



Diversity, classification and ethnobotanical uses of wild edible fruit plants with special reference to Kallar and Ponnudi region of Agasthyamala Biosphere Reserve, Kerala, India

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Abstract

Quite a lot of local fruits found to occur as part of wilderness in and around the forest regions of Agasthyamala Biosphere Reserve of the Southern Western Ghats, which are traditionally consumed by the provincial rural folk communities. Conservation of these promising germplasm repositories would certainly be rewarded in food security of the nation for upcoming horticulture and plant breeding improvement programmes. Occasionally, some of these wild edible minor fruits harvested from forests are noticed among the countryside markets for sale; however, these fruits are apparently lesser known to the modern world. The current article is focussed upon the diversity, classification and ethnobotanical uses of wild edible fruit species in general and in particular with the agro-biodiversity of semi-domesticated and lesser-known wild prototypes of edible fruit plants from Kallar and Ponnudi region of Agasthyamala Biosphere Reserve. The article is illustrated with 30 wild edible fruit plant species belonging to 13 angiosperm families, their classification and phenology. It includes 4 threatened taxa demarcated under the IUCN category of the Red Data Book. The collected plants classified based on their popularity and distribution. The local data collected from the study area including their edible and medicinal uses by Kani tribes.

Keywords: Distribution, Minor edible fruits, Threatened status, Tribal uses

1. Introduction

1.1. The Agasthyamala Biosphere Reserve (ABR)

The Agasthyamala Biosphere Reserve (ABR) is one of the hot spots of western ghats at the southernmost end of the Western Ghats. The Agasthyamala Biosphere Reserve lies between 8°8' to 9°10' North Latitude and 76°52' to 77°34' East Longitude. This region declared as 'Biosphere Reserve' in 2001 by the Ministry of Environment and Forests (MoEF), Government of India which covers an area of 3500.365 sq. km. The ABR spreads over two states of the Indian union *viz.*, Kerala and Tamil Nadu. The Kerala region covers around 1828 sq. km encompasses within the districts of Pathanamthitta, Kollam and Thiruvananthapuram while

the Tamil Nadu State encircles around 1672.36 sq. km in two districts, Tirunelveli and Kanyakumari. According to forest working plan status, the Agasthyamala Biosphere Reserve is divided into three zones such as Core Zone, Buffer Zone and Transition Zone. About 1135 sq. km is included in the Core zone, 1445 sq. km included in the Buffer zone and remaining 920.36 sq. km of area in Transition zone. The Core Zone located mostly in Tamil Nadu (691 sq. km); while the Buffer Zone and Transition Zone of the Biosphere Reserve demarcated mostly within Kerala than Tamil Nadu State. An area of around 754 sq. km encircles the Kerala and 691.00 sq. km. in Tamil Nadu. The buffer zone consists of tribal settlements and non-tribal

settlements. The outer area of the Biosphere Reserve is the transition zone, spread over to 920.36 sq. km. The transition zone in Kerala covers an area of around 722 sq. km. and the Tamil Nadu occupies about 198.36 sq. km (Pandurangan, 2009).

The ABR in Kerala encompasses with Neyyar, Peppara and Shendurney Wildlife Sanctuaries and their adjoining areas of Achankovil, Thenmala, Konni, Punalur, Thiruvananthapuram Forest Divisions and *Agasthyavanam* Special Division. Inclusion of adjoining areas of Kalakkad Mundanthurai Tiger Reserve (KMTR) in Tamil Nadu has also been approved. According to an official estimation, ABR is the abode of around 2254 angiosperm taxa including 405 endemics and considered as the richest plant genetic resource with remarkable endemics and lesser-known wild relatives of cultivars in Western Ghats (Pandurangan, 2009).

The vegetational types of the region include moist deciduous forests, tropical evergreen forests, Southern Western Ghats montane rainforests, sholas, riparian fringe forests, west coast semi evergreen forests, southern moist mixed deciduous forests and grasslands. As regards to the medicinal plant diversity of ABR estimates around 2,000 varieties of medicinal plants including 50 rare and endangered species (Pandurangan, 2009). The *Kani* tribes are the only forest inhabitant group in this area. The traditional knowledge on '*Arogyappacha*', *Trichopus zeylanicus* Gaertn. ssp. *travancoricus* (Bedd.) Burkill ex Narayanan is a remarkable contribution of *Kani* tribe in our folk knowledge (Arun Raj et al, 2020). This plant is used by the local *Kani* people for getting immunity and vitality. It is also interesting that several wild relatives of domesticated plants are included in daily diet of *Kani* people.

1.2. Wild fruit plants germplasm diversity of the Kallar and Ponmudi region

Kallar and Ponmudi region is geographically located between Latitudes 8^o43' and 8^o44' North and Longitudes 77^o 04' East in Thiruvananthapuram district of Kerala, cover an area of around 109 sq.km. The fig 1 showing the approximate location of the study area in Thiruvananthapuram district. This region is well demarcated by Braemore Hills in the west and Kalakkadu -Mundanthurai Tiger Reserve of Tamil Nadu state along the east; while along the north and south, the boundaries are delimited by Shendurney Wildlife Sanctuary and hotspot region of ABR. The topography of the region is undulating with hills, cliffs and valleys with varying altitudes from 300-1000m MSL. The region is with typical humid tropical climatological conditions under the strong influence of both Southwest and Northeast monsoons with an average rain fall of 741 mm and the temperature ranges from 23.6-25.2^oC. facilitates luxuriant growth of tropical rainforests. The toponymy of 'Ponmudi Hills' derived from 'Golden Hills' is a well- known hilltop tourism spot in Kerala within the frontiers of ABR.

2. Materials and methods

The present investigation instigated with detailed literature survey based upon the various floras dealt with Kallar and Ponmudi region. This region is well demarcated by Braemore Hills in the west and Kalakkadu-Mundanthurai Tiger Reserve of Tamil Nadu state along the east; while along the north and south, the boundaries are delimited by Shendurney Wildlife Sanctuary and hotspot region of ABR. The fig 1 showing the approximate location of the study area in Thiruvananthapuram district. I compiled information on wild edible fruit plants and prepared a check list. An inventory was prepared in consultation with various

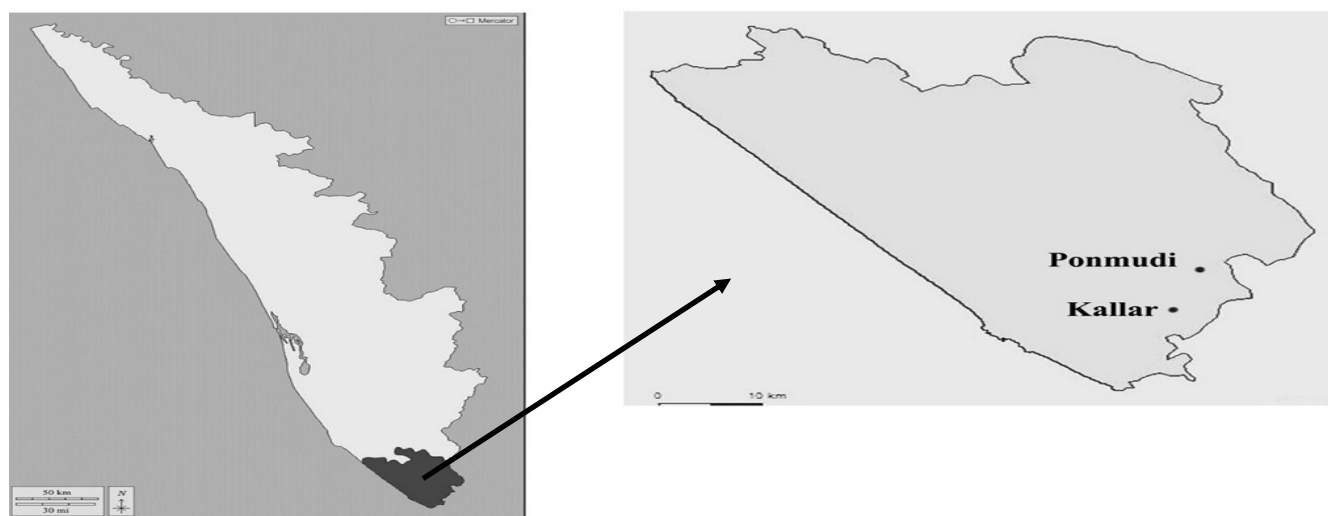


Fig. 1. Map showing Kallar and Ponmudi region

herbaria (CAL, MH, CALI, TBGT) and total 12 plant exploration trips were conducted at different localities of region covering all seasons for a period of two years (2017-2019). Details on wild edible fruits were collected through a literature survey and shared knowledge from our guide. Mr. Sasi, who was a *Kani* person, was so helpful in our survey, and we also visited Narakathinkala, Mottamoodu, Vayalipullu, Kallar and Podiyakkala. The herbarium specimens of wild edible fruit plant species were prepared by following standard procedure for future reference. Passport data sheets for each accession with several first-hand information like habit, habitat, edible part of the fruit, flowering and fruiting phenology, photographs, etc., were procured from the field itself. All collected species were provisionally identified by using standard floras such as Flora of the Presidency of Madras (Gamble and Fischer, 1993), Flora of British India (Hooker, 1990), Flora of Thiruvananthapuram (Mohanan and Henry, 1994), Flora of Agasthyamala (Mohanan and Sivadasan, 2002), etc., and confirmed identity in consultation with various herbaria. Nomenclature updates, if any, were carried out in consultation with the websites of IPNI and Kew Botanic Garden (www.plantlist.org).

3. Results and discussion

The present investigation on wild edible fruit plants located from Kallar and Ponmudi region enumerated with 30 indigenous species from 13 angiosperm families classified under wild edible fruit plants categories. According to the proposed classification 9 endemic species were collected. There are 4 species viz.,

Elaeocarpus munroii (Wight) Mast. (Nearly threatened), *Syzygium caryophyllatum* (L.) Alston (Endangered), *Syzygium bourdillonii* (Gamble) Rathakr. & N. C. Nair (Endangered) and *Syzygium myhendrae* (Bedd. ex Brandis) Gamble (Endangered) under IUCN threatened category and 7 least concern species like, *Antidesma acidum* Retz., *Bridelia retusa* (L.) A. Juss., *Garcinia gummi-gutta* (L.) Robson var. *gummi-gutta*, *Glycosmis pentaphylla* (Retz.) DC., *Phyllanthus emblica* L., *Psidium guineense* Sw. and *Syzygium cumini* (L.) Skeels were also being located from the study area. According to in depth survey and collection of plants, the family Myrtaceae was recorded as mostly used plant family for fruits with 8 species followed by Euphorbiaceae with 6 species, Elaeocarpaceae with 3 species and 2 species each from Celastraceae, Rhamnaceae and Anacardiaceae followed by Alangiaceae, Moraceae, Apocyanaceae, Flacourtiaceae, Clusiaceae, Rutaceae and Areaceae with single species. Tree species are dominated with 21 species followed by 7 species of shrubs and 2 climbing shrubs (Table 1). Interestingly, it is found that 11 indigenous wild fruit plants are used by the *Kani* tribe of the locality but country people unaware of its enormous utilities, 07 species are seasonal in harvest, 04 indigenous wild species were not much exploited but its allied species found to occur elsewhere with edible uses and 08 species were exclusively wild lesser known endangered endemic fruit plants. (Table 2). The seasonal calendar indicates most of the species flowering and fruiting period between January to June (Table 3). The most collected plants from the study area are promising edible fruit species and its edible and medicinal uses are popular among *Kani* tribal communities (Table 4).

Table 1. Wild edible fruit plants from Kallar- Ponmudi region

Sl. No.	Botanical name	Family	Habit	Distribution	IUCN Threatened category http://www.iucnredlist.org	Voucher specimen
1	<i>Alangium salviifolium</i> ssp. <i>sundanum</i> (Miq.) Bloemb (Plate 1. a)	Alangiaceae	Tree	Not common	–	–
2	<i>Antidesma acidum</i> Retz. (Plate 1. b)	Euphorbiaceae	Shrub	Not common	LC	–
3	<i>Antidesma montanum</i> Blume (Plate 1. c)	Euphorbiaceae	Tree	Not common	–	TBGT 91346
4	<i>Aporosa indoacuminata</i> Chakrab. & N. P. Balakr. (Plate 1. d)	Euphorbiaceae	Tree	Endemic in Kerala and Tamil Nadu	–	TBGT 97003, 95521

5	<i>Artocarpus heterophyllus</i> Lam. (Plate 1. e)	Moraceae	Tree	Common	–	TBGT 95580
6	<i>Baccaurea courtallensis</i> (Wight) Muell- Arg. (Plate 1. f)	Euphorbiaceae	Tree	Endemic to Peninsular India	–	TBGT 95576
7	<i>Bridelia retusa</i> (L.) A. Juss. (Plate 2. a)	Euphorbiaceae	Tree	Not common	LC	TBGT 97004
8	<i>Buchanania lanzan</i> Spreng. (Plate 2. b)	Anacardiaceae	Tree	Not common	–	TBGT 97005
9	<i>Carissa spinarum</i> L. var. <i>spinarum</i> (Plate 2. c)	Apocyanaceae	Large shrub	Not common	–	–
10	<i>Elaeocarpus munroii</i> (Wight) Mast. (Plate 2. d)	Elaeocarpaceae	Tree	Endemic in India	NT	TBGT 95524
11	<i>Elaeocarpus serratus</i> SL. var. <i>serratus</i> (Plate 2. e)	Elaeocarpaceae	Tree	Not common	–	TBGT 91324, 95578
12	<i>Elaeocarpus tuberculatus</i> Roxb. (Plate 2. f)	Elaeocarpaceae	Tree	Not common	–	TBGT 95518
13	<i>Flacourtia montana</i> J. Graham (Plate 3. a)	Flacourtiaceae	Tree	Endemic in India	–	TBGT 97007
14	<i>Garcinia gummi-gutta</i> (L.) Robson var. <i>gummi-gutta</i> (Plate 3. b)	Clusiaceae	Tree	Endemic to India	LC	TBGT 97009
15	<i>Glycosmis pentaphylla</i> (Retz.) DC. (Plate 3. c)	Rutaceae	Shrub	Not common	LC	TBGT 97009
16	<i>Phoenix loureiroi</i> var. <i>pedunculata</i> (Griff.) Govaerts (Plate 3. d)	Areaceae	Shrub	Not common	–	TBGT 91393
17	<i>Phyllanthus emblica</i> L. (Plate 3. e)	Euphorbaceae	Tree	Not common	LC	TBGT 97010
18	<i>Psidium guineense</i> Sw. (Plate 3. f)	Myrtaceae	Shrub	Not common	LC	TBGT 91399
19	<i>Salacia chinensis</i> L. (Plate 4. a)	Celastraceae	Liana	Not common	–	TBGT 97011
20	<i>Salacia malabarica</i> Gamble (Plate 4. b)	Celastraceae	Liana	Endemic to Southern Western Ghats	–	TBGT 97012

21	<i>Spondias pinnata</i> (L.f) Kurz (Plate 4. c)	Anacardiaceae	Tree	Common	–	TBGT 97013
22	<i>Syzygium bourdillonii</i> (Gamble) Rathakr. & N. C. Nair (Plate 4. d)	Myrtaceae	Tree		EN	TBGT 97014
23	<i>Syzygium caryophyllatum</i> (L.) Alston (Plate 4. e)	Myrtaceae	Tree	Not common	EN	TBGT 91380
24	<i>Syzygium cumini</i> (L.) Skeels (Plate 4. f)	Myrtaceae	Tree	Not common	LC	TBGT 97015
25	<i>Syzygium gardneri</i> Thwaites (Plate 5. a)	Myrtaceae	Tree	Not common	–	–
26	<i>Syzygium lanceolatum</i> (Lam.) Wight & Arn. (Plate 5. b)	Myrtaceae	Tree	Not common	–	TBGT 95526
27	<i>Syzygium mundagam</i> (Bourd.) Chithra (Plate 5. c)	Myrtaceae	Tree	Endemic in India	–	TBGT 91331, 91332
28	<i>Syzygium myhendrae</i> (Bedd. ex Brandis) Gamble (Plate 5. d)	Myrtaceae	Tree	Endemic to Southern Western Ghats	EN	TBGT 91350
29	<i>Ziziphus oenoplia</i> (L.) Mill (Plate 5. e)	Rhamnaceae	Shrub	Common	–	TBGT 97016
30	<i>Ziziphus rugosa</i> Lam. (Plate 5. f)	Rhamnaceae	Shrub	Not common	–	TBGT 97017

*LC: Least Concern; NT: Nearly Threatened; EN: Endangered

Table 2. Classification of wild edible fruit plant species located during the present investigation from Kallar and Ponnudi region.

Sl. No.	Classification based on popularity and cultivation	Wild edible fruit plants
1	Wild or rather semi-domesticated least utilized fruit plant species confirmed to local cultivation by tribal communities.	<i>Buchanania lanzan</i> Spreng. <i>Spondias pinnata</i> (L.f.) Kurz. <i>Antidesma montanum</i> Blume <i>Bridelia retusa</i> (L.) A. Juss. <i>Glycosmis pentaphylla</i> (Retz.) DC. <i>Psidium guineense</i> Sw. <i>Salacia chinensis</i> L. <i>Alangium salviifolium</i> ssp. <i>sundanum</i> (Miq.) Bloem
2	Wild species with several unidentified utilities under seldom cultivation along countryside adjacent to natural forests.	<i>Baccaurea courtallensis</i> (Wight) Muell- Arg. <i>Garcinia gummi-gutta</i> (L.) Robson var. <i>gummi-gutta</i> <i>Syzygium cumini</i> (L.) Skeels <i>Artocarpus heterophyllus</i> Lam. <i>Phyllanthus emblica</i> L. <i>Ziziphus oenoplia</i> (L.) Mill <i>Ziziphus rugosa</i> Lam.
3	Indigenous species with seasonal harvest only.	<i>Antidesma acidum</i> Retz. <i>Carissa spinarum</i> L. var. <i>spinarum</i> <i>Elaeocarpus serratus</i> L. var. <i>serratus</i>
4	Locally lesser known least exploited species may or may not under local cultivation but their value has been well recognized and established elsewhere under similar climatic conditions of same latitudes.	<i>Elaeocarpus tuberculatus</i> Roxb. <i>Phoenix loureiroi</i> var. <i>pedunculata</i> (Griff.) Govaerts <i>Syzygium gardneri</i> Thwaites <i>Syzygium lanceolatum</i> (Lam.) Wight & Arn.
5	Indigenous wild fruit plant species not yet to be identified their uses, but allied species found to occur elsewhere with edible uses.	<i>Aporosa indoacuminata</i> Chakrab. & N. P. Balakr. <i>Elaeocarpus munroii</i> (Wight) Mast. <i>Flacourtia montana</i> J. Graham <i>Salacia malabarica</i> Gamble <i>Syzygium bourdillonii</i> (Gamble) Rathakr. & N. C. Nair <i>Syzygium caryophyllatum</i> (L.) Alston <i>Syzygium mundagam</i> (Bourd.) Chithra <i>Syzygium myhendrae</i> (Bedd. ex Brandis) Gamble
6	Wild lesser known or endangered endemic fruit plant taxa yet to be characterized (bio prospecting).	

3.1. Flowering and fruiting calendar

The flowering and fruiting season of the collected species were noted mainly through literature,

herbarium and field observation. A tentative phenology calendar was prepared.

Table 3. Phenology calendar of the wild edible plant species collected from Ponnudi an Kallar region of ABR

Sl. No.	Species Name	Jan	Feb	Mar	Apr	May	June	July	Aug	Sep	Oct	Nov	Dec
1	<i>Alangium salvifolium</i> ssp. <i>sundanum</i> (Miq.) Bloemb.	*	*	*	*	*	*						*
2	<i>Antidesma acidum</i> Retz.					*	*	*	*	*	*	*	*
3	<i>Antidesma montanum</i> Blume		*	*	*	*	*	*	*	*	*	*	*
4	<i>Aporosa indoacuminata</i> Chakrab & N. P. Balakr		*	*	*	*	*						*
5	<i>Artocarpus heterophyllus</i> Lam.		*	*	*	*	*						*
6	<i>Baccaurea courtallensis</i> (Wight) Muell.- Arg		*	*	*	*	*	*	*	*	*	*	*
7	<i>Bridelia retusa</i> (L.) A. Juss.		*	*	*	*	*	*	*	*	*	*	*
8	<i>Buchanania lanzan</i> Spreng.		*	*	*	*	*	*	*	*	*	*	*
9	<i>Carissa spinarum</i> L.var. <i>spinarum</i>		*	*	*	*	*	*	*	*	*	*	*
10	<i>Elaeocarpus munroii</i> (Wight) Mast.		*	*	*	*	*	*	*	*	*	*	*
11	<i>Elaeocarpus serratus</i> L. var. <i>serratus</i>		*	*	*	*	*	*	*	*	*	*	*
12	<i>Elaeocarpus tuberculatus</i> Roxb.		*	*	*	*	*	*	*	*	*	*	*
13	<i>Flacourtia montana</i> J.Graham		*	*	*	*	*	*	*	*	*	*	*
14	<i>Garcinia gummi-gutta</i> (L.) Robson var. <i>gummi-gutta</i>		*	*	*	*	*	*	*	*	*	*	*
15	<i>Glycosmis pentaphylla</i> (Retz.) DC.		*	*	*	*	*	*	*	*	*	*	*
16	<i>Phoenix loureiroi</i> var. <i>pedunculata</i> (Griff.) Govaerts		*	*	*	*	*	*	*	*	*	*	*
17	<i>Phyllanthus emblica</i> L.		*	*	*	*	*	*	*	*	*	*	*
18	<i>Psidium guineense</i> Sw.		*	*	*	*	*	*	*	*	*	*	*
19	<i>Salacia chinensis</i> L.		*	*	*	*	*	*	*	*	*	*	*
20	<i>Salacia malabarica</i> Gamble		*	*	*	*	*	*	*	*	*	*	*
21	<i>Spondias pinnata</i> (L.f.) Kurz.		*	*	*	*	*	*	*	*	*	*	*
22	<i>Syzygium bourdillonii</i> (Gamble) Rathkr. & N. C. Nair		*	*	*	*	*	*	*	*	*	*	*
23	<i>Syzygium caryophyllatum</i> (L.) Alston		*	*	*	*	*	*	*	*	*	*	*
24	<i>Syzygium cumini</i> (L.) Skeels		*	*	*	*	*	*	*	*	*	*	*
25	<i>Syzygium gardneri</i> Thwaites		*	*	*	*	*	*	*	*	*	*	*
26	<i>Syzygium lanceolatum</i> (Lam.) Wight & Arn.		*	*	*	*	*	*	*	*	*	*	*
27	<i>Syzygium mundagam</i> (Bourd.) Chithra		*	*	*	*	*	*	*	*	*	*	*
28	<i>Syzygium myhendrae</i> (Bedd. ex Brandis) Gamble		*	*	*	*	*	*	*	*	*	*	*
29	<i>Ziziphus oenoplia</i> (L.) Mill		*	*	*	*	*	*	*	*	*	*	*
30	<i>Ziziphus rugosa</i> Lam.		*	*	*	*	*	*	*	*	*	*	*

*Jan: January; Feb: February; Mar: March; Apr: April; Aug: August; Sep: September; Oct: October; Nov: November; Dec: December

Table 4. Indigenous uses of wild fruit plants

Sl. No.	Botanical name	Local Name	Indigenous use	Source
1	<i>Alangium salviifolium</i> ssp. <i>sundanum</i> (Miq.) Bloemb.	<i>Kilikuthippazham, Ankolam</i>	<i>Kani</i> tribes used against stomach disorders, Boiled stem and root in water used against diarrhoea and vomiting, eat ripe fruits. Fruits are edible with rich amount of carbohydrate and vitamin E (Arun, 2018)	Wild
2	<i>Antidesma acidum</i> Retz.	<i>Areepazham</i>	Ripe fruits edible and making pickle, young leaves used to prepare curry.	Wild
3	<i>Antidesma montanum</i> Blume	<i>Neythali, Putharaval</i>	The sweetish sour fleshy part of the fruits is eaten which is equally good for making jams and pickles. The seeds are usually discarded.	Wild
4	<i>Aporosa indoacuminata</i> Chakrab. & N. P. Balakr.	-	Fruit pulp edible	Wild
5	<i>Artocarpus heterophyllus</i> Lam.	<i>Plavu, Pilavu</i>	Fruits are edible. The wood is used for all purposes for which teak is employed: boat and ship building, hulls, masts, decks and spars, constructional work, beams, rafters, doors and windows frames, furniture, turnery; it is also used for cabinet-making, agricultural implements, heavy packing-cases, veneers and plywood.	Wild
6	<i>Baccaurea courtallensis</i> (Wight) Muell.- Arg.	<i>Mootippazham, Mootippuli, Moottikaya</i>	Fruit edible. It is mixed with required quantity of hot water and taken internally in the form of tablets to treat piles, leaves, fruits and stem grind together and taken internally to taken out poison.	Wild
7	<i>Bridelia retusa</i> (L.) A. Juss.	<i>Mulluvenga, Kaini</i>	The scanty outer flesh of the ripe fruits is edible. It is sweetish, sour in taste. The seeds are usually discarded. The leaves form a good fodder and the wood is good for making furniture.	Wild
8	<i>Buchanania lanzan</i> Spreng.	<i>Kulamavu, Moonagapezhu, Padacheru</i>	Ripe fruits are edible. It is used as a cooking spice. It is aphrodisiac, nourishing, cardiac tonic but it may cause indigestion.	Wild
9	<i>Carissa spinarum</i> L. var. <i>spinarum</i>	<i>Cherumulchedi</i>	Fruits are edible.	Wild
10	<i>Elaeocarpus munroii</i> (Wight) Mast.	<i>Kalrudraksham</i>	The ripe fruits are edible, which are sweet and less sourish as compared to <i>Elaeocarpus serratus</i> L.	Wild

11	<i>Elaeocarpus serratus</i> L. var. <i>serratus</i>	Karaykka, Nallakara, Karamavu	The pulp surrounding the seed forms the edible portion which is sweet and tasty. The fruits are either eaten raw or pickled in salt solution.	Wild, Cultivated
12	<i>Elaeocarpus tuberculatus</i> Roxb.	Ammakkaram, Ammakorum	Bark used against antimicrobial activity.	Wild
13	<i>Flacourtia montana</i> J. Graham	Kattuloika	Fruits are edible. The ripe fruits can also be used for making jams, jellies and preserves for pickle.	Wild
14	<i>Garcinia gummi-gutta</i> (L.) Robson var. <i>gummi-gutta</i>	Pinampuli, Kudampuli, Thottupuli	Mature seed pulp sweet, dried fruits used as flavouring agent in curry. A decoction made from the plant is used in the treat of rheumatism and bowel complaints.	Wild, Cultivated
15	<i>Glycosmis pentaphylla</i> (Retz.) DC.	Panal, Kuttipanal	Fruit edible. Leaf paste is applied on Cuts and wounds, twice a day for 2 days. Used for divine beliefs and healing of skin allergy.	Wild
16	<i>Phoenix loureiroi</i> var. <i>pedunculata</i> (Griff.) Govaerts	Chittinthal	Ripened fruit is sweet, edible	Wild
17	<i>Phyllanthus emblica</i> L.	Nelli	Fruits are eaten raw and making pickles and jam, making a well-known Ayurvedic drug 'Triphala'. Twigs are used as tooth brush to clear teeth.	Wild, Cultivated
18	<i>Psidium guineense</i> Sw.	Kattupera	Mature fruit sour taste	Wild
19	<i>Salacia chinensis</i> L.	Cherukurani	Fruit edible; roots said to be abortifacient.	Wild
20	<i>Salacia malabarica</i> Gamble	-	Fruits are edible	Wild

21	<i>Spondias pinnata</i> (L.f) Kurz.	Katambozham	The fruit is eaten as a vegetable when green and as a fruit when ripe. It is used as a condiment and can be made in to chutneys, stews, pickles and jams. It is eaten either green or dry as an antidote for wounds caused by poisonous arrows. The juice is applied in ear ache. The bark is aromatic, astringent and refrigerant. It is useful in dysentery and diarrhoea and is also given to prevent vomiting.	Wild
22	<i>Syzygium bourdillonii</i> (Gamble) Rathakr. & N. C. Nair	-	Traditional uses unknown	Wild
23	<i>Syzygium caryophyllatum</i> (L.) Alston	Njara, Cherunjarah, Kattunjarah	Small, ripened fruits are edible	Wild
24	<i>Syzygium cumini</i> (L.) Skeels	Njaval	Mature fruits used to make pickle. Ripen fruits pulp edible, make jam.	Wild
25	<i>Syzygium gardneri</i> Thwaites	Aattunjaval	Fruit edible	Wild
26	<i>Syzygium lanceolatum</i> (Lam.) Wight & Arn.	Kattu njaval	Fruit edible	Wild
27	<i>Syzygium mundagam</i> (Bourd.) Chithra	Kattu chamba	Small fruits are edible	Wild
28	<i>Syzygium myhendrae</i> (Bedd. ex Brandis) Gamble	-	Ornamental flowers, very small fruits are edible	Wild
29	<i>Ziziphus oenoplia</i> (L.) Mill	Cheruthudali, Kottaipazham, Mulli	Black ripe fruits are eaten in the region and considered it gives strength to the body. It is also prescribed in indigestions, acidity and as appetizer. Ripe fruit is edible. Root bark is used for healing wounds.	Wild
30	<i>Ziziphus rugosa</i> Lam.	Malamthudali, Kottamullu	Mature fruits used to make pickle, ripen fruits are sweet and edible.	Wild

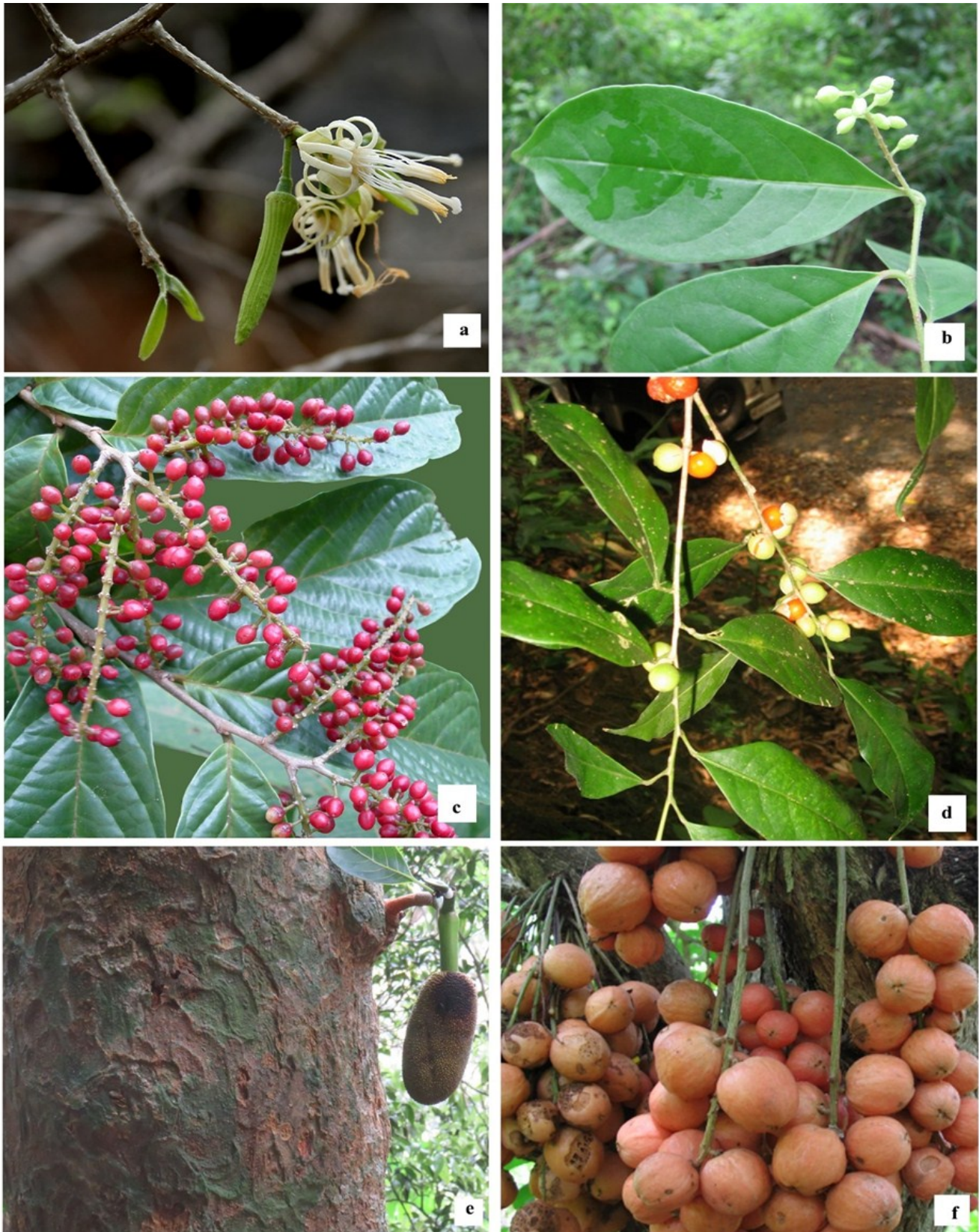


Plate 1. a. *Alangium salviifolium* ssp. *sundanum* (Miq.) Bloemb.; b. *Antidesma acidum* Retz.; c. *Antidesma montanum* Blume; d. *Aporosa indoacuminata* Chakrab. & N.P.Balacr.; e. *Artocarpus heterophyllus* Lam.; f. *Baccaurea courtallensis* (Wight) Muell.- Arg.

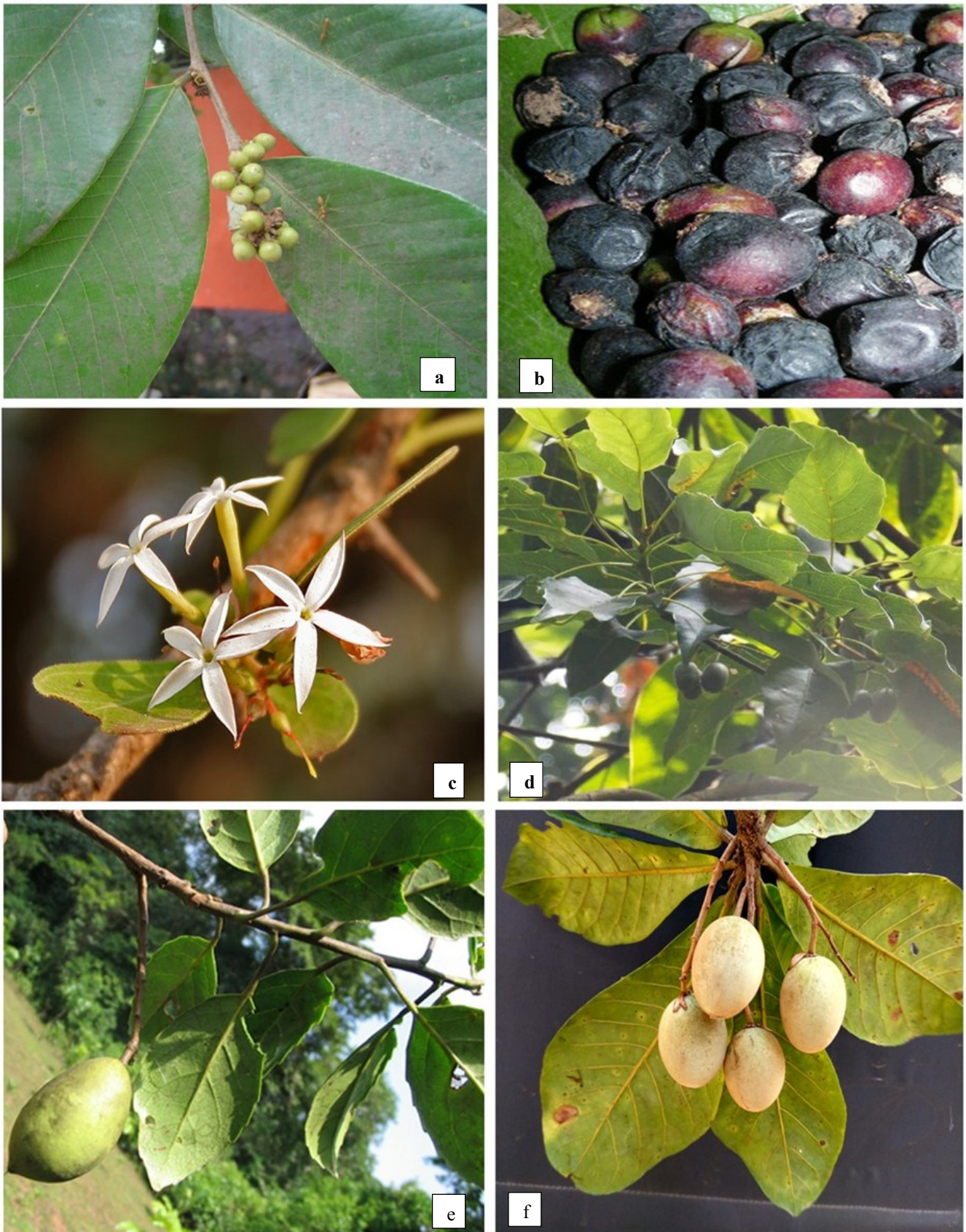


Plate 2. a. *Bridelia retusa* (L.) A. Juss.; b. *Buchanania lanzan* Spreng.; c. *Carissa spinarum* L. var. *spinarum*; d. *Elaeocarpus munroii* (Wight) Mast.; e. *Elaeocarpus serratus* L. var. *serratus*; f. *Elaeocarpus tuberculatus* Roxb.

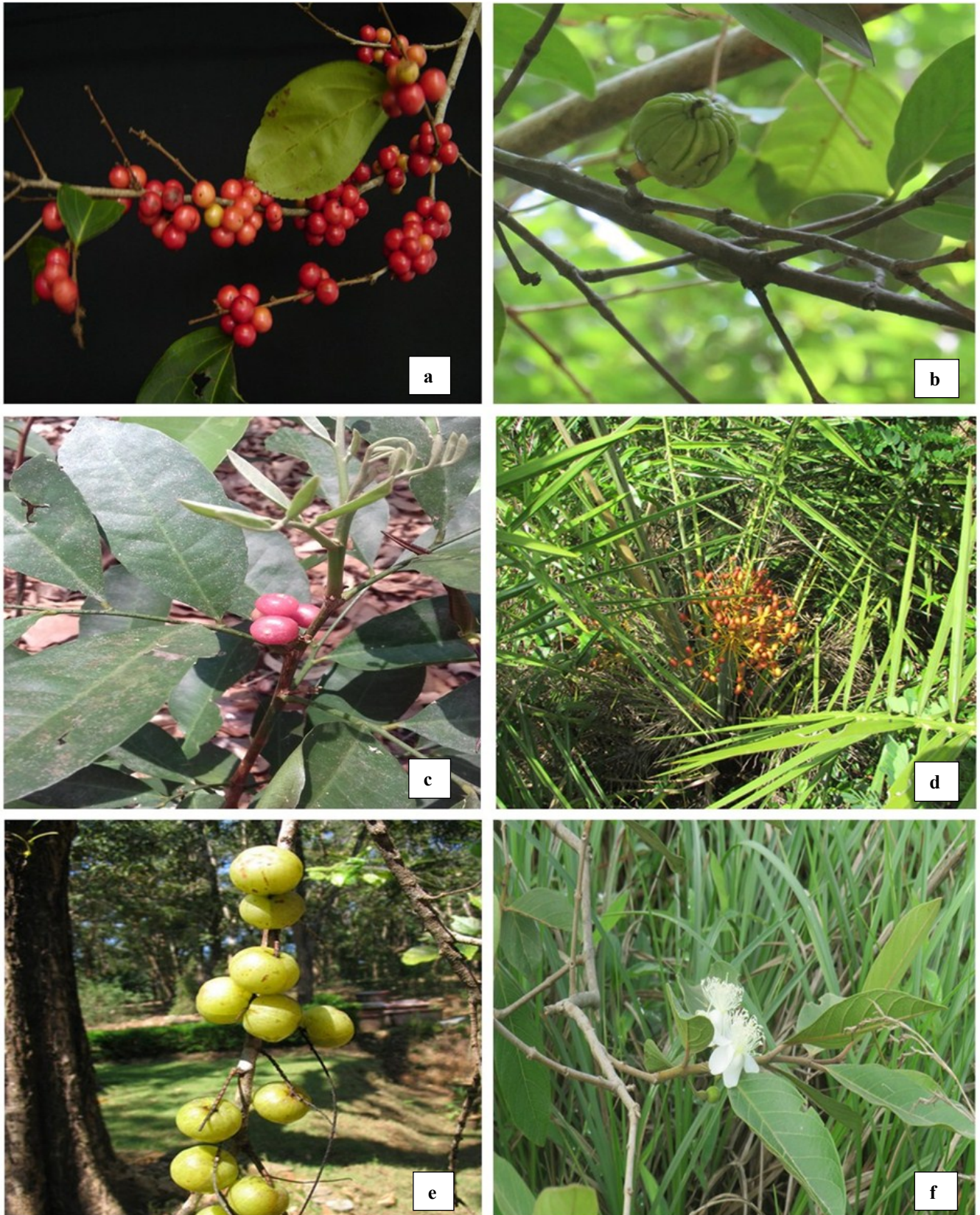


Plate 3. a. *Flacourtia montana* J. Graham; b. *Garcinia gummi-gutta* (L.) Robson var. *gummi-gutta*; c. *Glycosmis pentaphylla* (Retz.) DC.; d. *Phoenix loureiroi* var. *pedunculata* (Griff.) Govaerts; e. *Phyllanthus emblica* L.; f. *Psidium guineense* Sw.



Plate 4. a. *Salacia chinensis* L.; b. *Salacia malabarica* Gamble; c. *Spondias pinnata* (L.f) Kurz; d. *Syzygium bourdillonii* (Gamble) Rathakr. & N. C. Nair; e. *Syzygium caryophyllatum* (L.) Alston; f. *Syzygium cumini* (L.) Skeels

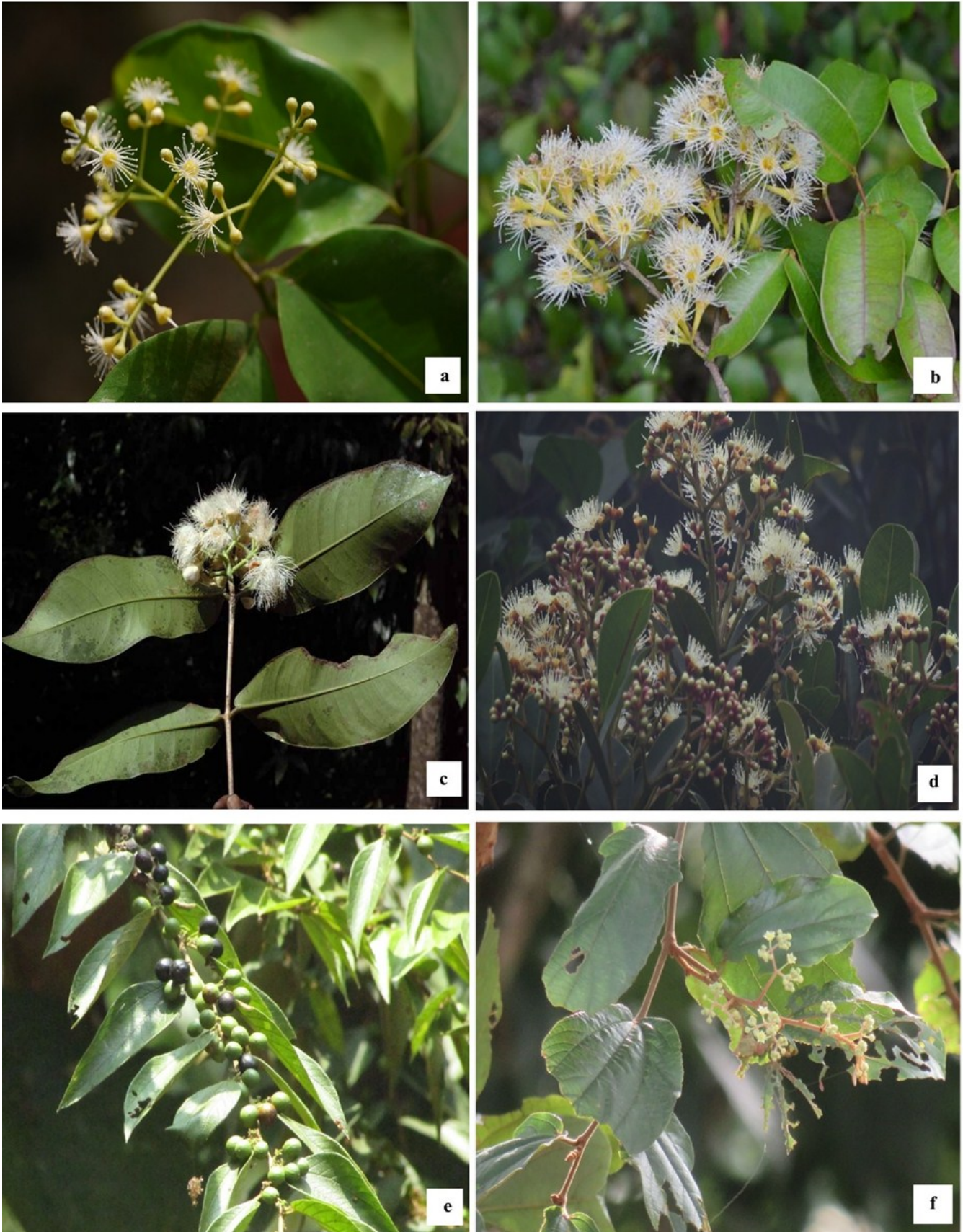


Plate 5. a. *Syzygium gardneri* Thwaites; b. *Syzygium lanceolatum* (Lam.) Wight & Arn.; c. *Syzygium mundagam* (Bourd.) Chithra; d. *Syzygium myhendrae* (Bedd. ex Brandis) Gamble; e. *Ziziphus oenoplia* (L.) Mill; f. *Ziziphus rugosa* Lam.

4. Conclusion

The study area, Kallar and Ponmudi region, is remarkable with plant diversity and a rich repository of many underutilized wild edible fruit plants. We were able to find out from our two years study, the wild edible fruits are used by the provincial rural folk communities of Kallar and Ponmudi region for their food habits as well as traditional health care purpose. According to the classification of plants based on the popularity and cultivation, the number of cultivated species are few and the number of species with unidentified uses are high but they are exclusively wild in occurrence. The present study reveals that only few numbers of fruit plants are familiar to the farmers and common man. Ethnobotanical values of all species are highly useful around the local communities and their daily diet. Hence the present documentation of these species would certainly be intriguing towards the chemical profiling and nutritive analysis of these fruits.

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