



Angiosperm diversity of the Theosophical Society campus, Chennai, Tamil Nadu, India

Sheeba Jabez Irwin^{1*}, Sharmila Thomas², Pauline Rathinaraj³ and Narasimhan Duvuru¹

1 Madras Christian College, Department of Botany, Centre for Floristic Research, Tambaram, zip code 600 059, Chennai, Tamil Nadu, India

2 VR Bioremediation Services, zip code 600 048, Chennai, Tamil Nadu, India

3 Women's Christian College, Department of Botany, zip code 600 006, Chennai, Tamil Nadu, India

* Corresponding author. E-mail: sheebajirwin@gmail.com

Abstract: This paper deals with the list of flowering plants from the Theosophical Society campus (TS), Chennai. The Theosophical Society campus is the second largest green patch in the city of Chennai, next to Guindy National Park. A total of 449 taxa have been recorded comprising 161 trees, 84 shrubs, 179 herbs and 25 climbers that are distributed in 353 genera, represented in 85 families, 11 super orders and 35 orders as per the APG III classification. Superorder Fabids and Lamids account for about 49% of the taxa. Paleotropical elements (66%) dominate the TS campus followed by Neotropical elements (31%). The present study reveals that TS campus has a rich and diverse exotic flora. The garden department of this protected campus takes care of conserving the floral diversity. Hence, Theosophical Society campus can be considered as a major biodiversity heritage site and an indispensable lung space for the city of Chennai.

Key words: Flowering Plants, Exotic flora, Theosophical Society, Chennai, Banyan tree

INTRODUCTION

The interaction between plants and people is as old as history of human origin and civilization. Traditional societies throughout India have valued plant species and preserved them. Though preserving plants and forests in their wild state has been in existence from ancient times, cultivating and propagating plants of economic importance including ornamentals started much later when settled agriculture came into vogue. Human beings play a major role in the introduction and spread of non-native species through activities such as agriculture and horticulture, increasing the species richness of plants in urban habitats (Reichard and White 2001). Cities are among the most important ecosystems transformed by anthropogenic activities (Antipina

2003). Altered vegetation is an important component of transformed urban ecosystems. Urban societies have influenced the growth of gardens for social, cultural and emotional needs. Many temperate and tropical plants were introduced into India during colonial regime which brought changes in the composition of the exotic flora of India, especially of the urban areas. However, exclusive taxonomic studies on the exotic flora are limited.

The city of Chennai which had its origin about 373 years ago as a group of fishing hamlets, has now developed into one of the major metropolitan cities of India (Muthiah 2008). Many areas of the present Chennai had earlier supported lush vegetation either in the form of thoppu (plantation) or in the form of natural forests. However, the major green space in Chennai is now restricted to two areas namely Guindy National Park, and its adjoining areas, and the Theosophical Society, Adyar.

This study is an attempt to record the flora of the Theosophical Society campus (TS) which has been the centre for its International activities for over 100 years. The TS campus retains natural vegetation along the banks of the Adyar River and coast and has a high concentration of exotic species, including several rare ones.

MATERIALS AND METHODS

Study area

The study area is the international headquarters of the Theosophical Society (TS), (Figure 1) located in Adyar on the southeastern coast of Chennai and covering an area of about 1.1 km². The society was founded in 1882 by Madam Blavatsky and Colonel Olcott. The society attained great prominence during Dr. Annie Besant, who was the second president of this society. It has a rich diversity of trees and shrubs from different parts of the world. The campus is bounded on the north by Adyar River (Figure 2), on the south by Besant Nagar, on the

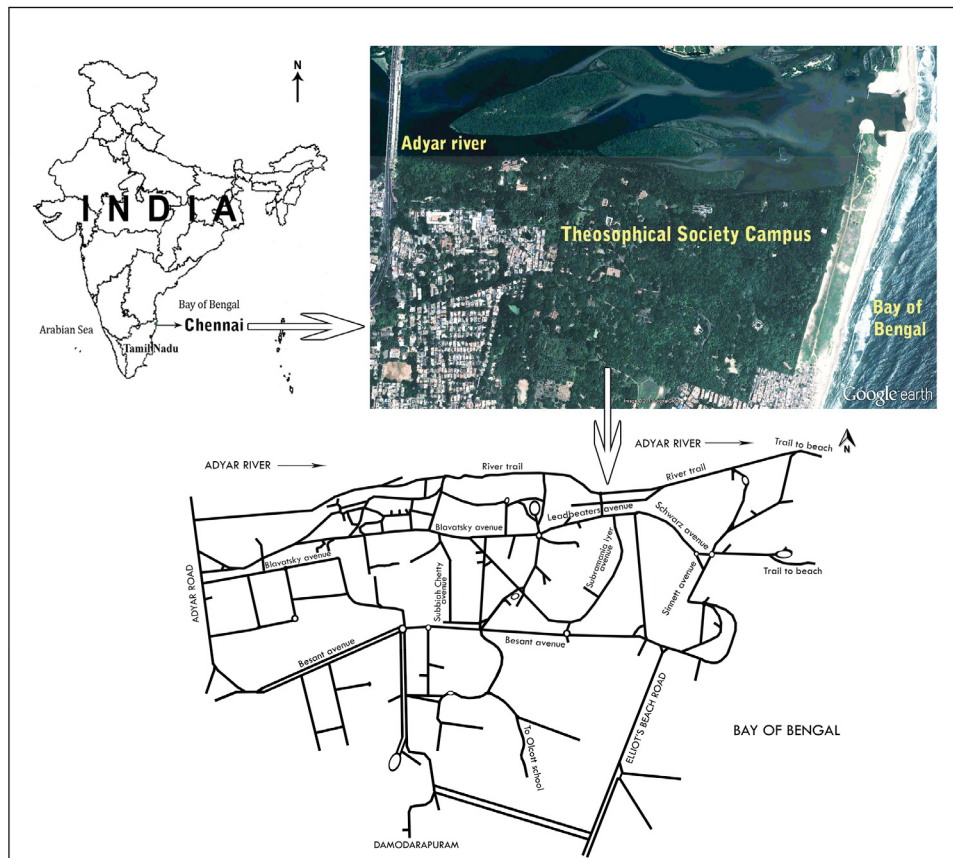


Figure 1. Map of Theosophical Society campus, Chennai.

west by Gandhi Nagar and on the east by Bay of Bengal. The soil is sandy along the seashore and less sandy to loamy towards inland and clayey towards the river bank. Typical coastal climate prevails and is very hot and dry from March to May. Temperature dips to its minimum from December to February and is regarded as the cold season in Chennai. The relative humidity ranges from 63–86%.

Data collection

This study was carried out in two phases. The first phase of the study was carried out from August 1994 to December 1996. Weekly field trips were made during this period. After a gap of about fifteen years, periodical visits were made from April 2010 to December 2011. During this period the plants earlier recorded were critically evaluated. Voucher specimens were collected after obtaining permission from the authorities of the TS and were duly tagged. Field observations were made and plants were photographed. Plant specimens were identified using relevant floras and pictorial guides (Brown 1862; Maturanathan 1929; Bailey 1949; Gamble and Fischer 1957; Backer and Brink 1965; Swarup 1967; Matthew 1969; 1999; Graf 1978; 1981; 1992; Dassanayake and Fosberg 1980–1991; Bose and Chowdhury 1991; Sanjappa 1992; Livingstone and Henry 1994). The collected materials were poisoned using standard herbarium techniques



Figure 2. Vegetation along the Adyar River bank.

(Jain and Rao 1977). Herbarium sheets were deposited in Foundation for Revitalisation of Local Health Tradition (FRLHT), Bengaluru.

Data analysis

The data was analyzed based on various parameters such as habit, nativity, rare and noteworthy trees including exotics. The phytochorionomic categories of the species were analyzed based on Takhtajan (1986). The plant species are enumerated and arranged as per Angiosperm Phylogeny Group III Classification (APG III 2009; Stevens 2012). The nomenclature of the species

was checked using GRIN (2012), ILDIS (2012), IPNI (2012), TROPICOS (2012) and WCSP (2012).

RESULTS AND DISCUSSION

The first exclusive study on the flora of the TS campus was carried out by Rao (1957) who reported about 223 taxa consisting of 119 trees, 12 shrubs, 79 herbs and 13 climbers. After a gap of about 37 years the polypetalous and gamopetalous flora were studied by Irwin (1996, unpublished data) and monochlamydeous and monocots were studied by Thomas (1997, unpublished data) and reported a total of 421 taxa consisting of 141 trees, 79 shrubs, 173 herbs and 28 climbers. Members/visitors from many parts of the world have introduced several plants into the campus.

The present study documents a total of 449 taxa (Table 1) distributed in 353 genera, representing 85 families as per APG III classification. These taxa are distributed in 11 superorders (Figure 3) and 35 orders. 26% of the taxa are reported from the superorder Fabids, 24% from superorder Lamids, 22% from superorder Malvids and 16% from superorder commelinids. Order Fabales (61), Lamiales (55), Sapindales (51) and Poales (48) account for about 48% of the species in the TS (Figure 4). Of the 449 taxa 161 are trees, 84 shrubs, 179 herbs and 25 climbers (Figure 5). Family Fabaceae and Poaceae are represented by about 23% of the taxa. The other dominant families are given in Table 2. Thirty-five families are represented

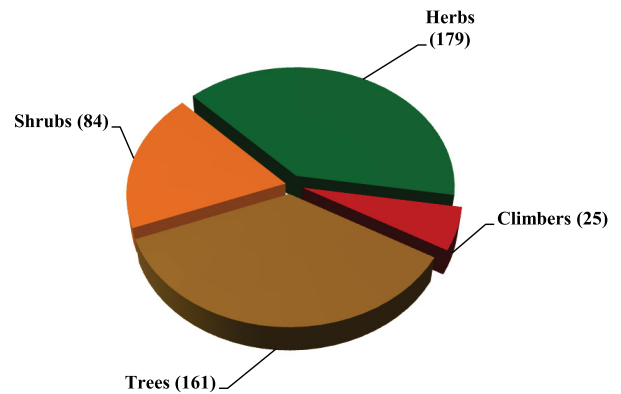


Figure 5. Life form composition in the TS campus.

by single species each. The genus *Euphorbia* tops the list with seven species, *Phyllanthus* with six species, followed by *Cassia* and *Ficus* each with five species and *Bauhinia*, *Hibiscus*, *Indigofera*, and *Senna* four species each.

The native flora of the TS campus consists of three different elements, namely mangroves, psammophytes, and tropical dry evergreen. *Avicennia marina* and *Excoecaria agallocha* are restricted to the tidal zone along the Adyar estuary. These are the only two mangrove species seen in the TS campus. This is the only locality for the entire city of Madras where these species naturally occur in abundance. On the eastern side of the campus as well as the interior portions of the northern side have sandy soil. *Bulbostylis barbata*, *Cyperus arenarius*, *Oldenlandia stricta*, *Ipomoea pes-caprae* and *Pupalia lappacea* are the most common and predominant psammophytes in this region. *Pamburus missionis* is the only tropical dry evergreen element occurring in the campus. The ground flora is dominated by grasses such as *Alloteropsis cimicina*, *Apluda mutica*, *Urochloa reptans*, *Pennisetum ciliare*, *Chloris barbata*, *Cynodon dactylon*, *Dactyloctenium aegyptium*, *Digitaria ciliaris*, *Echinochloa colona*, *Heteropogon contortus*, *Panicum repens*, *Setaria barbata*, and *Trachys muricata*. The rest of the areas have cultivated plants and coconut groves (Figure 6).

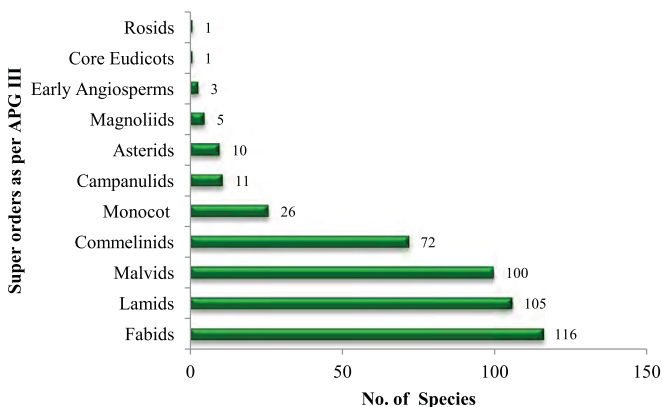


Figure 3. Distribution of species in superorder as per APG III.

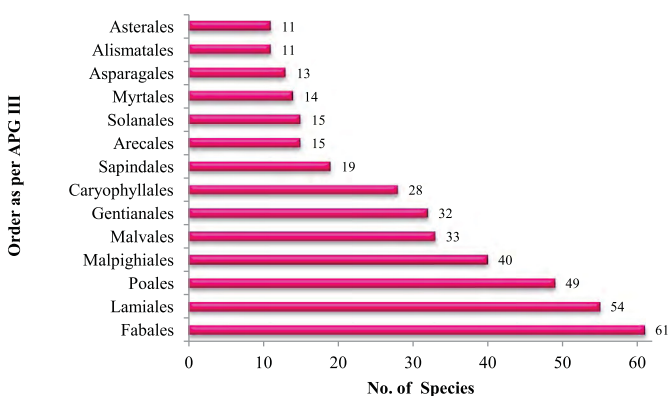


Figure 4. Orders with more than 10 species.

Table 2. Families of angiosperms with more than ten species in the Theosophical Society Campus, Chennai, Tamil Nadu, India.

Families	No. of species
Fabaceae	62
Poaceae	40
Malvaceae	33
Euphorbiaceae	20
Apocynaceae	18
Arecaceae	16
Rubiaceae	14
Acanthaceae	14
Bignoniaceae	12
Lamiaceae	11
Araceae	10
Amaranthaceae	10

Table 1. List of angiosperm taxa recorded from the Theosophical Society Campus, Chennai, arranged according to the Angiosperm Phylogeny Group Classification III.

Superorder/ Order	Family/Species	Habit	Voucher No.	Superorder/ Order	Family/Species	Habit	Voucher No.
EARLY ANGIOSPERMS							
Nymphaeales	Nymphaeaceae				<i>Cocos nucifera</i> L.	T	5424
	<i>Nymphaea alba</i> L.	H	2112		<i>Corypha macropoda</i> Linden ex Kurz.	T	5561
	<i>Nymphaea nouchali</i> Burm. f.	H	2113		<i>Dypsis lutescens</i> (H. Wendl.) Beentje & J. Dransf.	T	5467
	<i>Nymphaea pubescens</i> Willd.	H	2266		<i>Licuala grandis</i> H. Wendl. ex Linden	T	5477
MAGNOLIIDS					<i>Livistona chinensis</i> (Jacq.) R.N. Br. ex Mart.	T	5432
Piperales	Piperaceae				<i>Nypa fruticans</i> Wurmb	T	5493
	<i>Peperomia pellucida</i> (L.) Kunth	H	5515		<i>Pritchardia pacifica</i> Seem. & H. Wendl.	T	5478
Magnoliales	Annonaceae				<i>Rhapis excelsa</i> (Thunb.) A. Henry ex Rehder	S	5495
	<i>Annona squamosa</i> L.	T	2188		<i>Roystonea regia</i> (Kunth) O. F. Cook	T	5431
	<i>Artabotrys hexapetalus</i> (L. f.) Bhandari	C	9381	Commelinales	Commelinaceae		
	<i>Goniothalamus salicinus</i> Hook. f. & Thoms.	T	2252		<i>Cyanotis axillaris</i> (L.) D. Don	H	5463
	<i>Polyalthia longifolia</i> (Sonn.) Thwaites	T	2211		<i>Tradescantia spathacea</i> Sw.	H	5449
MONOCOTS					<i>Tradescantia zebrina</i> Bosse	H	5483
Alismatales	Araceae			Poales	Bromeliaceae		
	<i>Caladium bicolor</i> (Aiton) Vent.	H	5537		<i>Billbergia pyramidalis</i> (Sims) Lindl.	H	5558
	<i>Epipremnum aureum</i> (Linden & André) G. S. Bunting	C	5530		Poaceae		
	<i>Epipremnum pinnatum</i> (L.) Engl.	C	5486		<i>Alloteropsis cimicina</i> (L.) Stapf	H	5409
	<i>Aglaonema commutatum</i> Schott	H	5419		<i>Apluda mutica</i> L.	H	5408
	<i>Anthurium andraeanum</i> Linden ex Andre	H	5531		<i>Aristida setacea</i> Retz.	H	5402
	<i>Anthurium crassinervium</i> (Jacq.) Schott	H	5443		<i>Bambusa bambos</i> (L.) Voss	H	5535
	<i>Anthurium magnificum</i> Linden	H	5485		<i>Bothriochloa pertusa</i> (L.) A. Camus	H	5534
	<i>Dieffenbachia seguine</i> (Jacq.) Schott	H	5444		<i>Urochloa reptans</i> (L.) Stapf	H	5536
	<i>Syngonium podophyllum</i> Schott	H	5488		<i>Pennisetum ciliare</i> (L.) Link	H	5453
	<i>Theriophonum minutum</i> (Willd.) Baillon	H	5432		<i>Chloris barbata</i> Sw.	H	5455
	Hydrocharitaceae				<i>Cynodon dactylon</i> (L.) Pers.	H	5527
	<i>Hydrilla verticillata</i> (L. f.) Royle	H	5450		<i>Cyrtococcum trigonum</i> (Retz.) A. Camus	H	5464
Pandanales	Pandanaceae				<i>Dactyloctenium aegyptium</i> (L.) Willd.	H	5528
	<i>Pandanus leram</i> Jones ex Fontana	T	5407		<i>Dendrocalamus strictus</i> (Roxb.) Nees	H	5480
Liliales	Colchicaceae				<i>Desmostachya bipinnata</i> (L.) Stapf	H	5422
	<i>Gloriosa superba</i> L.	H	5549		<i>Digitaria ciliaris</i> (Retz.) Koeler	H	5453
Asparagales	Amaryllidaceae				<i>Echinochloa colona</i> (L.) Link	H	5519
	<i>Crinum asiaticum</i> L.	H	5442		<i>Echinochloa crus-galli</i> (L.) P. Beauv.	H	5481
	<i>Eucharis grandiflora</i> Planch. & Linden	H	5525		<i>Enteropogon dolichostachyus</i> (Lag.) Keng ex Lazarides	H	5452
	<i>Hippeastrum puniceum</i> (Lam.) Kuntze	H	5470		<i>Eragrostis viscosa</i> (Retz.) Trin.	H	5538
	<i>Zephyranthes rosea</i> Lindl.	H	5451		<i>Eragrostis tenella</i> (L.) P. Beauv. ex Roem. & Schult. var. <i>tenella</i>	H	5545
	Asparagaceae				<i>Eragrostis tenella</i> var. <i>insularis</i> Umamaheswri & P. Daniel	H	5551
	<i>Asparagus aethiopicus</i> L.	H	5475		<i>Eriochloa procerata</i> (Retz.) C.E. Hubb.	H	5539
	<i>Asparagus racemosus</i> Willd.	C	5461		<i>Heteropogon contortus</i> (L.) P. Beauv. ex Roem. & Schult.	H	5541
	<i>Chlorophytum capense</i> (L.) Voss	H	5553		<i>Imperata cylindrica</i> (L.) P. Beauv.	H	5497
	<i>Ledebouria revoluta</i> (L.f.) Jessop	H	5455		<i>Dinebra chinensis</i> (L.) P. M. Peterson & N. Snow	H	5498
	<i>Sansevieria cylindrica</i> Bojer ex Hook.	H	5548		<i>Manisuris myurus</i> L.	H	5543
	<i>Sansevieria roxburghiana</i> Schult. & Schult. f.	H	5547		<i>Megathyrsus maximus</i> (Jacq.) B. K. Simon & S. W. L. Jacobs	H	5523
	<i>Yucca aloifolia</i> L.	S	5471		<i>Oplismenus compositus</i> (L.) P. Beauv.	H	5464
	Orchidaceae				<i>Panicum repens</i> L.	H	5410
	<i>Vanda tessellata</i> (Roxb.) G. Don	H	5555		<i>Paspalidium flavidum</i> (Retz.) A. Camus	H	5540
	Xanthorrhoeaceae				<i>Paspalum scrobiculatum</i> L.	H	5552
	<i>Aloe vera</i> (L.) Burm. f.	H	5529		<i>Paspalum vaginatum</i> Sw.	H	5542
COMMELINIDS					<i>Perotis indica</i> (L.) Kuntze	H	5550
Arecales	Areceaceae				<i>Rottboellia cochinchinensis</i> (Lour.) Clayton	H	5430
	<i>Areca catechu</i> L.	T	5560		<i>Setaria barbata</i> (Lam.) Kunth	H	5454
	<i>Bismarckia nobilis</i> Hildebr. & H. Wendl.	T	2874		<i>Setaria verticillata</i> (L.) P. Beauv.	H	5518
	<i>Borassus flabellifer</i> L.	T	5559				
	<i>Carpentaria acuminata</i> Becc.	T	2300				
	<i>Caryota urens</i> L.	T	5524				

Continued

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Superorder/ Order	Family/Species	Habit	Voucher No.	Superorder/ Order	Family/Species	Habit	Voucher No.
	<i>Sporobolus indicus</i> (L.) R. Br.	H	5466		Passifloraceae		
	<i>Stenotaphrum dimidiatum</i> (L.) Brongn.	H	5520		<i>Turnera ulmifolia</i> L.	H	2142
	<i>Thysanolaena latifolia</i> (Roxb. ex Hornem.) Honda	H	5413		<i>Passiflora foetida</i> L.	C	2118
	<i>Trachys muricata</i> (L.) Pers.	H	5401		Calophyllaceae		
	<i>Tragus mongolorum</i> Ohwi	H	5456		<i>Calophyllum inophyllum</i> L.	T	2019
	<i>Zoysia matrella</i> (L.) Merr.	H	5436		Phyllanthaceae		
	Cyperaceae				<i>Breynia vitis-idaea</i> (Burm. f.) C. E. C. Fisch.	S	5440
	<i>Bulbostylis barbata</i> (Rottb.) C. B. Clarke	H	5448		<i>Flueggea leucopyrus</i> Willd.	S	5457
	<i>Cyperus arenarius</i> Retz.	H	5411		<i>Phyllanthus acidus</i> (L.) Skeels	T	9396
	<i>Cyperus distans</i> L. f.	H	5521		<i>Phyllanthus amarus</i> Schumach.	H	5403
	<i>Cyperus manimae</i> Kunth	H	5489		<i>Phyllanthus emblica</i> L.	T	9395
	<i>Cyperus rotundus</i> L.	H	5546		<i>Phyllanthus maderaspatensis</i> L.	H	5429
	<i>Fimbristylis ovata</i> (Burm. f.) Kern	H	5532		<i>Phyllanthus reticulatus</i> Poir.	S	5406
	<i>Rhynchospora colorata</i> (L.) H. Pfeiff.	H	5522		<i>Phyllanthus virgatus</i> G.Forst. var. <i>gardnerianus</i> (Wight) Govaerts & Radcl.- Sm.	S	5421
Zingiberales	Heliconiaceae				Putranjivaceae		
	<i>Heliconia psittacorum</i> L.f.	H	5556		<i>Putranjiva roxburghii</i> Wall.	T	5492
	Marantaceae				Salicaceae		
	<i>Calathea virginalis</i> Linden	H	5526		<i>Oncoba spinosa</i> Forssk.	T	2041
	Strelitziaceae				Malpighiaceae		
	<i>Ravenala madagascariensis</i> Sonn.	T	5438		<i>Hiptage benghalensis</i> (L.) Kurz	C	2100
	<i>Strelitzia reginae</i> Aiton	H	5557		<i>Malpighia glabra</i> L.	S	2162
	Musaceae				<i>Tristellateia australasiae</i> A. Rich.	C	2064
	<i>Musa × paradisiaca</i> L.	H	5426		Violaceae		
					<i>Hybanthus enneaspermus</i> (L.) F. Muell.	H	2011
CORE EUDICOTS				Oxalidales	Oxalidaceae		
Dilleniales	Dilleniaceae				<i>Averrhoa bilimbi</i> L.	T	2012
	<i>Dillenia indica</i> L.	T	2089		<i>Averrhoa carambola</i> L.	T	2267
ROSIDS				Fabales	Fabaceae		
Vitales	Vitaceae				<i>Abrus precatorius</i> L.	C	2157
	<i>Cissus vitiginea</i> L.	S	2224		<i>Acacia auriculiformis</i> A. Cunn ex Benth.	T	2050
FABIDS					<i>Adenantha pavonina</i> L.	T	2040
Zygophyllales	Zygophyllaceae				<i>Albizia lebeck</i> (L.) Willd.	T	2074
	<i>Guaiacum officinale</i> L.	T	2161		<i>Albizia odoratissima</i> (L. f.) Benth.	T	2882
	<i>Tribulus terrestris</i> L.	H	2254		<i>Alysicarpus ovalifolius</i> (Schumach) J. Léonard	H	2075
Celastrales	Celastraceae				<i>Alysicarpus vaginalis</i> (L.) DC.	H	2256
	<i>Cassine glauca</i> Kuntze	T	2227		<i>Bauhinia acuminata</i> L.	S	2228
Malpighiales	Euphorbiaceae				<i>Bauhinia × blakeana</i> Dunn	T	2883
	<i>Acalypha hispida</i> Burm.f.	S	5439		<i>Bauhinia purpurea</i> L.	T	2013
	<i>Acalypha indica</i> L.	H	5482		<i>Bauhinia tomentosa</i> L.	S	2078
	<i>Acalypha wilkesiana</i> Müll. Arg.	S	5491		<i>Brownea grandiceps</i> Jacq.	T	2001
	<i>Codiaeum variegatum</i> (L.) A. Juss.	S	5505		<i>Brownea macrophylla</i> Hort. ex Mast.	T	2147
	<i>Croton bonplandianus</i> Baill.	H	5506		<i>Butea monosperma</i> (Lam.) Taub.	T	2080
	<i>Euphorbia antiquorum</i> L.	T	2880		<i>Caesalpinia coriaria</i> (Jacq.) Willd.	T	2275
	<i>Euphorbia cyathophora</i> Murray	H	5514		<i>Caesalpinia pulcherrima</i> (L.) Sw.	S	2081
	<i>Euphorbia hirta</i> L.	H	5412		<i>Calliandra haematocephala</i> Hassk.	S	2169
	<i>Euphorbia milii</i> Des Moul.	S	5472		<i>Cassia fistula</i> L.	T	2190
	<i>Euphorbia pulcherrima</i> Willd. ex Klotzsch	S	5473		<i>Cassia javanica</i> L.	T	2189
	<i>Euphorbia tirucalli</i> L.	T	5500		<i>Cassia javanica</i> L. subsp. <i>nodosa</i> (Buch.- Ham ex Roxb.) K. Larsen & S.S. Larsen	T	2884
	<i>Euphorbia tithymaloides</i> L.	S	5427		<i>Cassia renigera</i> Wall. ex Benth.	T	2192
	<i>Excoecaria agallocha</i> L.	T	5417		<i>Cassia roxburghii</i> DC.	T	2009
	<i>Hura crepitans</i> L.	T	5416		<i>Chamaecrista pumila</i> (Lam.) V. Singh	S	2247
	<i>Jatropha gossypifolia</i> L.	S	5479		<i>Clitoria ternatea</i> L.	C	2033
	<i>Jatropha multifida</i> L.	H	5503		<i>Crotalaria laburnifolia</i> L.	S	2022
	<i>Jatropha podagrica</i> Hook.	H	5484		<i>Crotalaria verrucosa</i> L.	H	2065
	<i>Micrococca mercurialis</i> (L.) Benth.	H	5496		<i>Dalbergia lanceolaria</i> L.f.	T	9382
	<i>Microstachys chamaelea</i> (L.) Müll. Arg.	H	5404		<i>Delonix elata</i> (L.) Gamble	T	2088
	<i>Ricinus communis</i> L.	S	5517		<i>Delonix regia</i> (Boj. ex Hook) Rafin.	T	2087
	Ochnaceae						
	<i>Ochna jabotapita</i> L.	T	2044				

Continued

Table 1. Continued.

Superorder/ Order	Family/Species	Habit	Voucher No.	Superorder/ Order	Family/Species	Habit	Voucher No.
	<i>Derris scandens</i> (Roxb.) Benth.	C	2197		Melastomataceae		
	<i>Desmodium gangeticum</i> (L.) DC.	S	2002		<i>Memecylon umbellatum</i> Burm. f.	T	2105
	<i>Dichrostachys cinerea</i> (L.) Wight & Arn.	T	2885		Myrtaceae		
	<i>Eleiotis monophyllos</i> (Burm. f.) DC.	H	2216		<i>Callistemon citrinus</i> (Curtis) Stapf	T	2021
	<i>Enterolobium cyclocarpum</i> (Jacq.) Griseb.	T	2218		<i>Eucalyptus tereticornis</i> Sm.	T	2094
	<i>Erythrina variegata</i> L.	T	2092		<i>Eugenia uniflora</i> L.	T	2892
	<i>Gliricidia sepium</i> (Jacq.) Kunth ex Walp.	T	2096		<i>Pimenta dioica</i> (L.) Merr.	T	2893
	<i>Indigofera astragalina</i> DC.	H	2276		<i>Psidium guajava</i> L.	T	2238
	<i>Indigofera colutea</i> (Buem. F.) Merr.	S	2060		<i>Syzygium cumini</i> (L.) Skeels	T	2191
	<i>Indigofera glabra</i> L.	S	2274	Sapindales	Anacardiaceae		
	<i>Indigofera linnaei</i> Ali	H	2061		<i>Anacardium occidentale</i> L.	T	2173
	<i>Leucaena leucocephala</i> (Lam.) de Wit	T	2052		<i>Lannea coromandelica</i> (Houtt.) Merr.	T	2185
	<i>Macroptilium lathyroides</i> (L.) Urb.	H	2148		<i>Mangifera indica</i> L.	T	2107
	<i>Mimosa pudica</i> L.	H	2108		Meliaceae		
	<i>Peltophorum africanum</i> Sond.	T	2250		<i>Azadirachta indica</i> A. Juss.	T	2076
	<i>Peltophorum pterocarpum</i> (DC.) Baker ex Heyne	T	2119		<i>Melia azedarach</i> L.	T	2203
	<i>Philenoptera violacea</i> (Klotzsch) Schrire	T	2888		<i>Swietenia mahagoni</i> (L.) Jacq.	T	2132
	<i>Pithecellobium dulce</i> (Roxb.) Benth.	T	2120		Rutaceae		
	<i>Pongamia pinnata</i> (L.) Pierre	T	2124		<i>Aegle marmelos</i> (L.) Correa	T	2895
	<i>Prosopis juliflora</i> (Sw.) DC.	T	2272		<i>Citrofortunella microcarpa</i> (Bunge) Wijnands	T	2898
	<i>Pterocarpus indicus</i> Willd.	T	2889		<i>Atalantia monophylla</i> (L.) DC.	T	2896
	<i>Samanea saman</i> (Jacq.) Merr.	T	2091		<i>Citrus aurantifolia</i> (Christm.) Swingle	T	2239
	<i>Saraca asoca</i> (Roxb.) Wilde	T	2126		<i>Citrus medica</i> L.	T	2897
	<i>Saraca thaipingensis</i> Cantley ex King	T	2127		<i>Limonia acidissima</i> L.	T	2900
	<i>Senna alata</i> (L.) Roxb.	S	2886		<i>Murraya paniculata</i> (L.) Jack	T	2020
	<i>Senna pallida</i> (Vahl) H.S. Irwin & Barneby	S	2062		<i>Pamburus missionis</i> (Wall. ex Wight) Swingle	T	2117
	<i>Senna occidentalis</i> (L.) Link	S	2059		<i>Triphasia trifolia</i> (Burm. f.) P. Wilson	S	2249
	<i>Senna siamea</i> (Lam.) H.S. Irwin & Barneby	T	2008		Simaroubaceae		
	<i>Senna spectabilis</i> (DC.) H.S. Irwin & Barneby	T	2045		<i>Quassia amara</i> L.	S	2251
	<i>Sesbania grandiflora</i> (L.) Poir.	T	2887		Sapindaceae		
	<i>Tamarindus indica</i> L.	T	2039		<i>Filicium decipiens</i> (Wight & Arn.) Thwaites ex Hook. f.	T	2169
	<i>Tephrosia villosa</i> (L.) Pers.	H	2138		<i>Majidea zanguebarica</i> J. Kirk ex Oliv.	T	9394
Rosales	Moraceae				<i>Sapindus emarginatus</i> Vahl	T	2125
	<i>Artocarpus heterophyllus</i> Lam.	T	9383		Malvaceae		
	<i>Ficus benghalensis</i> L.	T	5487		<i>Abelmoschus esculentus</i> (L.) Moench	H	2237
	<i>Ficus elastica</i> Roxb. ex Hornem.	T	5459		<i>Abutilon indicum</i> (L.) Sweet	S	2073
	<i>Ficus microcarpa</i> L.f.	T	5508		<i>Adansonia digitata</i> L.	T	2171
	<i>Ficus racemosa</i> L.	T	5433		<i>Alcea rosea</i> L.	S	2265
	<i>Ficus religiosa</i> L.	T	5458		<i>Berrya cordifolia</i> (Willd.) Burret	T	2177
	Rhamnaceae				<i>Berrya javanica</i> (Turcz.) Burret	T	2229
	<i>Ziziphus mauritiana</i> Lam.	T	2217		<i>Bombax ceiba</i> L.	T	2079
Cucurbitales	Cucurbitaceae				<i>Ceiba pentandra</i> (L.) Gaertn.	T	2083
	<i>Coccinia grandis</i> (L.) Voigt	C	2071		<i>Corchorus aestuans</i> L.	H	2068
	<i>Lagenaria siceraria</i> (Molina) Standl.	C	2240		<i>Corchorus fascicularis</i> Lam.	H	2047
	<i>Trichosanthes cucumerina</i> L.	C	2221		<i>Dombeya elegans</i> Cordem.	S	2152
Fagales	Casuarinaceae				<i>Fioria vitifolia</i> (L.) Mattei	H	2057
	<i>Casuarina equisetifolia</i> L.	T	5509		<i>Gossypium arboreum</i> L.	T	9384
MALVIDS					<i>Guazuma ulmifolia</i> Lam.	T	2010
Myrtales	Combretaceae				<i>Herissantia crispa</i> (L.) Brizicky	H	2067
	<i>Combretum indicum</i> (L.) DeFilippis	C	2179		<i>Hibiscus lobatus</i> (Murray) Kuntze	H	2058
	<i>Terminalia catappa</i> L.	T	2042		<i>Hibiscus rosa-sinensis</i> L.	S	2099
	<i>Terminalia mantaly</i> H. Perrier	T	2890		<i>Hibiscus schizopetalus</i> (Dyer) Hook. f.	S	2098
	Lythraceae				<i>Hibiscus tiliaceus</i> L.	T	2187
	<i>Lagerstroemia indica</i> L.	S	2135		<i>Kleinhovia hospita</i> L.	T	2151
	<i>Lagerstroemia speciosa</i> (L.) Pers.	T	2136		<i>Melochia nodiflora</i> Sw.	H	9385
	<i>Lawsonia inermis</i> L.	S	2894		<i>Pavonia zeylanica</i> (L.) Cav.	S	2037
	<i>Punica granatum</i> L.	S	2245		<i>Pseudobombax ellipticum</i> (Kunth) Dugand	T	2168

Continued

Table 1. Continued.

Superorder/ Order	Family/Species	Habit	Voucher No.	Superorder/ Order	Family/Species	Habit	Voucher No.
	<i>Pterospermum xylocarpum</i> (Gaertn.) Santapau & Wagh	T	2186		<i>Opuntia ficus-indica</i> (L.) Mill.	H	9393
	<i>Sida acuta</i> Burm. f.	S	2129		Plumbaginaceae		
	<i>Sida cordata</i> (Burm. f.) Borss. Waalk.	H	2257		<i>Plumbago zeylanica</i> L.	H	2121
	<i>Sida rhombifolia</i> L.	S	2069		Tamaricaceae		
	<i>Sterculia apetala</i> (Jacq.) H. Karst.	T	9386		<i>Tamarix aphylla</i> (L.) Karsten	T	2195
	<i>Sterculia foetida</i> L.	T	2131	ASTERIDS			
	<i>Thespesia populnea</i> (L.) Sol. ex Correa	T	2139	Cornales	Cornaceae		
	<i>Triumfetta pentandra</i> A. Rich.	H	2210		<i>Alangium salviifolium</i> (L. f.) Wangerin	T	2174
	<i>Waltheria indica</i> L.	S	2123	Ericales	Balsaminaceae		
Brassicales	Cleomaceae				<i>Impatiens balsamina</i> L.	H	2206
	<i>Cleome aspera</i> Koen ex. DC.	H	2084		Lecythidaceae		
	<i>Gynandropsis gynandra</i> (L.) Briq.	H	2223		<i>Barringtonia acutangula</i> (L.) Gaertn.	T	2165
	<i>Arivela viscosa</i> (L.) Raf.	H	2038		<i>Couroupita guianensis</i> Aubl.	T	2106
	Moringaceae				<i>Gustavia superba</i> (Kunth) O. Berg	T	2183
	<i>Moringa oleifera</i> Lam.	T	2111		Primulaceae		
	Capparaceae				<i>Jacquinia aculeata</i> (L.) Mez	S	2156
	<i>Cratogeomachia adansonii</i> subsp. <i>odora</i> (Buch.-Ham.) Jacobs	T	2182		Sapotaceae		
Santalales	Santalaceae				<i>Chrysophyllum cainito</i> L.	T	2006
	<i>Santalum album</i> L.	T	5510		<i>Madhuca longifolia</i> (L.) J.F. Macbr.	T	2255
Caryophyllales	Aizoaceae				<i>Manilkara zapota</i> (L.) P. Royen	T	2243
	<i>Sesuvium portulacastrum</i> (L.) L.	H	2207		<i>Mimusops elengi</i> L.	T	2003
	Molluginaceae			LAMIDS			
	<i>Mollugo cerviana</i> (L.) Ser.	H	2215	Gentianales	Apocynaceae		
	<i>Mollugo nudicaulis</i> Lam.	H	2109		<i>Adenium obesum</i> (Forssk.) Roem. & Schult.	S	2175
	<i>Mollugo racemosa</i> Lam.	H	2214		<i>Aganosma dichotoma</i> K. Schum.	C	2054
	Polygonaceae				<i>Allamanda blanchetii</i> A. DC.	S	2262
	<i>Antigonon leptopus</i> Hook. & Arn.	C	5476		<i>Allamanda cathartica</i> L.	S	2014
	<i>Muehlenbeckia platyclada</i> (F. Muell.) Meisn.	S	5513		<i>Calotropis gigantea</i> (L.) W. T. Aiton	S	2082
	<i>Triplaris weigeltiana</i> Kuntze	T	9387		<i>Catharanthus roseus</i> (L.) G. Don	S	2144
	Amaranthaceae				<i>Cerbera odollam</i> Gaertn.	T	2049
	<i>Achyranthes aspera</i> L.	H	5405		<i>Hemidesmus indicus</i> (L.) W. T. Aiton	C	2097
	<i>Aerva lanata</i> (L.) Juss. ex Schult.	S	5434		<i>Holarrhena pubescens</i> Wall. ex G. Don	T	2146
	<i>Allmania nodiflora</i> (L.) R. Br. ex Wight	H	5437		<i>Ichnocarpus frutescens</i> (L.) W. T. Aiton	C	2101
	<i>Alternanthera bettzickiana</i> (Regel) G. Nicholson	H	5415		<i>Nerium oleander</i> L.	S	2053
	<i>Celosia argentea</i> L.	H	5460		<i>Plumeria obtusa</i> L.	T	2122
	<i>Digera muricata</i> (L.) Mart.	H	5414		<i>Plumeria rubra</i> L.	T	2056
	<i>Gomphrena globosa</i> L.	H	5499		<i>Rauvolfia tetraphylla</i> L.	S	2055
	<i>Gomphrena serrata</i> L.	H	5501		<i>Tabernaemontana divaricata</i> (L.) R. Br. ex Roem. & Schult.	S	2137
	<i>Pupalia lappacea</i> (L.) Juss. var. <i>lappacea</i>	H	5446		<i>Thevetia peruviana</i> (Pers.) K. Schum.	T	2032
	<i>Pupalia lappacea</i> Juss. var. <i>orbiculata</i> (Heyne ex Wall.) C. C. Towns.	H	5512		<i>Voacanga grandifolia</i> (Miq.) Rolfe	T	2260
	Portulacaceae				<i>Wrightia tinctoria</i> (Roxb.) R. Br.	T	9388
	<i>Portulaca oleracea</i> L.	H	2202		Rubiaceae		
	<i>Portulaca grandiflora</i> Hook.	H	2170		<i>Catesbaea spinosa</i> L.	S	2181
	Nyctaginaceae				<i>Gardenia gummifera</i> L.f.	T	2095
	<i>Boerhavia diffusa</i> L.	H	5420		<i>Guettarda speciosa</i> L.	T	2072
	<i>Bougainvillea spectabilis</i> Willd.	C	5441		<i>Hamelia patens</i> Jacq.	S	2209
	<i>Pisonia grandis</i> R. Br.	T	5459		<i>Ixora coccinea</i> L.	S	2102
	Phytolaccaceae				<i>Morinda pubescens</i> Sm.	T	2110
	<i>Rivina humilis</i> L.	H	5507		<i>Oldenlandia biflora</i> L.	H	2005
	Talinaceae				<i>Oldenlandia pterita</i> (Blume) Miq.	H	2212
	<i>Talinum fruticosum</i> (L.) Juss.	H	2160		<i>Oldenlandia stricta</i> L.	H	2201
	Cactaceae				<i>Oldenlandia umbellata</i> L.	H	2007
	<i>Acanthocereus tetragonus</i> (L.) Hummelinck	T	2881		<i>Pavetta indica</i> L.	S	2166
	<i>Opuntia stricta</i> (Haw.) Haw. var. <i>dillenii</i> (Ker Gawl.) L. D. Benson	H	2116		<i>Pentas lanceolata</i> (Forssk.) Deflers	H	2158
					<i>Portlandia grandiflora</i> L.	S	2246
					<i>Spermacoce hispida</i> L.	H	2273
				Lamiales	Acanthaceae		
					<i>Andrographis echinoides</i> (L.) Nees	H	2241

Continued

Table 1. Continued.

Superorder/ Order	Family/Species	Habit	Voucher No.	Superorder/ Order	Family/Species	Habit	Voucher No.
	<i>Aphelandra fascinator</i> Linden & André	H	2172		<i>Sesamum prostratum</i> Retz.	H	2222
	<i>Asystasia gangetica</i> (L.) T. Anderson	H	2023		Oleaceae		
	<i>Avicennia marina</i> (Forssk.) Vierh.	S	2199		<i>Jasminum angustifolium</i> (L.) Willd.	C	2103
	<i>Barleria prionitis</i> L.	S	2077		<i>Jasminum sambac</i> (L.) Aiton	S	2208
	<i>Crossandra infundibuliformis</i> (L.) Nees	S	2086		<i>Nyctanthes arbor-tristis</i> L.	T	2114
	<i>Ecbolium viride</i> (Forssk.) Alston	S	2090		Verbenaceae		
	<i>Eranthemum roseum</i> (Vahl) R. Br.	S	2258		<i>Citharexylum spinosum</i> L.	T	2149
	<i>Justicia prostrata</i> Gamble	H	2220		<i>Duranta erecta</i> L.	S	2035
	<i>Pseuderanthemum reticulatum</i> Hort. ex Hook.	S	2176		<i>Lantana camara</i> L.	S	2104
	<i>Ruellia prostrata</i> Poir.	S	2225		<i>Petrea volubilis</i> L.	C	2178
	<i>Ruellia tuberosa</i> L.	H	2048		<i>Phyla nodiflora</i> (L.) Greene	H	2204
	<i>Thunbergia erecta</i> (Benth.) T. Anderson	S	2026		<i>Stachytarpheta jamaicensis</i> (L.) Vahl	H	2043
	<i>Thunbergia grandiflora</i> Roxb.	C	2140		<i>Verbena rigida</i> Spreng.	H	2268
	Lamiaceae			Solanales	Convolvulaceae		
	<i>Clerodendrum indicum</i> (L.) Kuntze	S	2004		<i>Evolvulus alsinoides</i> (L.) L.	H	2031
	<i>Clerodendrum sahelangii</i> Koord. ex Bakh.	S	2085		<i>Evolvulus nummularius</i> (L.) L.	H	2036
	<i>Clerodendrum splendens</i> G. Don	S	2198		<i>Ipomoea batatas</i> (L.) Lam.	H	2205
	<i>Hyptis suaveolens</i> (L.) Poit.	S	2232		<i>Ipomoea sagittifolia</i> Burm. f.	H	2155
	<i>Leonotis nepetifolia</i> (L.) W. T. Aiton	H	2159		<i>Ipomoea pes-caprae</i> (L.) R. Br.	H	2029
	<i>Leucas diffusa</i> Benth.	H	2264		<i>Ipomoea pes-tigridis</i> L.	H	2230
	<i>Ocimum tenuiflorum</i> L.	S	2115		<i>Jacquemontia pentanthos</i> (Jacq.) G. Don	C	2028
	<i>Plectranthus scutellarioides</i> (L.) R. Br.	H	2200		<i>Xenostegia tridentata</i> (L.) D. F. Austin & Staples	H	2051
	<i>Premna serratifolia</i> L.	S	2196		Solanaceae		
	<i>Tectona grandis</i> L. f.	T	2030		<i>Brunfelsia americana</i> L.	S	2180
	<i>Vitex negundo</i> L.	T	2145		<i>Capsicum annum</i> L.	H	2236
	<i>Volkameria inermis</i> L.	S	2231		<i>Solanum lycopersicum</i> L.	H	2235
	Plantaginaceae				<i>Physalis minima</i> L.	H	2213
	<i>Angelonia salicariifolia</i> Humb. & Bonpl.	H	2066		<i>Solanum melongena</i> L.	H	2233
	<i>Russelia equisetiformis</i> Schlttdl. & Cham.	C	9389		<i>Solanum torvum</i> Sw.	S	2234
	<i>Scoparia dulcis</i> L.	H	2128		<i>Solanum trilobatum</i> L.	S	2219
	Bignoniaceae			Boraginales	Boraginaceae		
	<i>Crescentia alata</i> Kunth	T	9390		<i>Cordia dentata</i> Poir.	T	2017
	<i>Handroanthus impetiginosus</i> (Mart. ex DC.) Mattos	T	2253		<i>Cordia sebestena</i> L.	T	2016
	<i>Haplophragma adenophyllum</i> (Wall. ex G. Don) Dop	T	2015		<i>Ehretia laevis</i> Roxb.	T	2025
	<i>Kigelia africana</i> (Lam.) Benth.	T	2163		<i>Trichodesma indicum</i> (L.) Sm.	S	2018
	<i>Mansoa alliacea</i> (Lam.) A. H. Gentry	C	2027		CAMPANULIDS		
	<i>Millingtonia hortensis</i> L. f.	T	2184	Asterales	Asteraceae		
	<i>Spathodea campanulata</i> P. Beauv.	T	2130		<i>Blumea mollis</i> (D. Don) Merr.	H	2194
	<i>Tabebuia aurea</i> (Silva Manso) Benth. & Hook. f. ex S. Moore	T	2134		<i>Chromolaena odorata</i> (L.) R. M. King & H. Rob.	S	2226
	<i>Tabebuia pallida</i> (Lindl.) Miers	T	2133		<i>Cosmos caudatus</i> Kunth	H	2270
	<i>Tabebuia rosea</i> (Bertol.) DC.	T	9391		<i>Gaillardia pulchella</i> Foug.	H	2269
	<i>Tecoma capensis</i> (Thunb.) Lindl.	S	2070		<i>Solidago microglossa</i> DC.	H	2164
	<i>Tecoma stans</i> (L.) Kunth	S	2034		<i>Sphagneticola trilobata</i> (L.) Pruski	H	2244
	<i>Tecomella undulata</i> (Sm.) Seem.	T	2024		<i>Tridax procumbens</i> L.	H	2141
	Linderniaceae				<i>Vernonia cinerea</i> (L.) Less.	H	2143
	<i>Torenia hirsuta</i> Willd.	H	2046		<i>Zinnia elegans</i> Jacq.	H	2193
	Pedaliaceae				Goodeniaceae		
	<i>Pedaliium murex</i> L.	H	2248		<i>Scaevola taccada</i> (Gaertn.) Roxb.	S	9392
					Campanulaceae		
					<i>Hippobroma longiflora</i> (L.) G. Don	H	2242



Figure 6. Coconut groves.



Figure 7. The big banyan tree.



Figure 8. *Nypa fruticans*, a mangrove palm grown in a circular tank.

Some of the noteworthy plants are *Berrya javanica*, *Bismarckia nobilis*, *Brownea grandiceps*, *Brownea macrophylla*, *Catesbaea spinosa*, *Goniotalamus salicinus*, *Gustavia superba*, *Haplophragma adenophyllum*, *Jacquinia aculeata*, *Nypa fruticans*, *Oncoba spinosa*, *Peltophorum africanum*, *Saraca thaipingensis*, *Sterculia apetala*, *Tecomella undulata*, *Triplaris weigeltiana*, and *Voacanga grandifolia*. Fourteen species of palms are reported from the TS campus of which *Corypha macropoda* is a native palm. This campus has an avenue of *Swietenia mahagoni*, planted by representatives of several member countries. The big banyan tree (Figure 7) with branches spanning 75 m from north to south and 51 m from east to west attracts tourists from all parts of the world. This delightful sanatorium can afford shelter for thousands of people and is a nesting place for several birds. The main trunk of this large banyan was uprooted by a cyclone during November 1992. Another plant of interest is the palm, *Nypa fruticans* which is grown in a circular tank (Figure 8). *Nypa fruticans* is a mangrove palm of Andaman and Nicobar Islands, and on the mainland, this palm is recorded only from the TS campus. The sandy and open areas are a home to many naturalized invasive species which include *Prosopis juliflora*, *Tridax procumbens*, *Lantana camara*, *Hyptis suaveolens*, *Antigonon leptopus*, and *Croton bonplatianum*.

Paleotropical elements (66%) dominate the TS campus followed by Neotropical (31%), Holarctic (2%) and Australian (1%) elements (Figure 9). About 16 species are pantropical. Among the paleotropical plants 39 taxa are reported from Indian Region. Of these, eight species are endemic to India namely: *Sansevieria roxburghiana*, *Pterospermum xylocarpum*, *Aganosma dichotoma*, *Wrightia tinctoria*, *Gardenia gummifera*, *Eranthemum roseum*, *Leucas diffusa*, and *Torenia hirsuta*. Twenty-seven taxa belong to Tropical Africa, 37 to Indochinese region, six to Madagascan region, 74 to Indomalaysian region and 12 to Malaysian region. Most of the Neotropical elements are from Caribbean region. Of the 225 native taxa about 44% are herbs and 35% are trees and most of these native species are seen exclusively in cultivation. Few of the taxa are shown in Figures 10–35.

There are not many changes in the flora of TS when compared with our two phases of studies. *Bauhinia* × *blakeana*, *Bismarckia nobilis*, *Carpentaria acuminata*, *Crescentia alata*, *Majidea zanguebarica* and *Terminalia mantaly* are some of the additions to the TS campus. *Cochlospermum religiosum*, *Dillenia suffruticosa*, *Haematoxylum campechianum*, *Areca triandra*, *Ceiba speciosa*, *Licania platypus*, *Lonchocarpus violaceus* are some of the trees the campus has lost due to natural calamities.

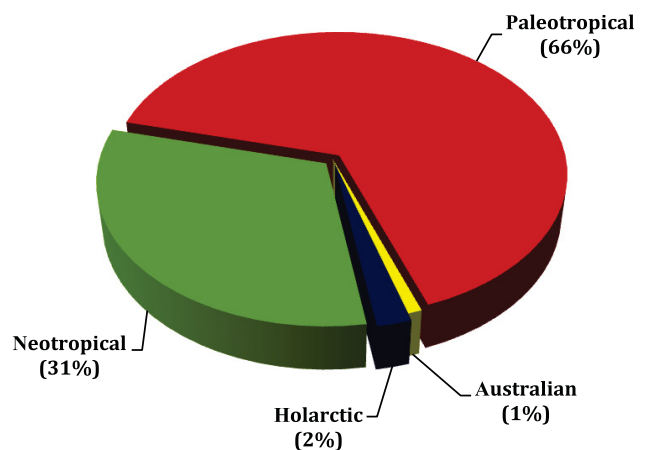


Figure 9. Distribution of species in phytochorionomic kingdoms.

The present study reveals that the TS campus has a rich and diverse exotic flora. Many of the plants occurring in the campus are uncommon. Such a rich and diverse exotic flora exists because of the efforts of the Garden Department, international members, and those who live on the campus. However, composition of the TS flora consists of nearly an equal percentage of exotic and native species. The campus, located in the highly urbanized Adyar region, acts as a crucial green lung space for the area.

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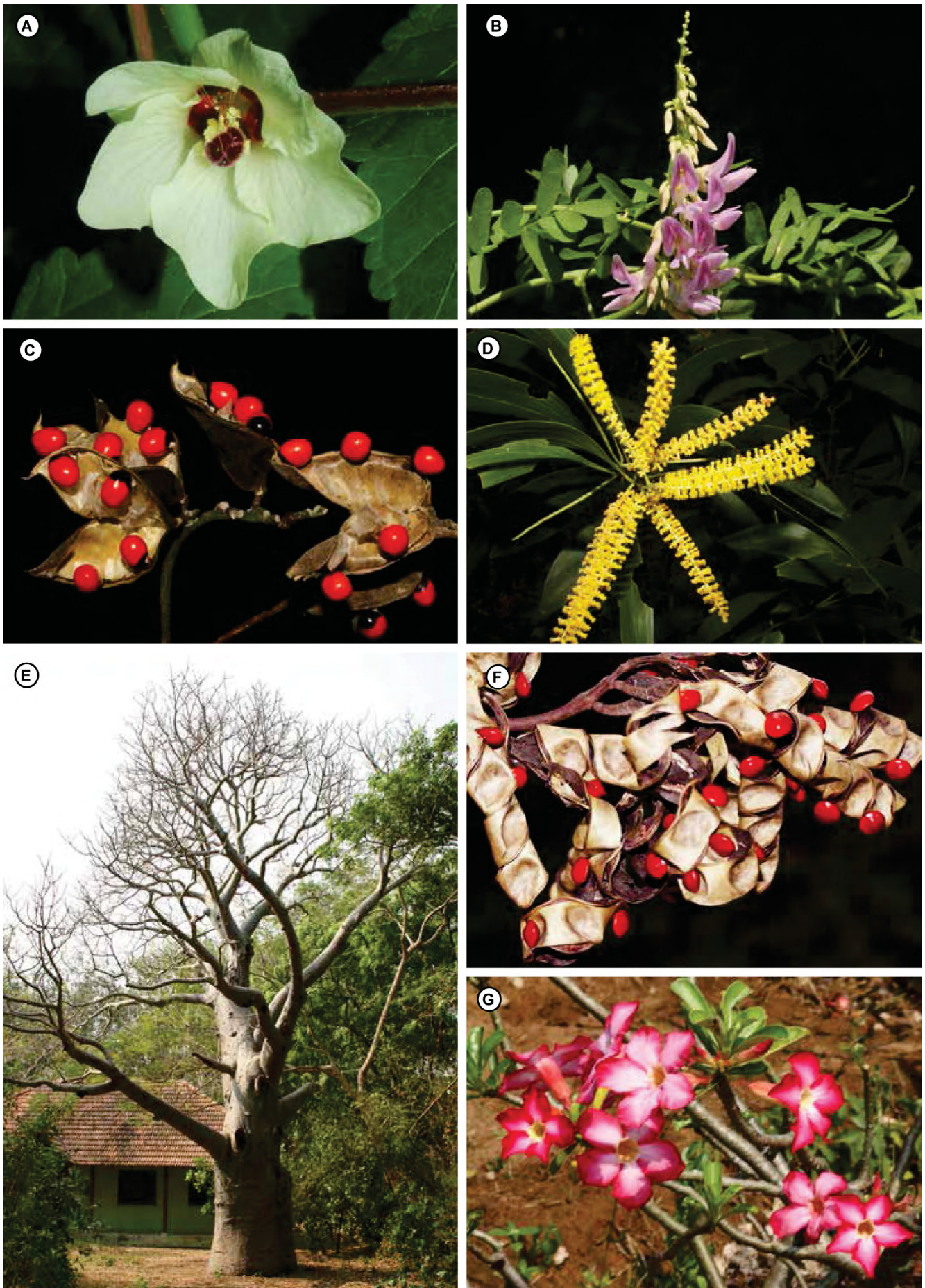


Figure 10. A, *Abelmoschus esculentus*; B, *Abrus precatorius* flowering twig; C, *A. precatorius*, fruiting twig; D, *Acacia auriculiformis*; E, *Adansonia digitata*; F, *Adenanthera pavonina*; G, *Adenium obesum*.

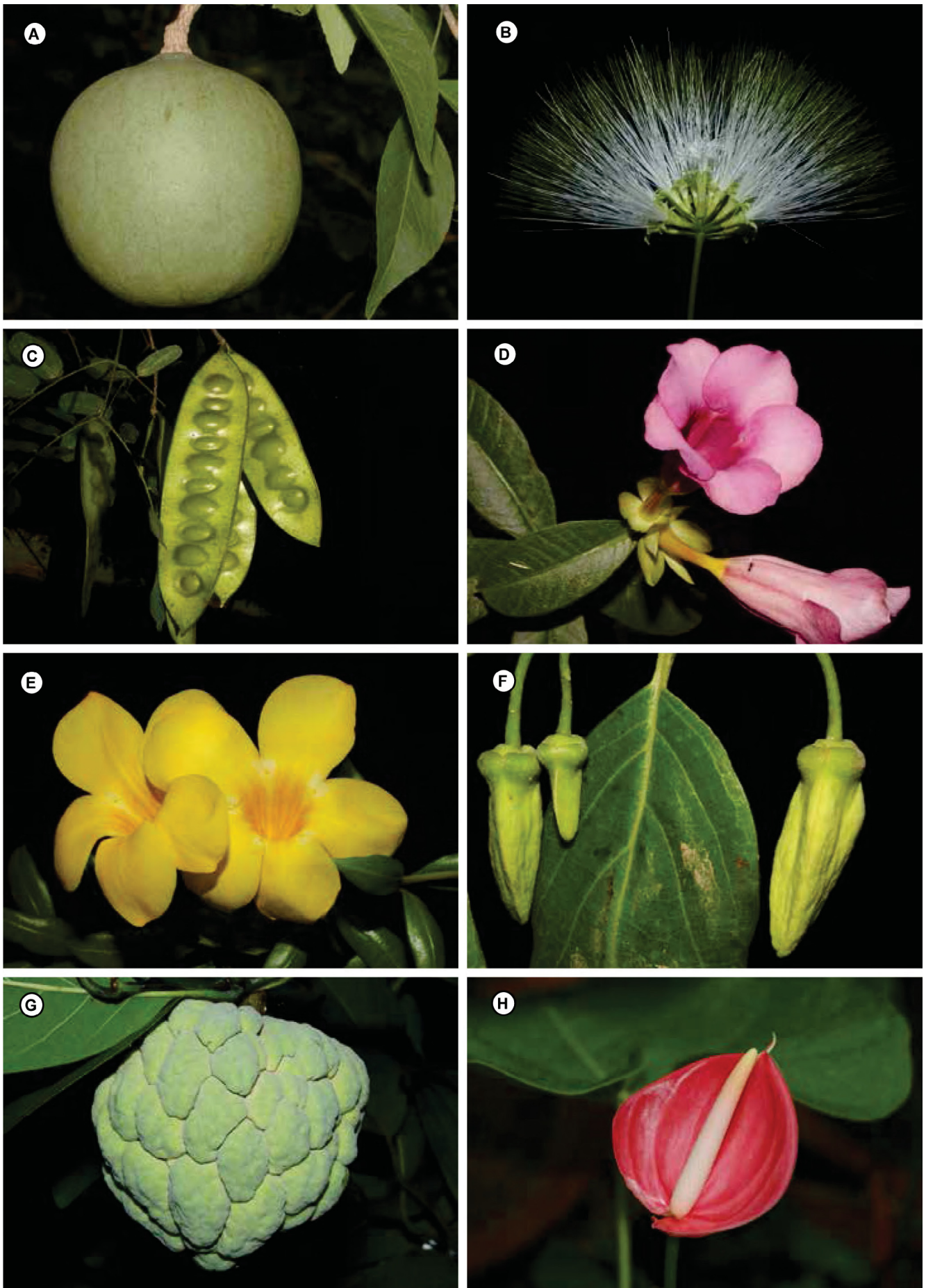


Figure 11. A, *Aegle marmelos*; B, *Albizia lebbeck*, flower; C, *Albizia lebbeck*, fruit; D, *Allamanda blanchetii*; E, *Allamanda cathartica*; F, *Annona squamosa*, flower; G, *Annona squamosa*, fruit; H, *Anthurium andraeanum*.

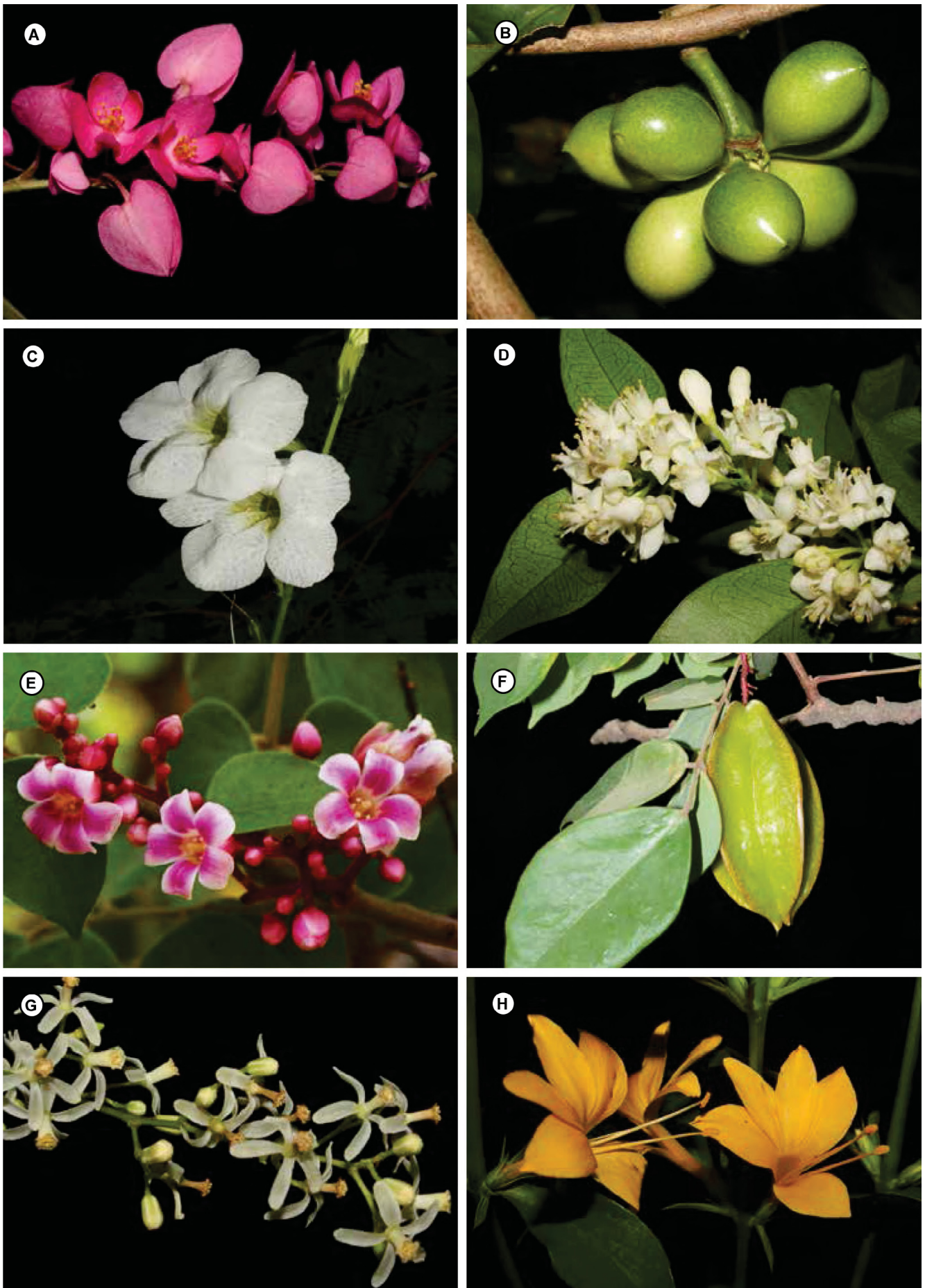


Figure 12. A, *Antigonon leptopus*; B, *Artabotrys hexapetalus*; C, *Asystasia gangetica*; D, *Atalantia monophylla*; E, *Averrhoa carambola*, flower; F, *Averrhoa carambola*, fruit; G, *Azadirachta indica*; H, *Barleria prionitis*.

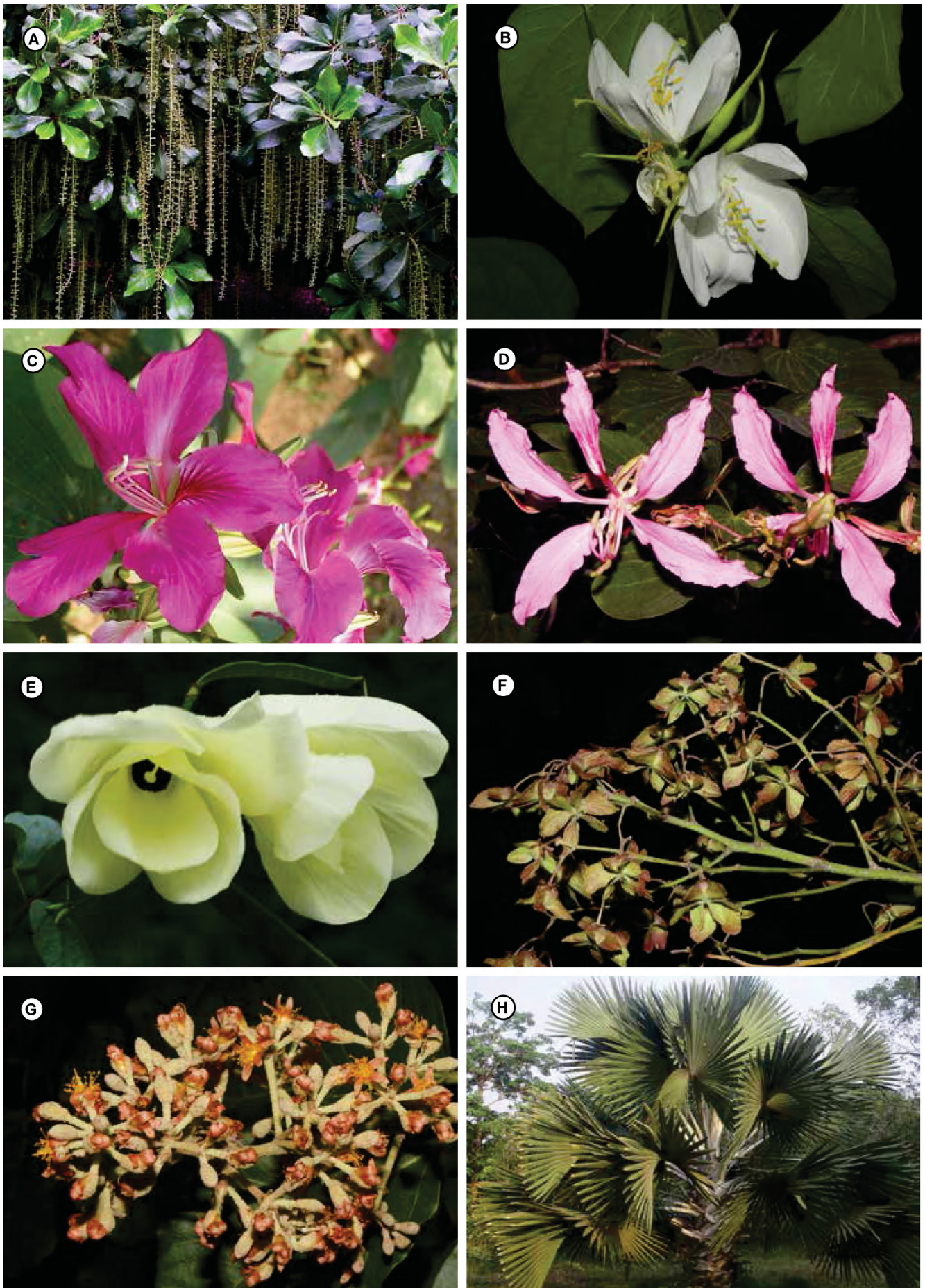


Figure 13. A, *Barringtonia acutangula*; B, *Bauhinia acuminata*; C, *Bauhinia* × *blakeana*; D, *Bauhinia purpurea*; E, *Bauhinia tomentosa*; F, *Berrya cordifolia*; G, *Berrya javanica*; H, *Bismarckia nobilis*.

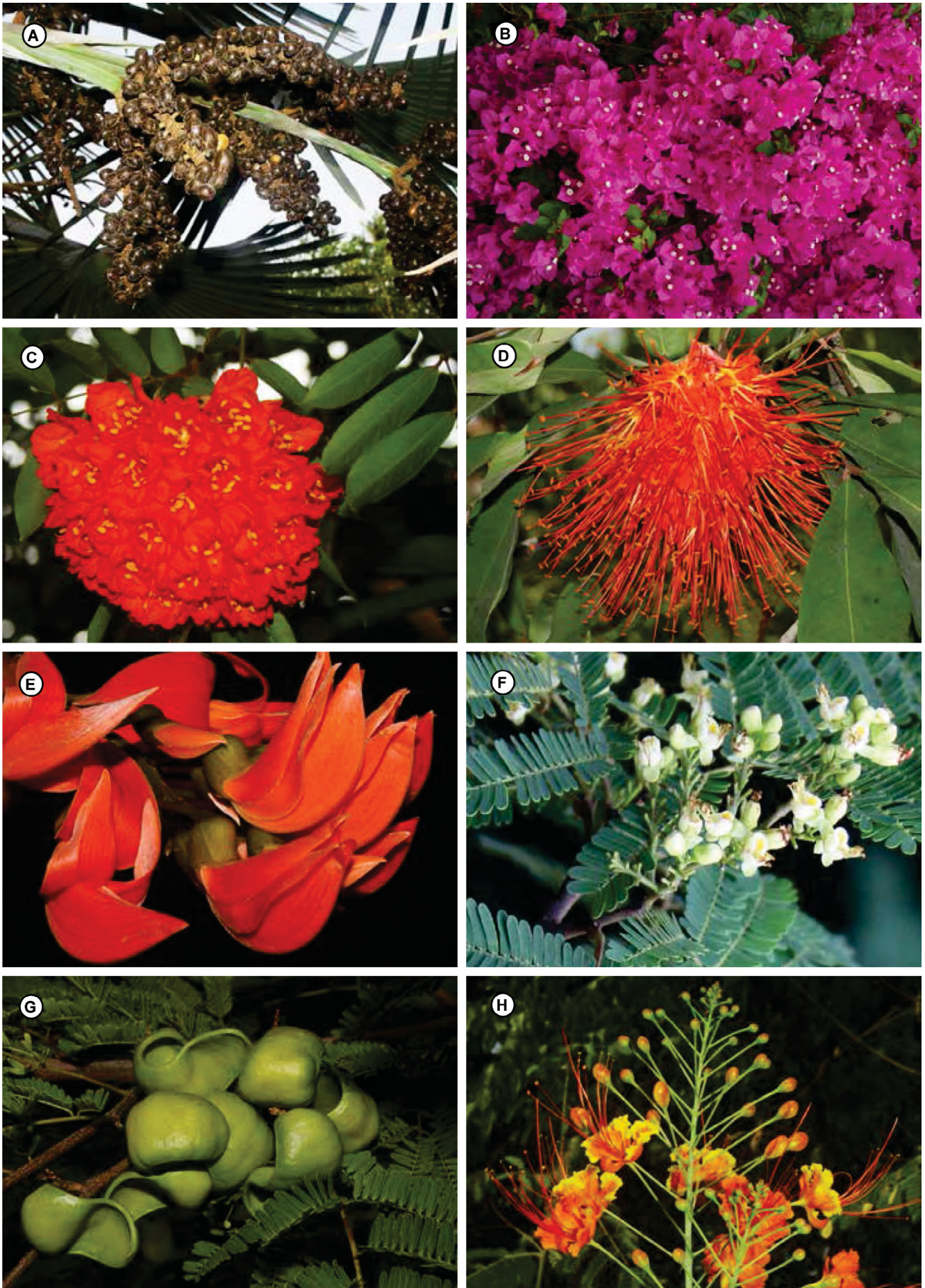


Figure 14. A, *Bismarckia nobilis*, fruit; B, *Bougainvillea spectabilis*; C, *Brownea grandiceps*; D, *Brownea macrophylla*; E, *Butea monosperma*; F, *Caesalpinia coriaria*, flower; G, *Caesalpinia coriaria*, fruit; H, *Caesalpinia pulcherrima*.

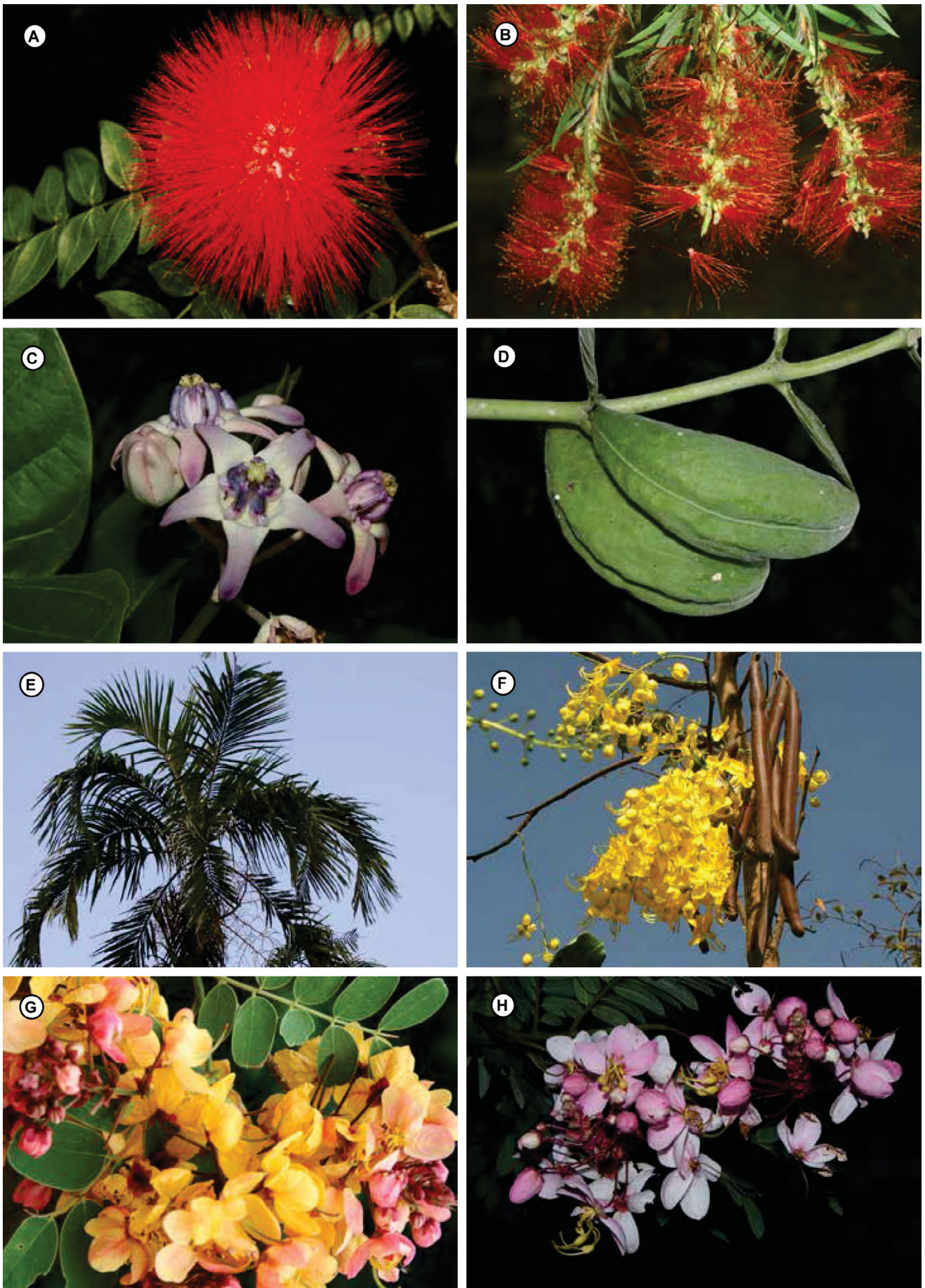


Figure 15. A, *Calliandra haematocephala*; B, *Callistemon citrinus*; C, *Calotropis gigantea*, flower; D, *Calotropis gigantea*, fruit; E, *Carpentaria acuminata*; F, *Cassia fistula*; G, *Cassia javanica*; H, *Cassia javanica* L. subsp. *nodosa*.

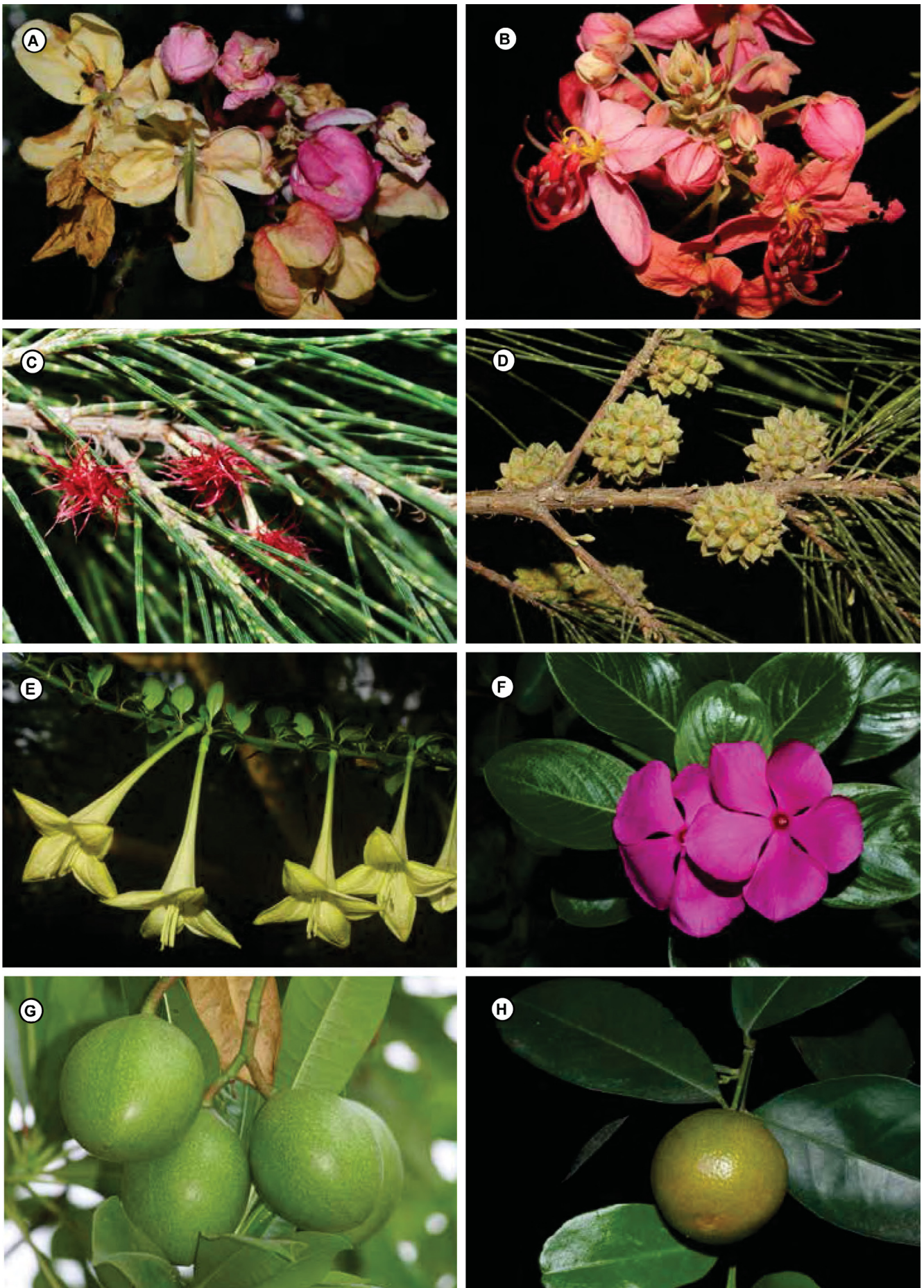


Figure 16. A, *Cassia renigera*; B, *Cassia roxburghii*; C, *Casuarina equisetifolia*, flower; D, *Casuarina equisetifolia*, fruits; E, *Catesbaea spinosa*; F, *Catharanthus roseus*; G, *Cerbera odollam*; H, *Citrofortunella microcarpa*.



Figure 17. A, *Citrus aurantifolia*; B, *Citrus medica*; C, *Clitoria ternatea*; D, *Combretum indicum*; E, *Cordia dentata*; F, *Couroupita guianensis*, fruit; G, *Cordia sebestena*.

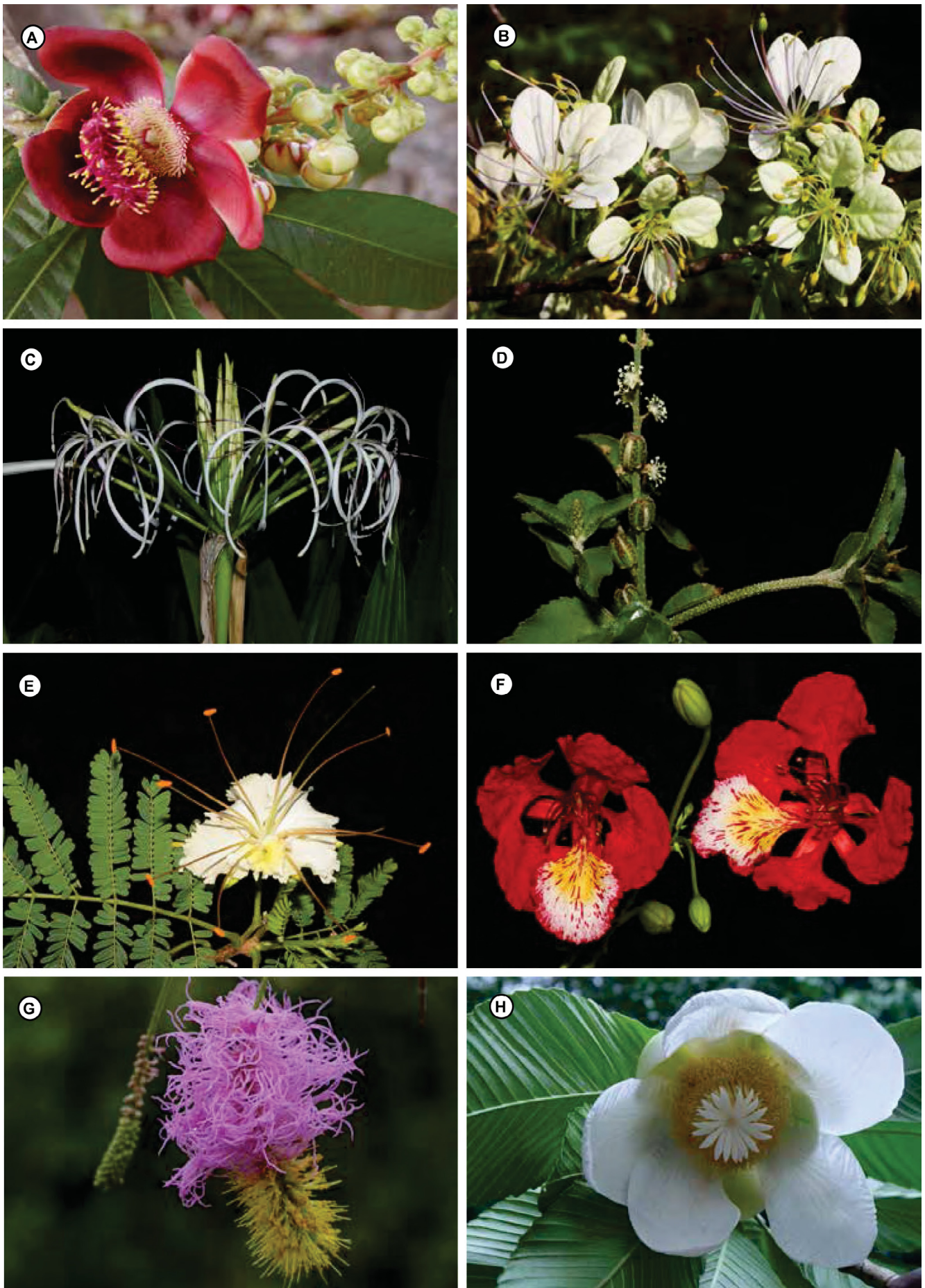


Figure 18. A, *Couroupita guianensis*, flower; B, *Crataeva adansonii* subsp. *odora*; C, *Crinum asiaticum*; D, *Croton bonplandianus*; E, *Delonix elata*; F, *Delonix regia*; G, *Dichrostachys cinerea*; H, *Dillenia indica*.

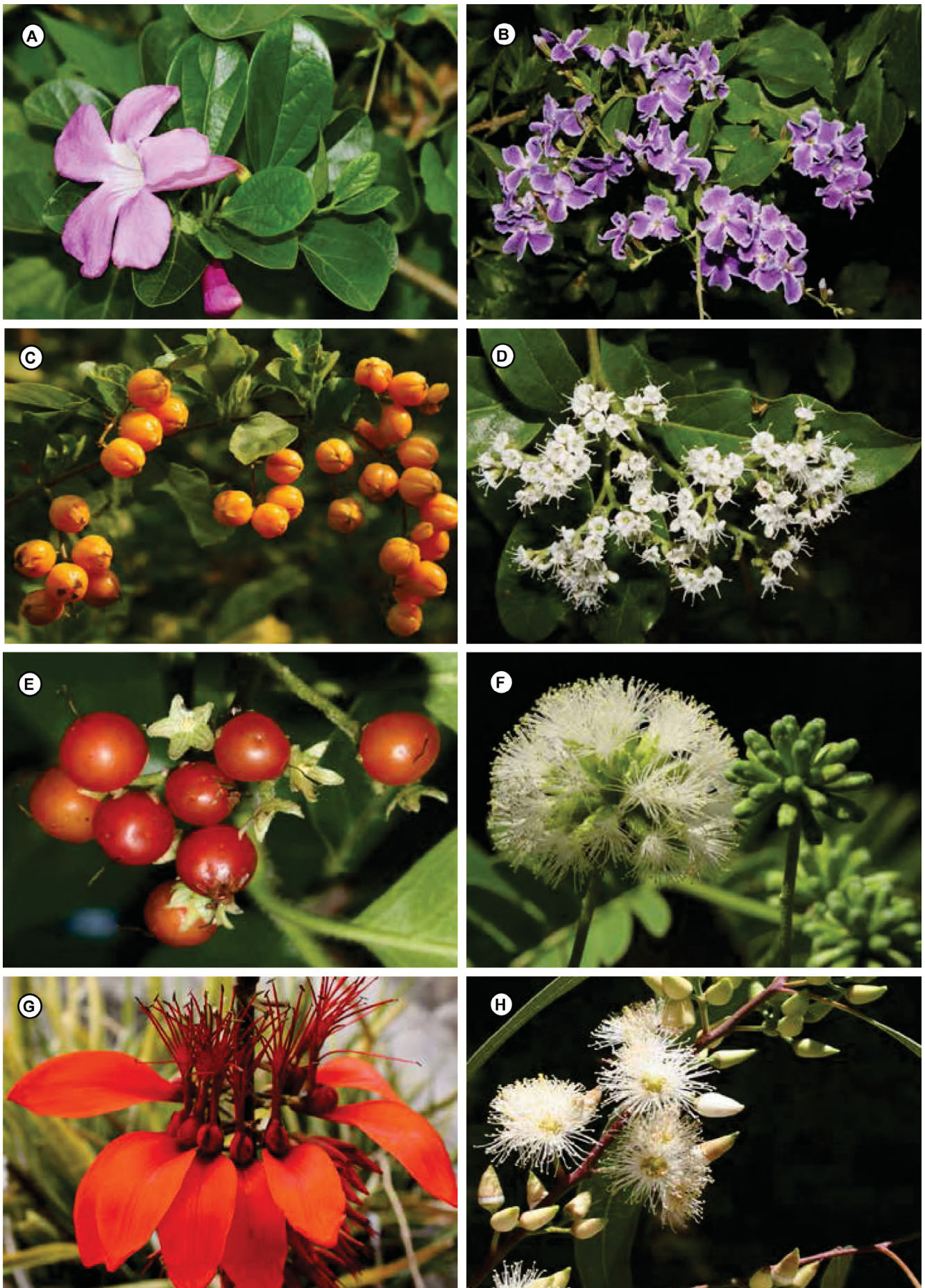


Figure 19. A, *Distictis x riversii*; B, *Duranta erecta*, flower; C, *Duranta erecta*, fruit; D, *Ehretia laevis*, flower; E, *Ehretia laevis*, fruit; F, *Enterolobium cyclocarpum*; G, *Erythrina variegata*; H, *Eucalyptus tereticornis*.

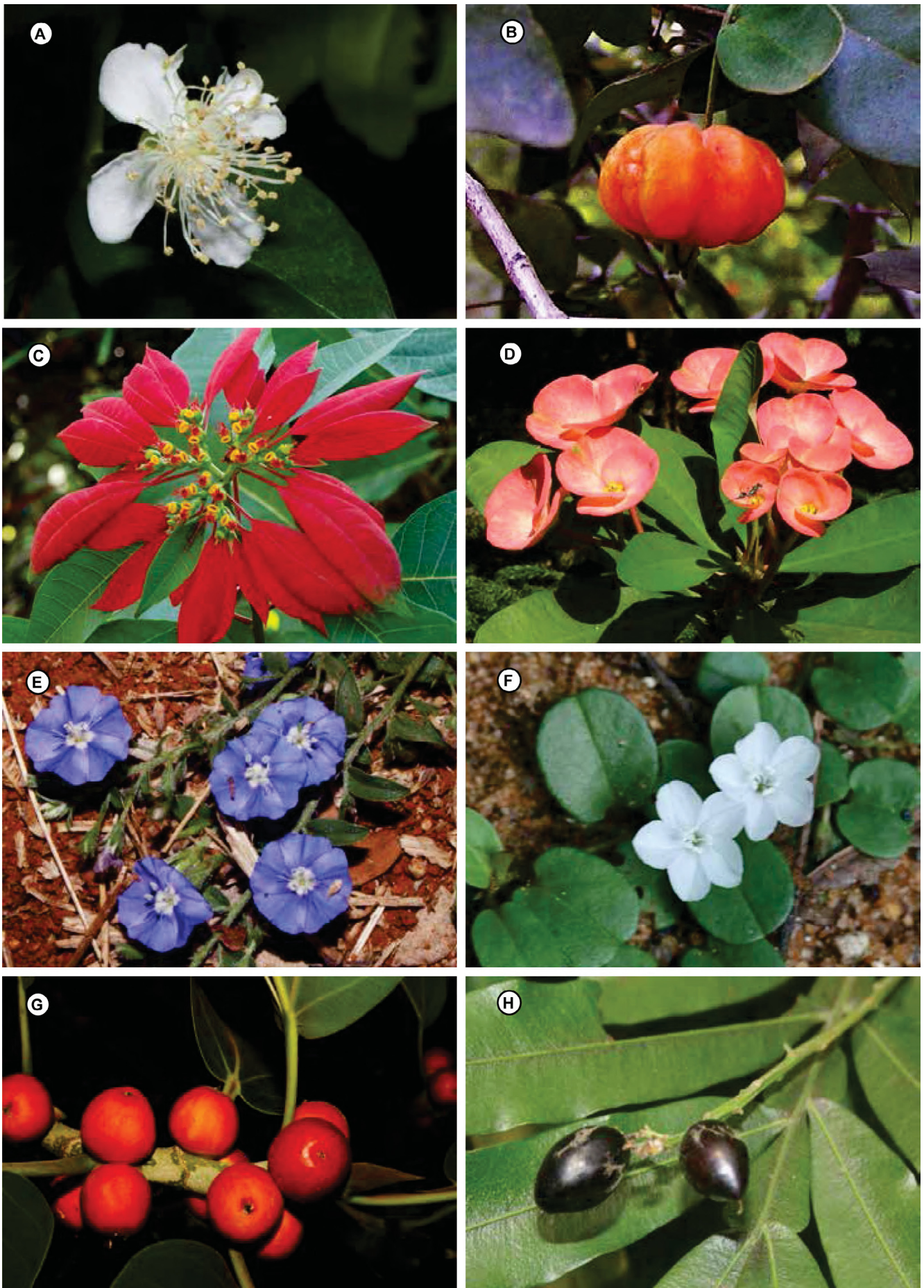


Figure 20. A, *Eugenia uniflora*, flower; B, *Eugenia uniflora*, fruit; C, *Euphorbia pulcherrima*; D, *Euphorbia millii*; E, *Evolvulus alsinoides*; F, *Evolvulus nummularius*; G, *Ficus benghalensis*; H, *Filicium decipiens*.

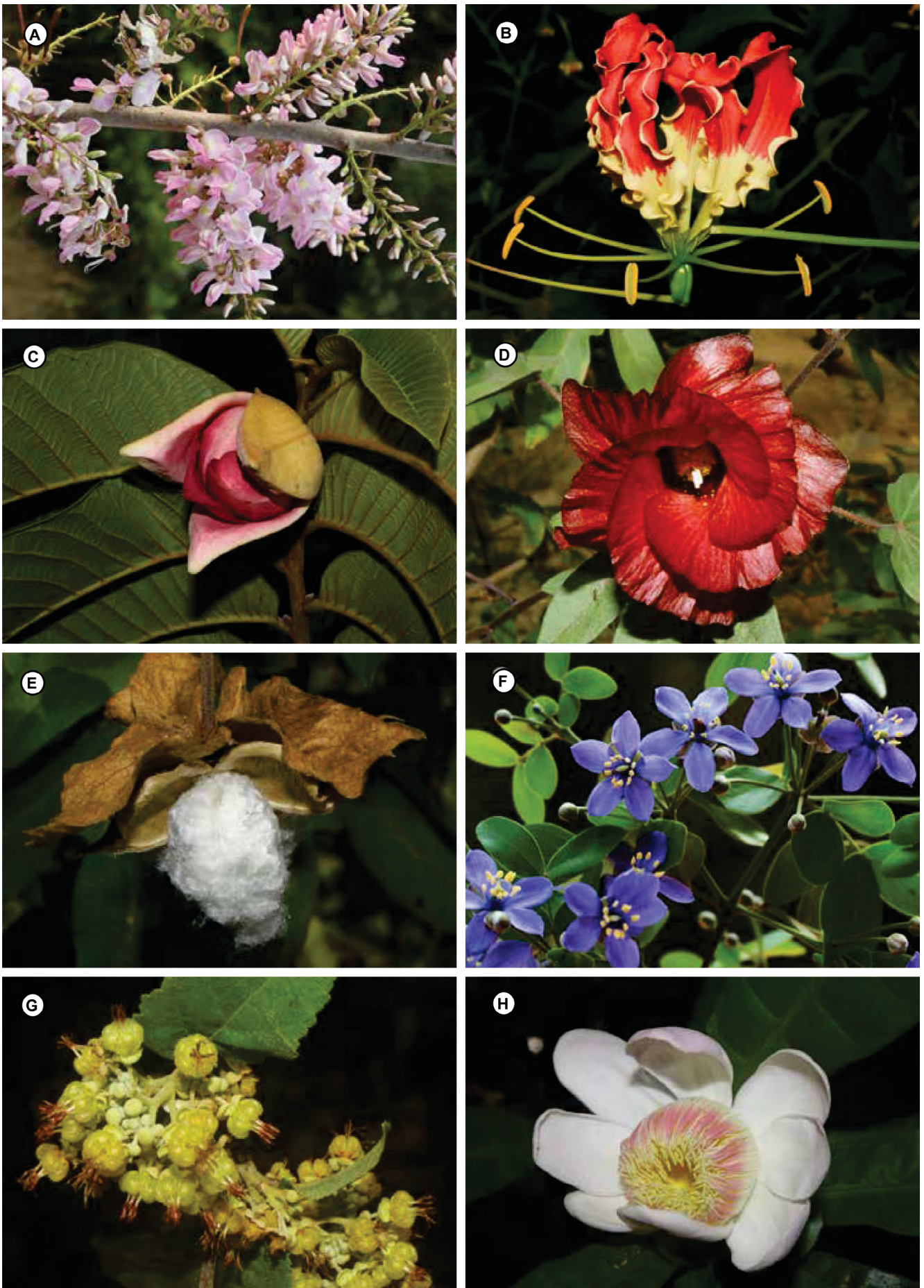


Figure 21. A, *Gliricidia sepium*; B, *Gloriosa superba*; C, *Goniotalamus salicinus*; D, *Gossypium arboretum*, flower; E, *Gossypium arboreum*, fruit; F, *Guaiacum officinale*; G, *Guazuma ulmifolia*; H, *Gustavia superba*.

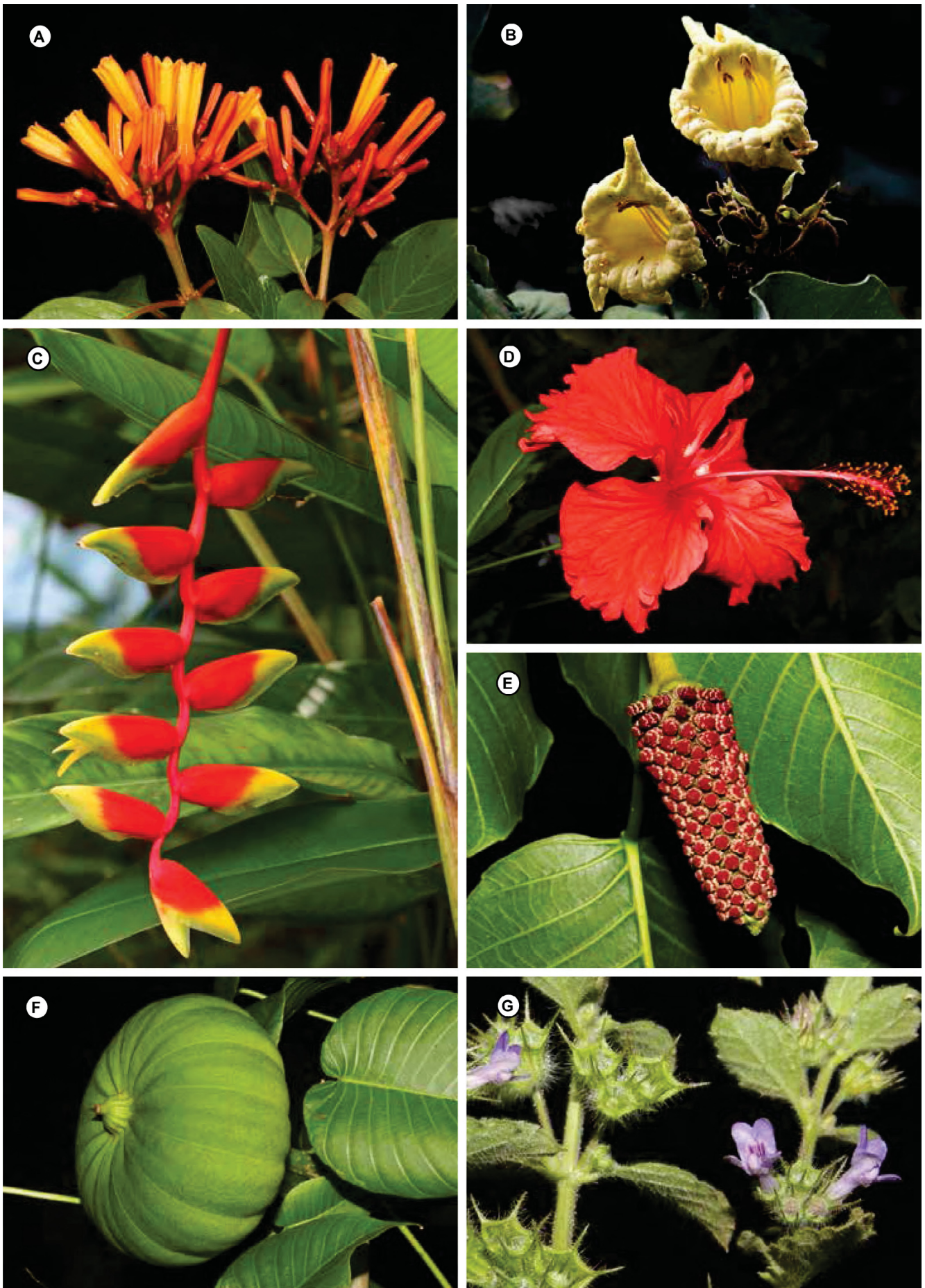


Figure 22. A, *Hamelia patens*; B, *Haplophragma adenophyllum*; C, *Heliconia psittacorum*; D, *Hibiscus rosa-sinensis*; E, *Hura crepitans*, male flower; F, *Hura crepitans*, fruit; G, *Hyptis suaveolens*.

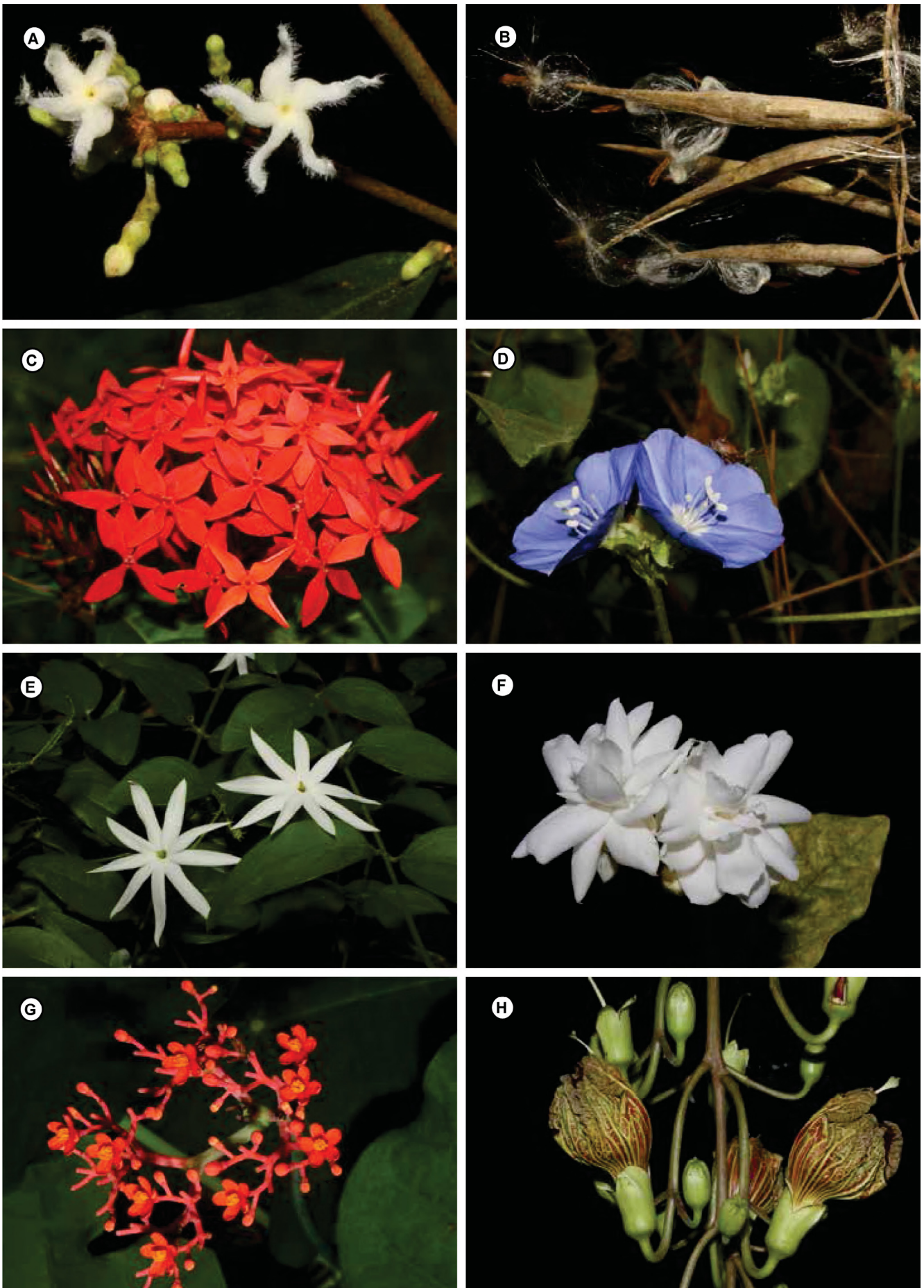


Figure 23. A, *Ichnocarpus frutescens*, flower; B, *Ichnocarpus frutescens*, dispersed fruits; C, *Ixora coccinea*; D, *Jacquemontia pentanthos*; E, *Jasminum angustifolium*; F, *Jasminum sambac*; G, *Jatropha podagrica*; H, *Kigelia africana*.

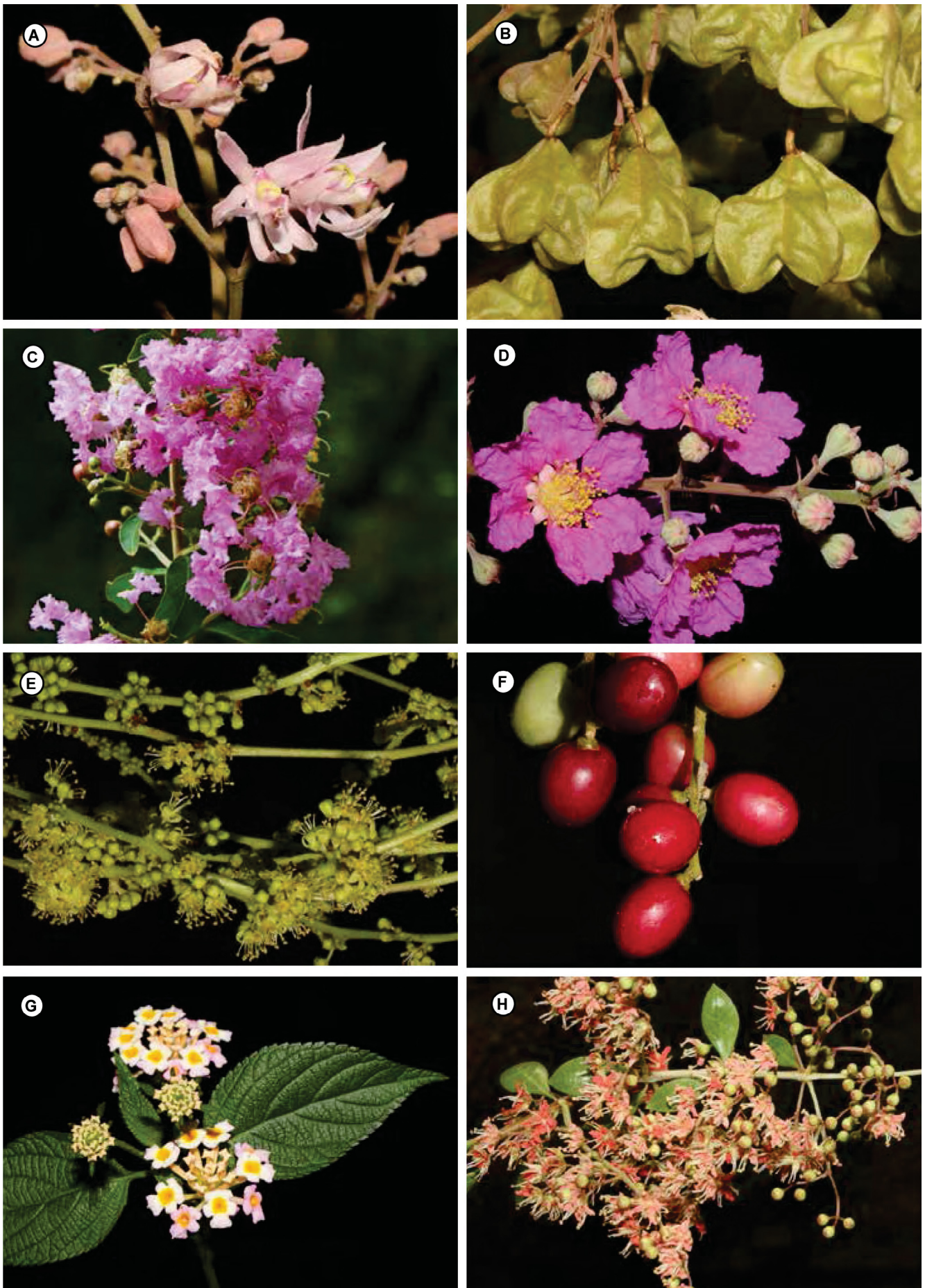


Figure 24. A, *Kleinhovia hospita*, flower; B, *Kleinhovia hospita*, fruit; C, *Lagerstroemia indica*; D, *Lagerstroemia speciosa*; E, *Lannea coromandelica*, flower; F, *Lannea coromandelica*, fruits; G, *Lantana camara*; H, *Lawsonia inermis*.

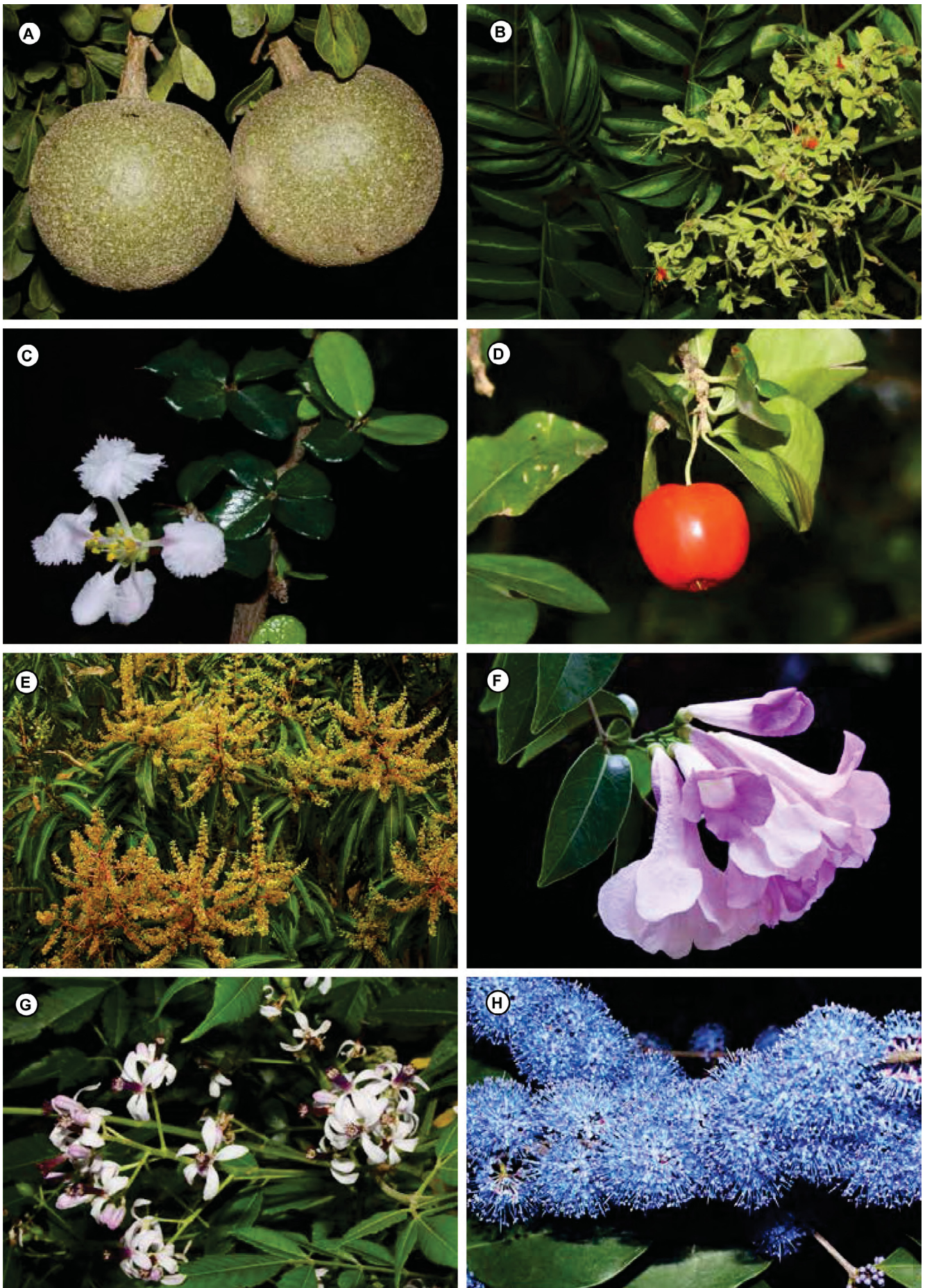


Figure 25. A, *Limonia acidissima*; B, *Majidea zanguebarica*; C, *Malpighia glabra*, flower; D, *Malpighia glabra*, fruit; E, *Mangifera indica*, fruit; F, *Mansoa alliacea*; G, *Melia azedarach*; H, *Memecylon umbellatum*.

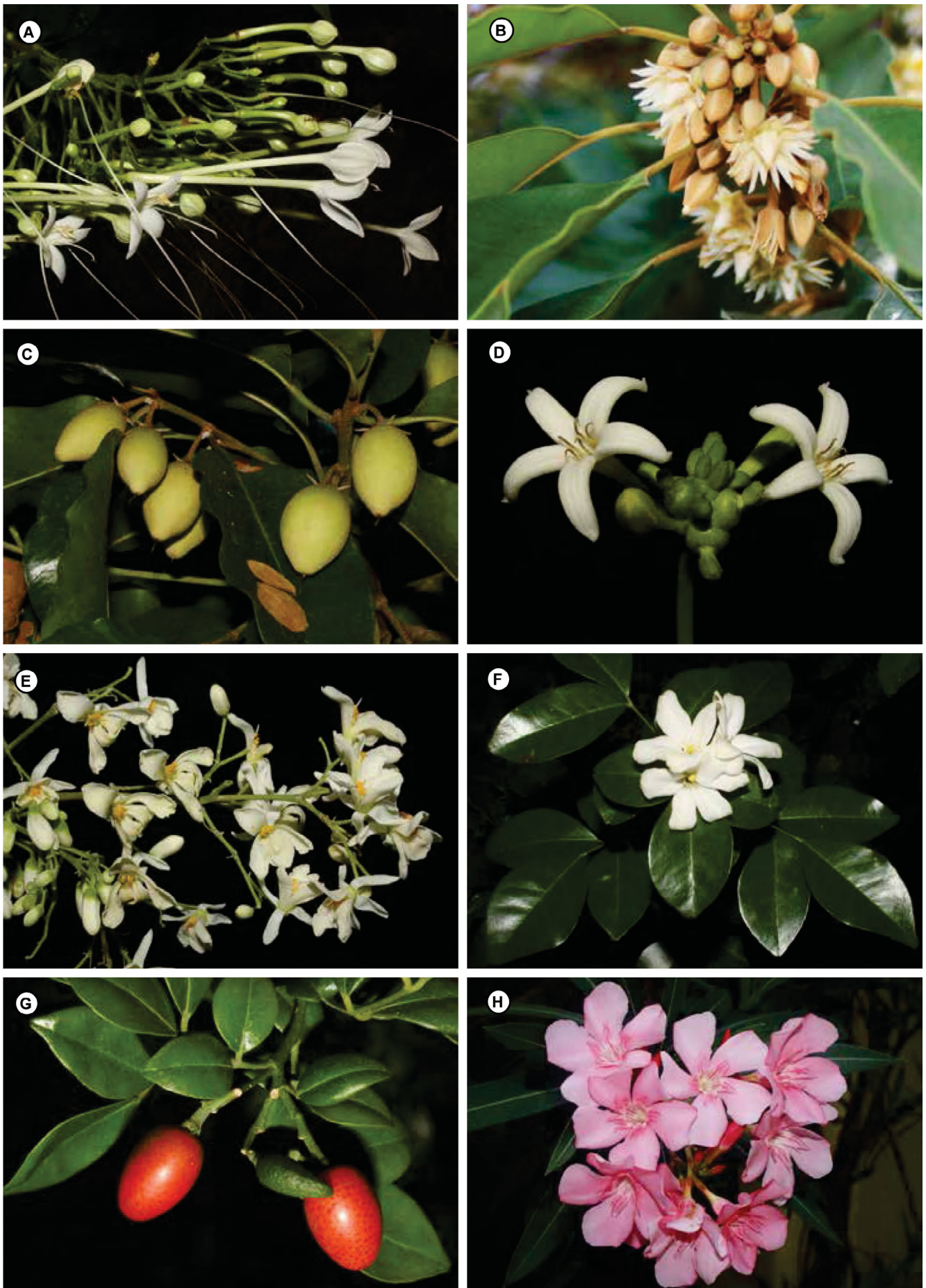


Figure 26. A, *Millingtonia hortensis*; B, *Mimusops elengi*, flower; C, *Mimusops elengi*, fruit; D, *Morinda pubescens*; E, *Moringa oleifera*; F, *Murraya paniculata*, flower; G, *Murraya paniculata*, fruits; H, *Nerium oleander*.

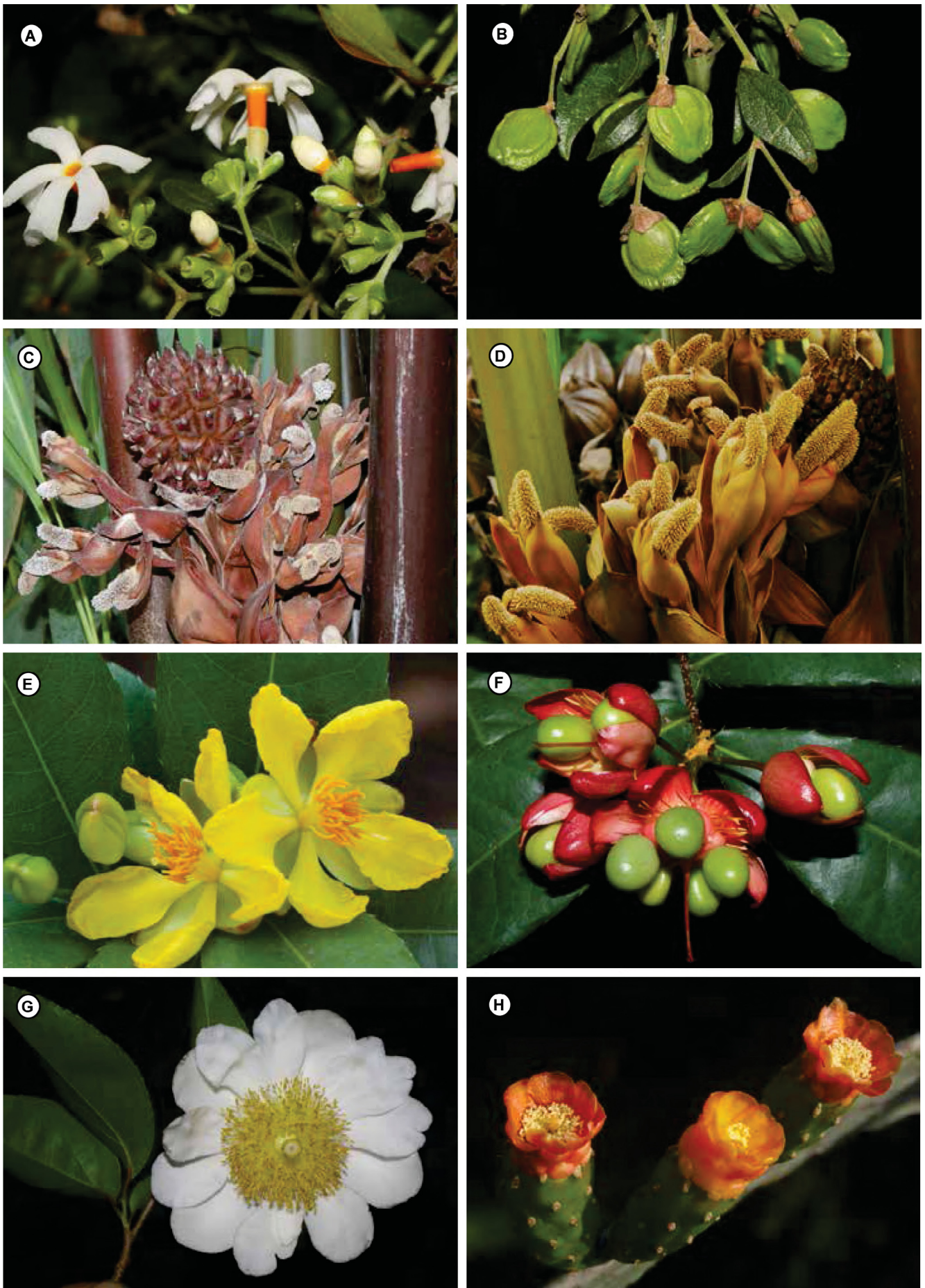


Figure 27. A, *Nyctanthes arbor-tristis*, flower; B, *Nyctanthes arbor-tristis*, fruits; C, *Nypa fruticans*, male; D, *Nypa fruticans*, female; E, *Ochna jabotapita*, flower; F, *Ochna jabotapita*, fruits; G, *Oncoba spinosa*; H, *Opuntia ficus-indica*.

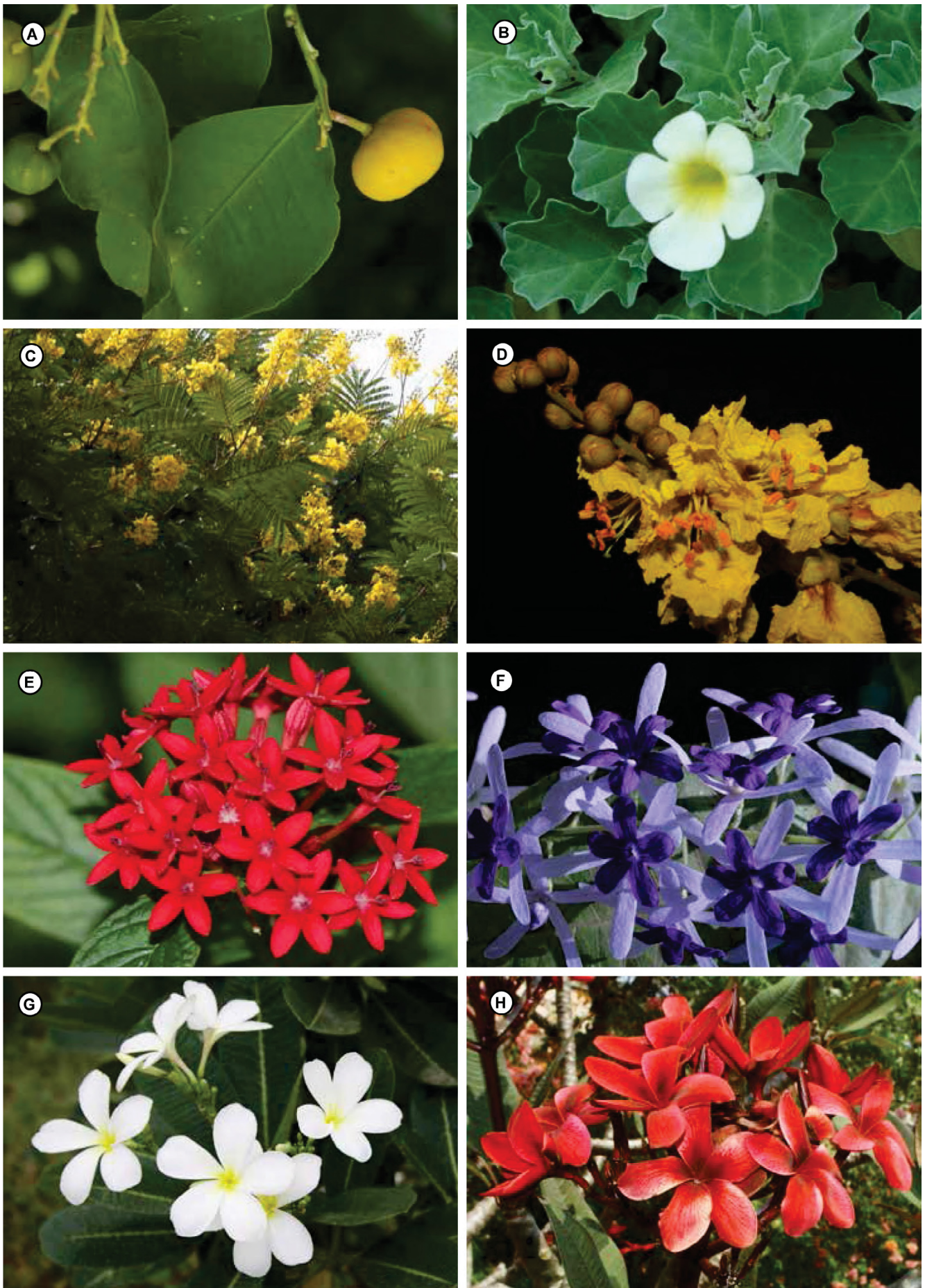


Figure 28. A, *Pamburus missionis*; B, *Pedalium murex*; C, *Peltophorum africanum*; D, *Peltophorum pterocarpum*; E, *Pentas lanceolata*; F, *Petrea volubilis*; G, *Plumeria obtusa*; H, *Plumeria rubra*.

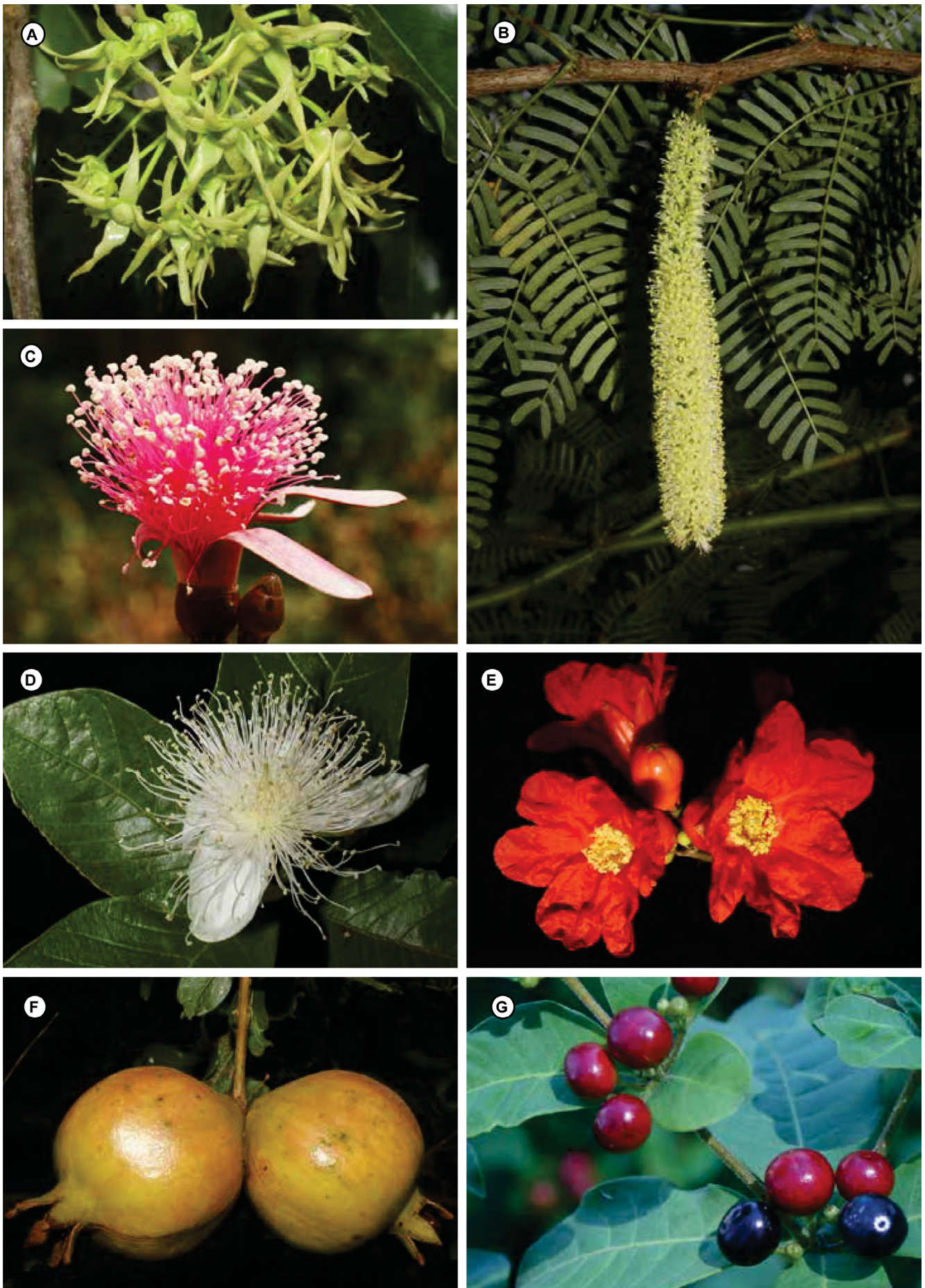


Figure 29. A, *Polyalthia longifolia*; B, *Prosopis juliflora*; C, *Pseudobombax ellipticum*; D, *Psidium guajava*; E, *Punica granatum*, flower; F, *Punica granatum*, fruits; G, *Rauvolfia tetraphylla*.

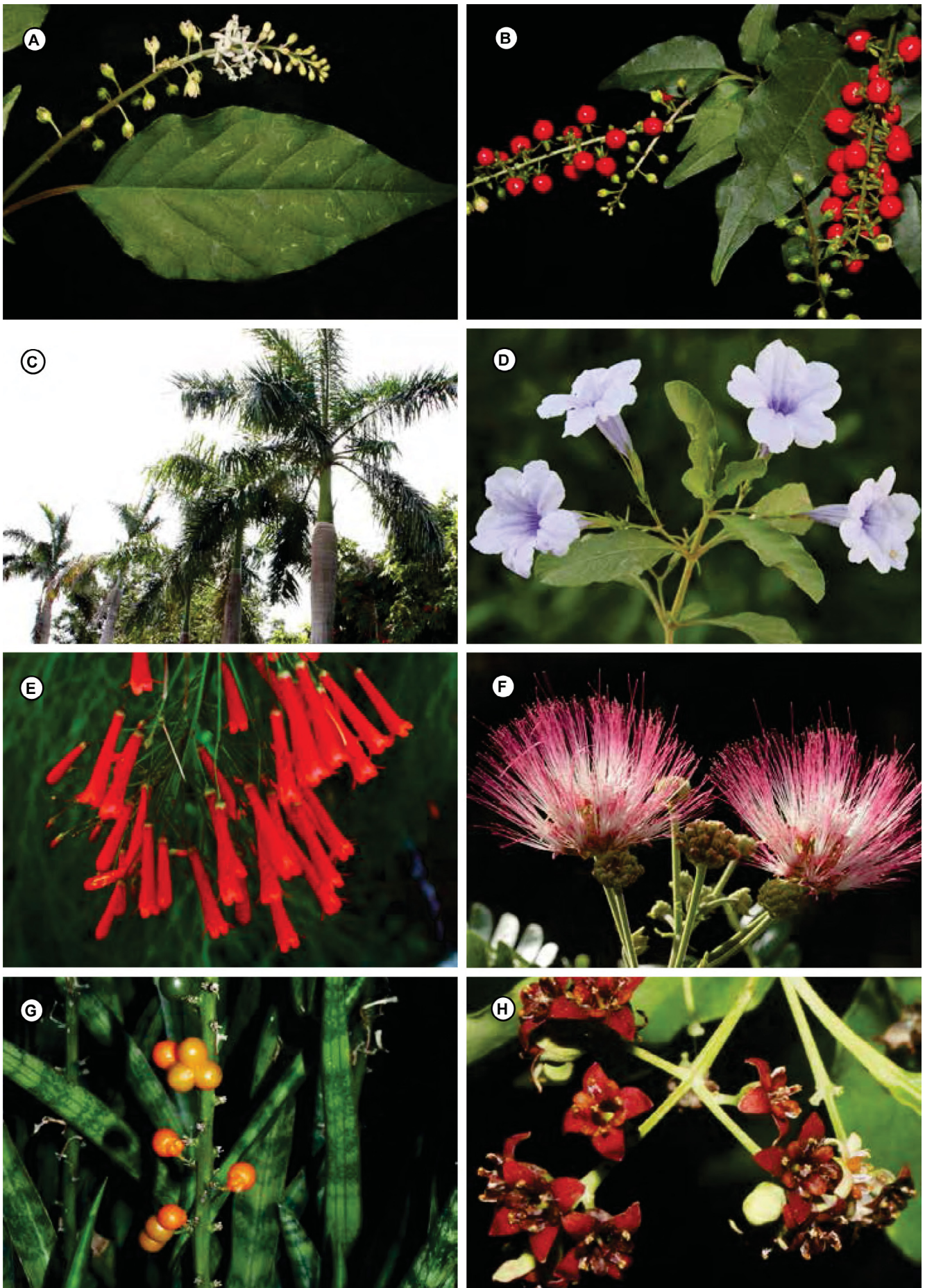


Figure 30. A, *Rivina humilis*, flower; B, *Rivina humilis*, fruit; C, *Roystonea regia*; D, *Ruellia tuberosa*; E, *Russelia equisetiformis*; F, *Samanea saman*; G, *Sansevieria roxburghiana*; H, *Santalum album*.

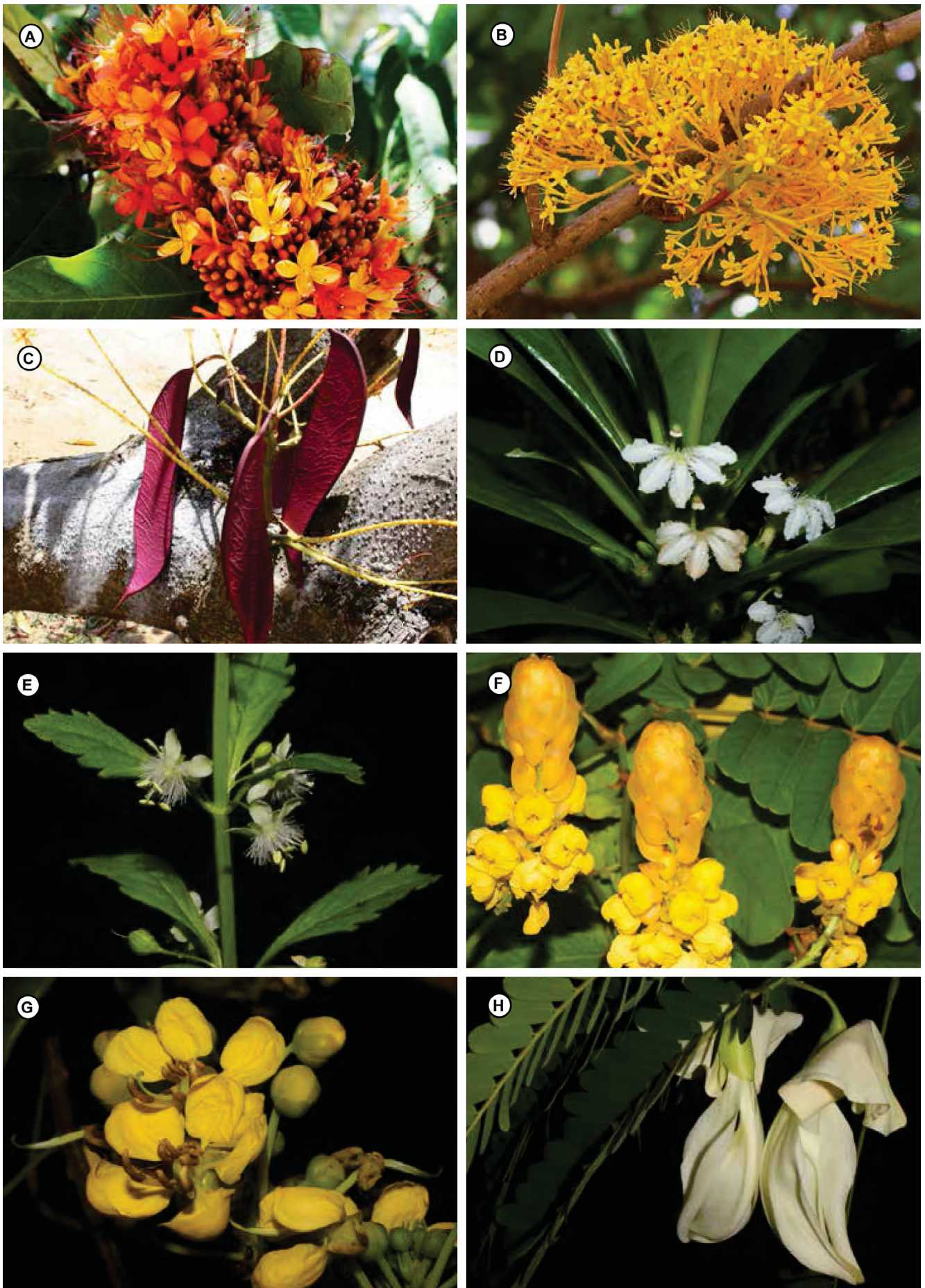


Figure 31. A, *Saraca asoca*; B, *Saraca thaipingensis*, flower; C, *Saraca thaipingensis*, pod; D, *Scaevola taccada*; E, *Scoparia dulcis*; F, *Senna alata*; G, *Senna siamea*; H, *Sesbania grandiflora*.

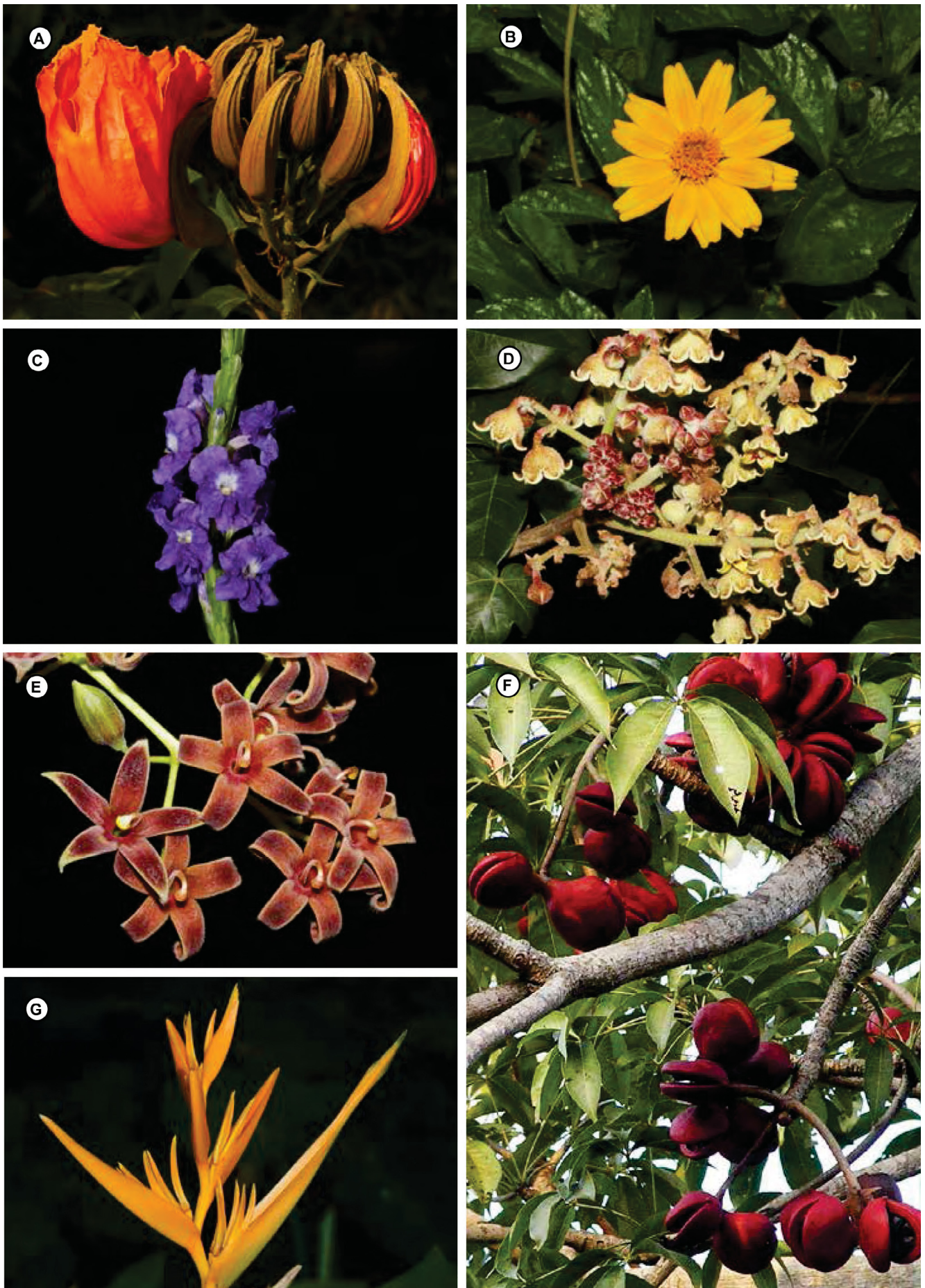


Figure 32. A, *Spathodea campanulata*; B, *Sphagneticola trilobata*; C, *Stachytarpheta jamaicensis*; D, *Sterculia apetala*; E, *Sterculia foetida*, flower; F, *Sterculia foetida*, fruits; G, *Strelitzia reginae*.

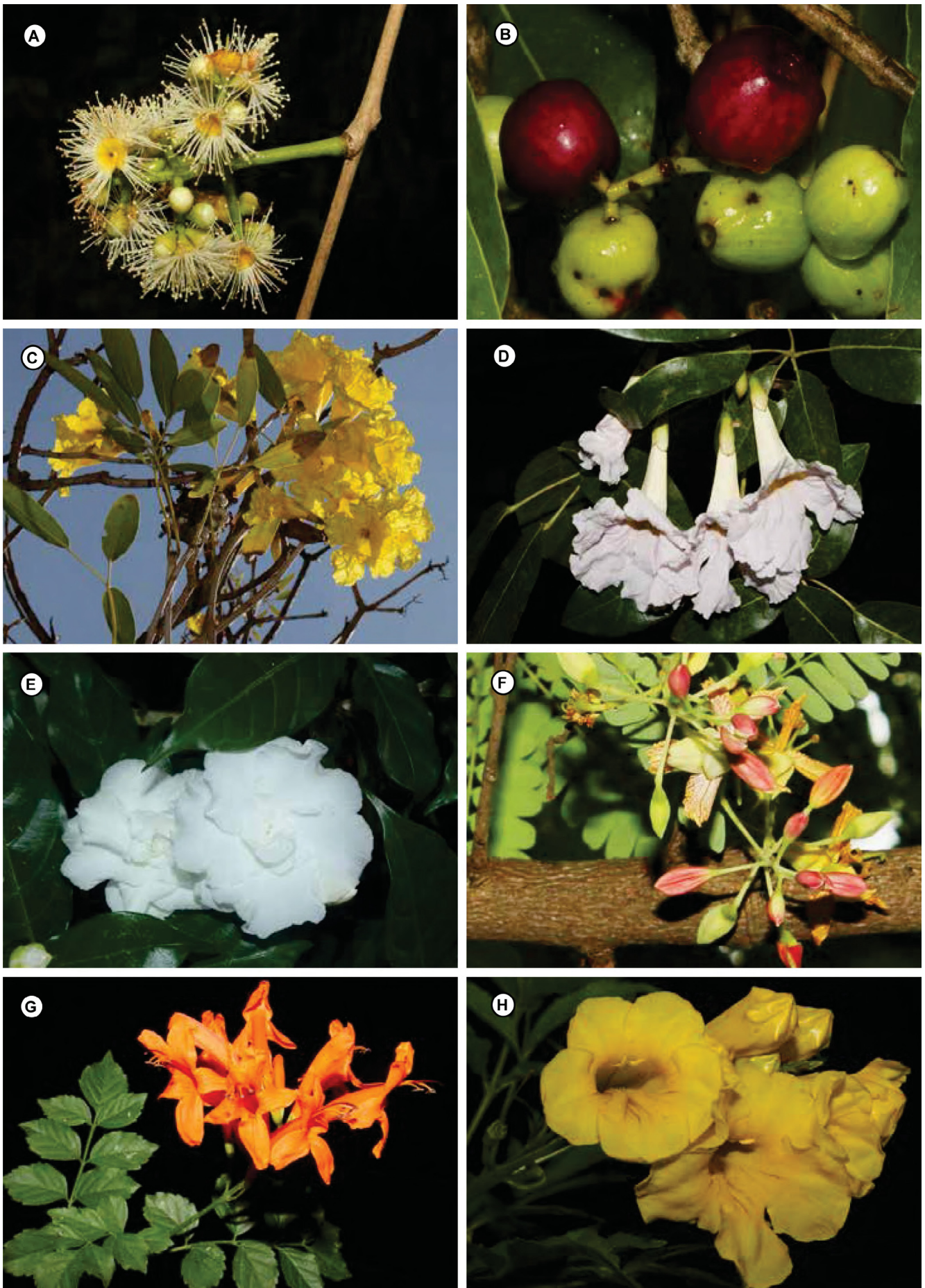


Figure 33. A, *Syzygium cumini*, flower; B, *Syzygium cumini*, fruits; C, *Tabebuia aurea*; D, *Tabebuia rosea*; E, *Tabernaemontana divaricata*; F, *Tamarindus indica*; G, *Tecoma capensis*; H, *Tecoma stans*.

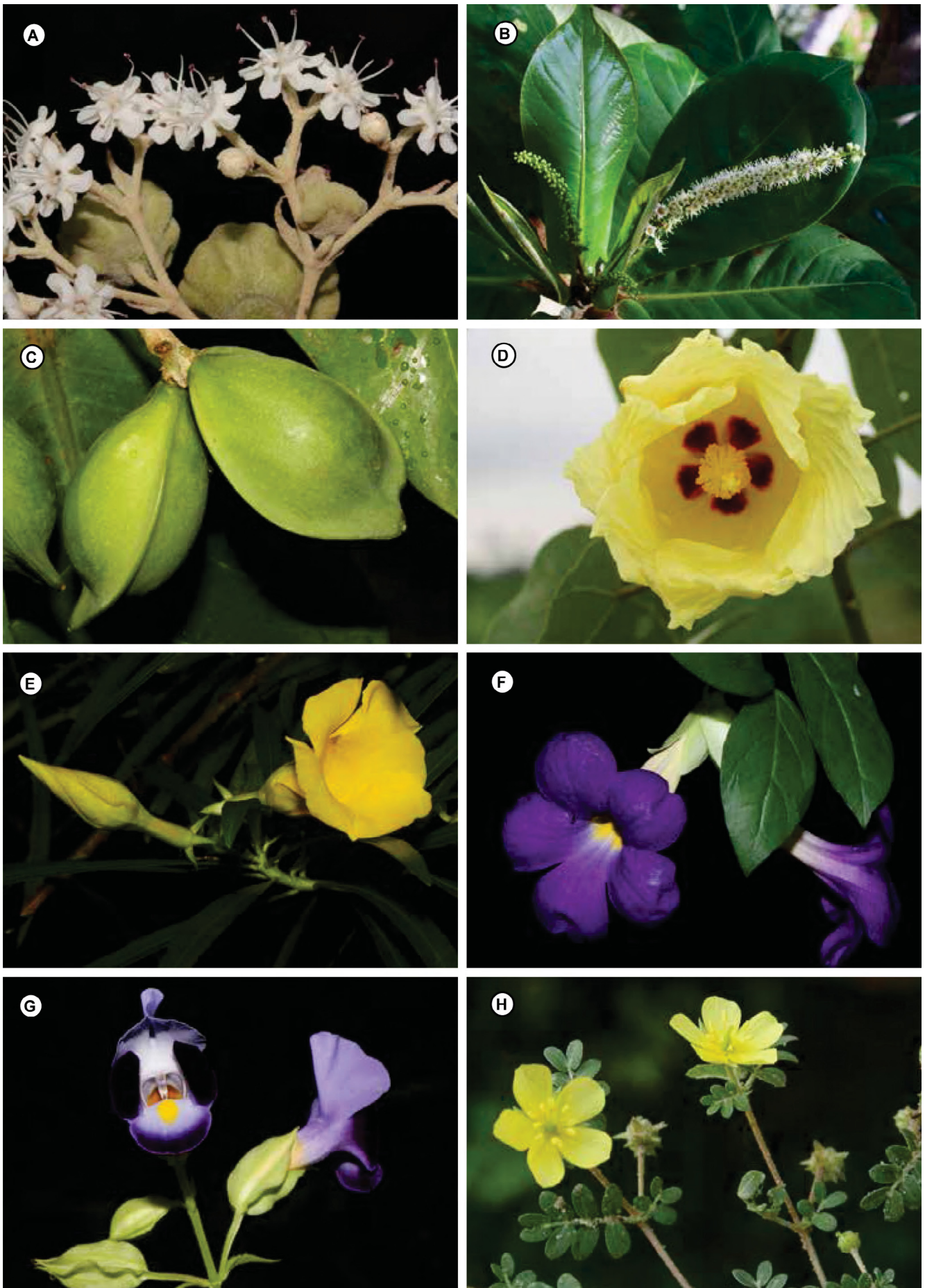


Figure 34. A, *Tectona grandis*; B, *Terminalia catappa*, flower; C, *Terminalia catappa*, fruits; D, *Thespesia populnea*; E, *Thevetia peruviana*; F, *Thunbergia erecta*; G, *Torenia hirsuta*; H, *Tribulus terrestris*.



Figure 35. A, *Triplaris weigeltiana*; B, *Turnera ulmifolia*; C, *Voacanga grandifolia*, flower; D, *Voacanga grandifolia*, fruit; E, *Wrightia tinctoria*, flower; F, *Wrightia tinctoria*, fruit; G, *Zephyranthes rosea*.