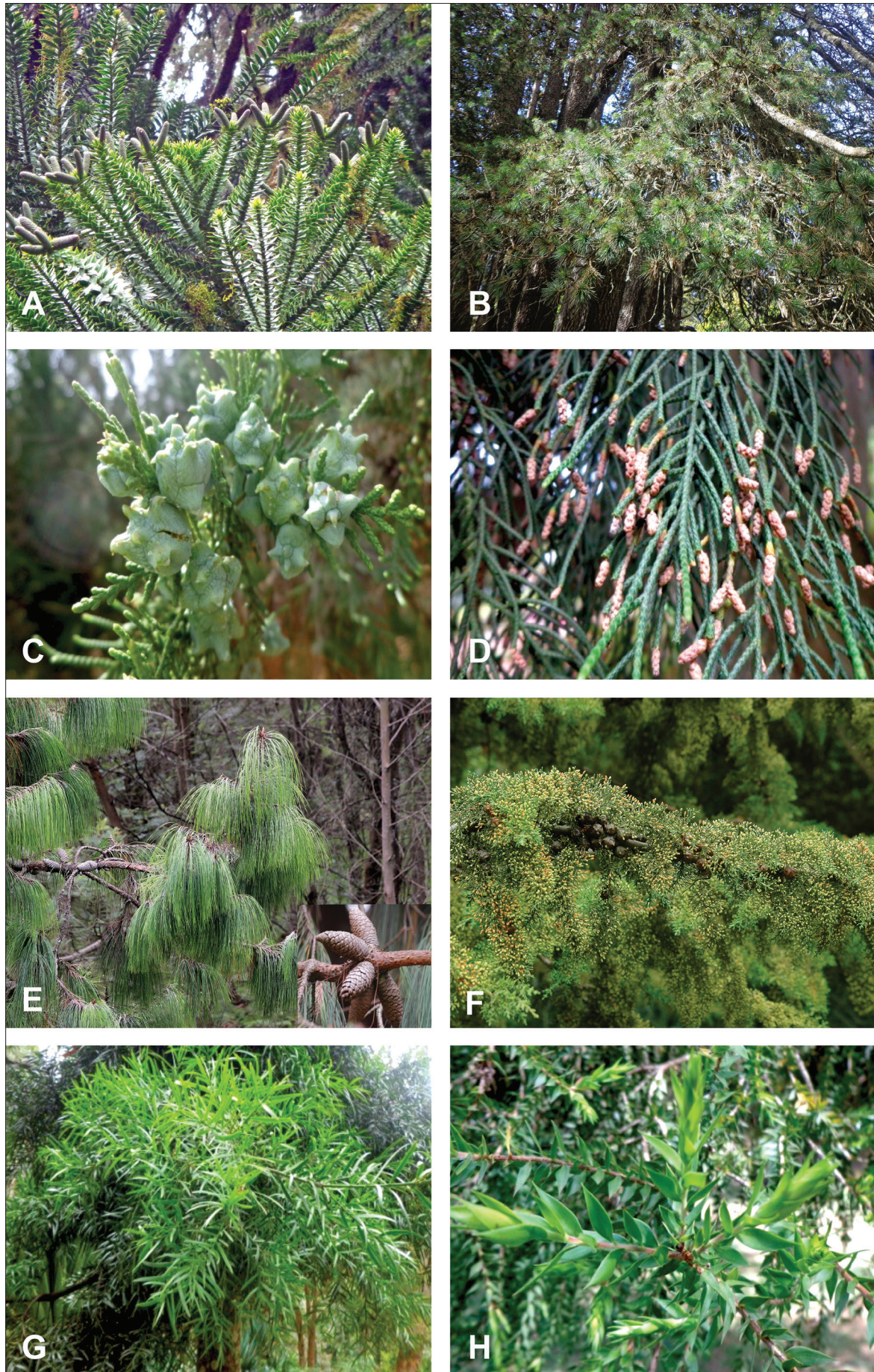


Fig. 4. Some selected species of ornamental gymnosperm trees in the Nilgiris District

Explanations: A – *Araucaria bidwillii*, B – *Cedrus deodara*, C – *Platycladus orientalis*, D – *Cupressus torulosa*, E – *Pinus patula*, F – *Cupressus sempervirens*, G – *Podocarpus macrophyllus*, H – *Juniperus virginiana* (photograph by S. Jeevith)

Several species – *Cinnamomum camphora*, *C. verum*, *C. wightii*, *Illicium verum*, *Myristica fragrans*, *Syzygium aromaticum* – serve as sources of spices. The wood of *Ailanthus excelsa*, *Gmelina arborea*, *Grevillea robusta*, *Melia dubia*, *Neolamarckia cadamba*, *Tectona grandis*, *Thespesia populnea*, and *Swietenia mahagoni* are used for commercial timber and derived products.

A few invasive alien tree species (*Acacia auriculiformis*, *A. dealbata*, *A. mearnsii*, *A. melanoxylon*, *Eucalyptus globulus*, and *E. grandis*) were introduced and their plantation was established in the hill stations of Nilgiris by the Britishers from 1850 till late 1945, but the timber and fuel wood are still used in the tea factories across the Nilgiris. Similarly, Samraj (1981) reported 62 alien tree species from Nilgiris and described their potential value in the ornamental, medical and commercial aspects. Jeevith *et al.* (2014) listed 43 species of wild and exotic gymnosperms of Nilgiris; most of the species are protected by ex-situ conservation. Prakash (2020) reported 113 avenue tree species in the urban landscape of Tiruppur city, indicating their high diversity. Trees in the cities are affected most strongly by systematic tree pruning, increased air temperatures, and reduced water infiltration (Vogt *et al.* 2015). However, the expansion of the root system and crown is generally affected by anthropogenic barriers (Iakovoglou *et al.* 2001). The complete list of the recorded urban trees is given in Appendix 1.

5. Conclusions

Urban ecology plays a major role in biodiversity conservation. Urban forests are parts of the global forest

network, providing important benefits to the citizens. Urban trees are often planted, rather than naturally germinated, unlike the trees growing in natural forests with minimum sunlight and wind resistance. Botanical gardens and arboreta are the main centers for preventing the threatened trees and other plant taxa from becoming extinct. In contrast, private planting had expanded across the hill stations. In this paper, we have developed a catalogue of wild and exotic trees in the urban areas of the Nilgiris district, to assess the tree diversity in the urban landscapes. The flowering and fruiting trees in the urban and rural areas greatly enrich the food chain for birds, mammals, and insects. The tree species with a large commercial value are being widely propagated, using modern techniques in the nurseries by the forest department, NGOs, and commercial nurseries. The results of this study provide original data and new insights into urban biodiversity.

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Data analysis and interpretation: S. Jeevith
Writing the article: S. Jeevith
Critical revision of the article: S. Jeevith
Final approval of article: S. Jeevith

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Appendix 1. List of the urban trees of the Nilgiris district, Tamil Nadu

Botanical name	Family	Parts used	Economic value
<i>Saurauia napaulensis</i> DC.	Actinidiaceae	Tree	Ornamental in parks and avenues
<i>Anacardium occidentale</i> L.	Anacardiaceae	Fruit, nut	Food, fruit edible, timber
<i>Mangifera indica</i> L.	Anacardiaceae	Whole plant	Fruit edible, timber,
<i>Annona reticulata</i> L.	Annonaceae	Fruit, leaf	Fruit edible, traditional medicine, shade tree
<i>Annona squamosa</i> L.	Annonaceae	Fruit, leaf	Fruit edible, traditional medicine, shade tree
<i>Monoon longifolium</i> (Sonn.) B.Xue & R.M.K.Saunders	Annonaceae	Whole plant	Traditional medicine, ornamental, shade tree
<i>Alstonia scholaris</i> (L.) R.Br.	Apocynaceae	Tree	Traditional medicine, shade tree
<i>Plumeria pudica</i> Jacq.	Apocynaceae	Tree	Ornamental in roadside, parks and avenues
<i>Plumeria rubra</i> L.	Apocynaceae	Tree	Ornamental in roadside, parks, and avenues
<i>Agathis robusta</i> (C.Moore ex F.Muell.) F.M.Bailey	Araucariaceae	Tree	Ornamental and conservation in botanical gardens and parks
<i>Araucaria bidwillii</i> Hook.	Araucariaceae	Tree	Ornamental in parks and avenues
<i>Araucaria columnaris</i> (G.Forst.) Hook.	Araucariaceae	Tree	Ornamental in roadside, parks and avenues
<i>Araucaria heterophylla</i> (Salisb.) Franco	Araucariaceae	Tree	Ornamental in parks and avenues
<i>Areca catechu</i> L.	Arecaceae	Whole plant	Multipurpose crop, food, traditional medicine, ornamental and eco-products,
<i>Cocos nucifera</i> L.	Arecaceae	Whole plant	Multipurpose crop, food, edible oil, fuel wood, ornamental and eco-products
<i>Phoenix canariensis</i> H.Wildpret	Arecaceae	Tree	Ornamental in parks and avenues
<i>Rhopalostylis baueri</i> (Hook.f.) H.Wendl. & Drude	Arecaceae	Tree	Ornamental in parks and avenues
<i>Roystonea regia</i> (Kunth) O.F.Cook	Arecaceae	Tree	Ornamental in parks and avenues
<i>Cordyline australis</i> (G.Forst.) Endl.	Asparagaceae	Tree	Ornamental in parks, avenues, and home garden
<i>Dracaena draco</i> (L.) L.	Asparagaceae	Tree	Ornamental in parks and avenues
<i>Berberis napaulensis</i> (DC.) Spreng.	Berberidaceae	Fruit, tree	Food, scared groove
<i>Alnus nepalensis</i> D.Don	Betulaceae	Wood, bark	Timber, charcoal, bark used for dyeing
<i>Betula alnoides</i> Buch.-Ham. ex D.Don	Betulaceae	Tree, wood	Ornamental, Urban forestry, timber
<i>Jacaranda mimosifolia</i> D.Don	Bignoniaceae	Tree	Ornamental shade tree in road side and parks
<i>Millingtonia hortensis</i> L.f.	Bignoniaceae	Tree	Ornamental, timber
<i>Oroxylum indicum</i> (L.) Kurz	Bignoniaceae	Leaf, seed	Traditional medicine
<i>Spathodea campanulata</i> P.Beauv.	Bignoniaceae	Tree	Ornamental shade tree on roadside and parks
<i>Tecoma stans</i> (L.) Juss. ex Kunth	Bignoniaceae	Tree	Ornamental shade trees on roadside and parks
<i>Tecomella undulata</i> (Sm.) Seem.	Bignoniaceae	Tree	Ornamental shade trees in roadside and parks
<i>Trema orientale</i> (L.) Blume	Cannabaceae	Tree	Used in urban forestry, traditional medicine,
<i>Carica papaya</i> L.	Caricaceae	Fruit, leaf	Food, traditional medicine, agroforestry, garden plant
<i>Garcinia gummi-gutta</i> (L.) Roxb.	Clusiaceae	Fruit, leaf	Traditional medicine, dry fruit extract is used as a preservative supplement.
<i>Garcinia mangostana</i> L.	Clusiaceae	Fruit	Edible, traditional medicine, agroforestry, pomiculture
<i>Terminalia arjuna</i> (Roxb. ex DC.) Wight & Arn.	Combretaceae	Fruit, wood	Traditional medicine, timber, fuel, agroforestry
<i>Terminalia bellirica</i> (Gaertn.) Roxb.	Combretaceae	Fruit, wood	Traditional medicine, timber, fuel, agroforestry
<i>Terminalia chebula</i> Retz.	Combretaceae	Fruit, wood	Traditional medicine, timber, fuel, agroforestry
<i>Cryptomeria japonica</i> (Thunb. ex L.f.) D.Don	Cupressaceae	Tree	Ornamental shade trees in road side and parks
<i>Cupressus pendula</i> Thunb.	Cupressaceae	Tree	Ornamental shade trees in road side and parks
<i>Cupressus sempervirens</i> L.	Cupressaceae	Tree	Ornamental shade trees in road side and parks
<i>Cupressus torulosa</i> D.Don ex Lamb.	Cupressaceae	Tree, wood	Timber, ornamental in roadside and parks
<i>Juniperus virginiana</i> L.	Cupressaceae	Tree	Ornamental shade trees in roadside and parks
<i>Platycladus orientalis</i> (L.) Franco	Cupressaceae	Tree	Ornamental shade trees in roadside and parks, foliage used in decoration
<i>Elaeocarpus tectorius</i> (Lour.) Poir.	Elaeocarpaceae	Fruit, tree	Food, scared grove
<i>Elaeocarpus variabilis</i> Zmarzty	Elaeocarpaceae	Fruit, tree	Food, scared grove
<i>Gaultheria fragrantissima</i> Wall.	Ericaceae	Fruit, leaf	Food, medicine
<i>Lyonia ovalifolia</i> (Wall.) Drude	Ericaceae	Tree	Ornamental in parks and avenues
<i>Rhododendron arboreum</i> subsp. <i>nilagiricum</i> (Zenker) Tagg	Ericaceae	Tree	Scared groove, in-situ conservation
<i>Hevea brasiliensis</i> (Willd. ex A.Juss.) Müll.Arg.	Euphorbiaceae	Wood	Timber, latex used for making rubber

Botanical name	Family	Part used	Economic value
<i>Acacia auriculiformis</i> <i>A.Cunn. ex Benth.</i>	Fabaceae	Wood	Timber, fuel, shade tree
<i>Acacia dealbata</i> Link	Fabaceae	Wood	Timber, fuel, shade tree
<i>Acacia mearnsii</i> De Wild.	Fabaceae	Wood	Timber, fuel, shade tree
<i>Acacia melanoxylon</i> R.Br.	Fabaceae	Wood	Timber, fuel, shade tree
<i>Albizia lebbek</i> (L.) Benth.	Fabaceae	Whole plant	Used as multipurpose aliments.
<i>Bauhinia purpurea</i> L.	Fabaceae	Tree	Ornamental in parks and avenues
<i>Bauhinia variegata</i> L.	Fabaceae	Tree	Ornamental in parks and avenues
<i>Butea monosperma</i> (Lam.) Kuntze	Fabaceae	Tree	Urban forestry, ornamental
<i>Cassia fistula</i> L.	Fabaceae	Whole plant	Ornamental, folk medicine, sacred grove
<i>Cassia javanica</i> L.	Fabaceae	Tree	Ornamental shade tree
<i>Dalbergia latifolia</i> Roxb.	Fabaceae	Wood	Timber, agroforestry
<i>Erythrina variegata</i> L.	Fabaceae	Tree	Ornamental in roadside and parks
<i>Gliricidia sepium</i> (Jacq.) Kunth	Fabaceae	Tree	Ornamental shade trees, roadside, avenues
<i>Pithecellobium dulce</i> (Roxb.) Benth.	Fabaceae	Fruit	Food, folk medicine, pods used as fodder
<i>Pongamia pinnata</i> (L.) Pierre	Fabaceae	Whole plant	Timber, fuel, oil-yielding, and shade tree
<i>Pterocarpus marsupium</i> Roxb.	Fabaceae	Whole plant	Scared grove, urban forestry, folk medicine
<i>Senna siamea</i> (Lam.) H.S.Irwin & Barneby	Fabaceae	Whole plant	Traditional medicine, ornamental and shade tree
<i>Sesbania grandiflora</i> (L.) Poir.	Fabaceae	Whole plant	Fodder, ornamental, traditional medicine
<i>Tamarindus indica</i> L.	Fabaceae	Whole plant	Timber, foliage, fuel, and fruit pulp are used in cooking
<i>Quercus macrocarpa</i> Michx.	Fagaceae	Tree, wood	Timber, fuel, urban forestry, ornamental
<i>Quercus serrata</i> Murray	Fagaceae	Tree, wood	Timber, fuel, urban forestry, ornamental
<i>Nothapodytes nimmoniana</i> (J.Graham) Mabb.	Icaciaceae	Leaf	Scared grove, traditional medicine
<i>Juglans regia</i> L.	Juglandaceae	Fruit, nut	Food, traditional medicine, health supplement
<i>Gmelina arborea</i> Roxb. ex Sm.	Lamiaceae	Tree, wood	Agroforestry, timber, ornamental and urban plantation
<i>Tectona grandis</i> L.f.	Lamiaceae	Tree, wood	Agroforestry, timber, ornamental and urban plantation
<i>Cinnamomum camphora</i> (L.) J.Presl	Lauraceae	Leaf, wood	Food spice, traditional medicine, and used as camphor
<i>Cinnamomum verum</i> J.Presl	Lauraceae	Leaf	Food spice, traditional medicine
<i>Cinnamomum wightii</i> Meisn.	Lauraceae	Leaf	Food spice, traditional medicine
<i>Laurus nobilis</i> L.	Lauraceae	Tree	Ornamental in botanical gardens
<i>Persea americana</i> Mill.	Lauraceae	Fruit, tree	Food, agroforestry, ornamental and avenue tree
<i>Lagerstroemia speciosa</i> (L.) Pers.	Lythraceae	Tree	Ornamental shade tree
<i>Punica granatum</i> L.	Lythraceae	Whole plant	Food, ornamental, pomiculture, traditional medicine, sacred grove
<i>Magnolia champaca</i> (L.) Baill. ex Pierre	Magnoliaceae	Tree, Flower	Ornamental, foliage and sacred groove
<i>Magnolia doltsopa</i> (Buch.-Ham. ex DC.) Figlar	Magnoliaceae	Tree	Ornamental in parks and avenues
<i>Magnolia grandiflora</i> L.	Magnoliaceae	Tree	Ornamental in parks and avenues
<i>Magnolia liliiflora</i> Desr.	Magnoliaceae	Tree	Ornamental in parks and avenues
<i>Magnolia nilagirica</i> (Zenker) Figlar	Magnoliaceae	Tree	Scared groove, folk medicine
<i>Bombax ceiba</i> L.	Malvaceae	Fruit pod	Silk cotton, fiber
<i>Ceiba pentandra</i> (L.) Gaertn.	Malvaceae	Fruit pod, tree	Silk cotton, fiber
<i>Durio zibethinus</i> L.	Malvaceae	Fruit	Food, folk medicine
<i>Theobroma cacao</i> L.	Malvaceae	Whole plant	Timber, agroforestry, food, medicine, ornamental
<i>Thespesia populnea</i> (L.) Sol. ex Corrêa	Malvaceae	Whole plant	Scared grove, agroforestry, traditional medicine
<i>Azadirachta indica</i> A.Juss.	Meliaceae	Whole plant	Scared grove, agro and urban forestry, traditional medicine
<i>Melia azedarach</i> L.	Meliaceae	Whole plant	Scared grove, urban forestry, traditional medicine
<i>Melia dubia</i> Cav.	Meliaceae	Whole plant	Agroforestry, pulping, plywood manufacturing, traditional medicine
<i>Swietenia mahagoni</i> (L.) Jacq.	Meliaceae	Tree	Agroforestry, wood, avenue tree
<i>Toona ciliata</i> M.Roem.	Meliaceae	Tree	Agroforestry, medicine, dyeing, ornamental
<i>Trichilia connaroides</i> (Wight & Arn.) Benth.	Meliaceae	Tree	Ornamental shade tree in urban forestry
<i>Artocarpus altilis</i> (Parkinson) Fosberg	Moraceae	Fruit, tree	Food, ornamental shade tree
<i>Artocarpus heterophyllus</i> Lam.	Moraceae	Whole plant	Food, timber, agroforestry, ornamental, medicine
<i>Artocarpus hirsutus</i> Lam.	Moraceae	Fruit	Food, timber, agroforestry, ornamental, medicine

Botanical name	Family	Part used	Economic value
<i>Ficus benghalensis</i> L.	Moraceae	Whole plant	Scared grove, traditional medicine, ornamental shade tree
<i>Ficus elastica</i> Roxb. ex Hornem.	Moraceae	Tree	Ornamental shade trees in roadside and parks
<i>Ficus populifolia</i> Vahl	Moraceae	Whole plant	Ornamental shade trees in parks and avenue, medicine
<i>Ficus racemosa</i> L.	Moraceae	Whole plant	Food, scared grove, folk medicine, ornamental shade tree
<i>Moringa oleifera</i> Lam.	Moringaceae	Whole plant	Food, fodder, agroforestry, ornamental, traditional medicine
<i>Muntingia calabura</i> L.	Muntingiaceae	Fruit, leaf	Food, traditional medicine
<i>Musa</i> × <i>paradisica</i> L.	Musaceae	Whole plant	Food, agroforestry, ornamental, folk medicine, eco-products
<i>Myristica fragrans</i> Houtt.	Myristicaceae	Whole plant	Food, agroforestry, ornamental, folk medicine, eco-products
<i>Corymbia citriodora</i> (Hook.) K.D.Hill & L.A.S.Johnson	Myrtaceae	Tree	Ornamental shade tree
<i>Corymbia ficifolia</i> (F.Muell.) K.D.Hill & L.A.S.Johnson	Myrtaceae	Tree	Ornamental shade tree
<i>Eucalyptus globulus</i> Labill.	Myrtaceae	Whole plant	Essential oil, timber, agroforestry, pulping, medicine
<i>Eucalyptus grandis</i> W.Hill ex Maiden	Myrtaceae	Whole plant	Essential oil, timber, fuelwood, pulping, ornamental
<i>Melaleuca citrina</i> (Curtis) Dum.Cours.	Myrtaceae	Tree	Ornamental shade tree in road side and parks
<i>Melaleuca styphelioides</i> Sm.	Myrtaceae	Tree	Ornamental shade tree in road side and parks
<i>Psidium guajava</i> L.	Myrtaceae	Whole plant	Food, traditional medicine, agroforestry, pomiculture, ornamental
<i>Syncarpia glomulifera</i> subsp. <i>glomulifera</i>	Myrtaceae	Tree	Ornamental shade tree in roadside and parks
<i>Syzygium aromaticum</i> (L.) Merr. & L.M.Perry	Myrtaceae	Whole plant	Food, spice, traditional medicine, ornamental, agroforestry
<i>Syzygium cumini</i> (L.) Skeels	Myrtaceae	Whole plant	Food, timber, traditional medicine, ornamental, agroforestry
<i>Syzygium jambos</i> (L.) Alston	Myrtaceae	Whole plant	Food, timber, ornamental, pomiculture
<i>Syzygium malaccense</i> (L.) Merr. & L.M.Perry	Myrtaceae	Fruit	Fruit edible, pomiculture
<i>Syzygium samarangense</i> (Blume) Merr. & L.M.Perry	Myrtaceae	Tree, fruit	Food, ornamental shade tree
<i>Nyctanthes arbor-tristis</i> L.	Oleaceae	Flower, leaf	Ornamental, folk medicine
<i>Averrhoa bilimbi</i> L.	Oxalidaceae	Fruit	Fruits edible,
<i>Averrhoa carambola</i> L.	Oxalidaceae	Fruit	Fruits edible, traditional medicine, ornamental, pomiculture
<i>Paulownia fortune</i> (Seem.) Hemsl.	Paulowniaceae	Tree	Ornamental in parks and avenues
<i>Phyllanthus acidus</i> (L.) Skeels	Phyllanthaceae	Fruit	Food, traditional medicine, agroforestry
<i>Phyllanthus emblica</i> L.	Phyllanthaceae	Fruit, leaf	Food, traditional medicine, agroforestry
<i>Cedrus deodara</i> (Roxb. ex D.Don) G.Don	Pinaceae	Tree	Ornamental shade tree in roadside and parks
<i>Pinus patula</i> Schiede ex Schltdl. & Cham.	Pinaceae	Tree	Ornamental shade tree in roadside and parks
<i>Pinus roxburghii</i> Sarg.	Pinaceae	Tree, wood	Timber, fuel, urban forestry, ornamental in botanic garden
<i>Widdringtonia whytei</i> Rendle	Pinaceae	Tree, wood	Timber, fuel, urban forestry, ornamental in botanic garden
<i>Hymenosporum flavum</i> (Hook.) F. Muell.	Pittosporaceae	Tree	Ornamental shade tree in roadside and parks
<i>Platanus orientalis</i> L.	Plantanaceae	Tree	Ornamental shade tree in roadside and parks
<i>Podocarpus macrophyllus</i> (Thunb.) Sweet	Podocarpaceae	Tree	Ornamental shade tree in roadside and parks
<i>Grevillea robusta</i> A.Cunn. ex R.Br.	Proteaceae	Tree, wood	Timber, fuel, shade tree in tea estates
<i>Quillaja saponaria</i> Molina	Quillajaceae	Tree, seed	Ornamental in park and avenue, fuel, soaping agent
<i>Pomaderris apetala</i> Labill.	Rhamnaceae	Tree	Ornamental shade tree in roadside and parks
<i>Ziziphus mauritiana</i> Lam.	Rhamnaceae	Fruit, wood	Food, used in confectionary products
<i>Malus domestica</i> (Suckow) Borkh.	Rosaceae	Fruit	Fruit edible, Ornamental and Pomiculture.
<i>Prunus cerasoides</i> Buch.-Ham. ex D.Don	Rosaceae	Tree	Ornamental shade tree in roadside and parks

Botanical name	Family	Part used	Economic value
<i>Prunus domestica</i> L.	Rosaceae	Fruit, tree	Food, agroforestry, avenue tree
<i>Prunus persica</i> (L.) Batsch	Rosaceae	Fruit, tree	Food, agroforestry, avenue tree
<i>Pyrus communis</i> L.	Rosaceae	Fruit, leaf, tree	Food, agroforestry, ornamental shade tree
<i>Rhaphiolepis bibas</i> (Lour.) Galasso & Banfi	Rosaceae	Fruit	Food, ornamental, pomiculture
<i>Rhaphiolepis elliptica</i> (Lindl.) B.B.Liu & J.Wen	Rosaceae	Tree	Ornamental shade tree, parks and avenue
<i>Cinchona calisaya</i> Wedd.	Rubiaceae	Whole plant	Used in traditional medical and pharmaceutical
<i>Cinchona officinalis</i> L.	Rubiaceae	Whole plant	Used in traditional medical and pharmaceutical
<i>Morinda citrifolia</i> L.	Rubiaceae	Whole plant	Folk and allopathic medicine
<i>Neolamarckia cadamba</i> (Roxb.) Bosser	Rubiaceae	Wood	Agroforestry, timber, fuel, pulping
<i>Aegle marmelos</i> (L.) Corrêa	Rutaceae	Whole plant	Fruits edible, traditional medicine
<i>Bergera koenigii</i> L.	Rutaceae	Whole plant	Food, traditional medicine, cosmetics, ornamental, agriculture
<i>Citrus maxima</i> (Burm.) Merr.	Rutaceae	Whole plant	Food, traditional medicine, agroforestry, garden plant
<i>Citrus medica</i> L.	Rutaceae	Whole plant	Food, traditional medicine, agroforestry, garden plant
<i>Murraya paniculata</i> (L.) Jack	Rutaceae	Flower, leaf	Ornamental in parks and avenues
<i>Meliosma pinnata</i> (Roxb.) Maxim	Sabiaceae	Tree	Scared grove, urban forestry
<i>Meliosma simplicifolia</i> (Roxb.) Walp.	Sabiaceae	Tree	Scared grove, urban forestry
<i>Salix babylonica</i> L.	Salicaceae	Tree, foliage	Ornamental shade tree, foliage used as fibre,
<i>Salix tetrasperma</i> Roxb.	Salicaceae	Tree, foliage	Ornamental shade tree, foliage used as fibre,
<i>Acer oblongum</i> Wall. ex DC.	Sapindaceae	Tree	Ornamental shade tree in parks and avenues
<i>Litchi chinensis</i> Sonn.	Sapindaceae	Fruit	Food, used in confectionery products
<i>Nephelium lappaceum</i> L.	Sapindaceae	Fruit, tree	Food, agroforestry, ornamental
<i>Schleichera oleosa</i> (Lour.) Oken	Sapindaceae	Fruit, seed, leaf	Fodder, soaping agent, folk medicine, ornamental
<i>Madhuca longifolia</i> (L.) J.F.Macbr.	Sapotaceae	Whole plant	Scared grove, urban forestry, traditional medicine
<i>Manilkara zapota</i> (L.) P.Royen	Sapotaceae	Fruit, tree	Food, ornamental, agroforestry, pomiculture
<i>Mimusops elengi</i> L.	Sapotaceae	Whole plant	Traditional medicine, ornamental and shade tree
<i>Illicium verum</i> Hook.f.	Schisandraceae	Fruit	Spice, traditional medicine
<i>Ailanthus excelsa</i> Roxb.	Simaroubaceae	Tree	Pulping, fuel, and foliage
<i>Solanum betaceum</i> Cav.	Solanaceae	Tree, Fruit, leaf	Fruit edible, shade tree, ornamental, pomiculture
<i>Pterospermum acerifolium</i> (L.) Willd.	Sterculiaceae	Tree	Ornamental shade tree in parks and avenues, medicine
<i>Camellia japonica</i> L.	Theaceae	Tree	Ornamental in parks, avenues and home gardens
<i>Celtis tetrandra</i> Roxb.	Ulmaceae	Tree	Scared grove, urban forestry
<i>Vaccinium symplocifolium</i> (D.Don ex G.Don) Alston	Vacciniaceae	Fruit, Tree	Fruit edible, scared grove