

## ON THE VEGETATION AND FLORA OF PULAU TIOMAN, PENINSULAR MALAYSIA

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**ABSTRACT.** - Based on literature and herbaria surveys and recent collections of plants from Pulau Tioman, a provisional checklist of seed plants is presented. A total of 650 species of seed plants, comprising of 5 gymnosperms and 645 angiosperms, belonging to 434 genera and 128 families were enumerated. These are distributed in four main vegetation types; mangrove forest, beach vegetation, lowland dipterocarp forest and hill dipterocarp forest. The richness of seed plants on Pulau Tioman warrant the forests there to be conserved.

**KEY WORDS.** - Vegetation, flora, Pulau Tioman.

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### INTRODUCTION

The roughly pear-shaped Pulau Tioman belongs to the state of Pahang and lies some 32 km from Mersing, Johore. Over the years botanists and zoologists have paid visits to the island and collected many specimens now lodged mostly at the herbarium of the Singapore Botanic Gardens (SING), overseas and more recent collections seem to be scattered in many local herbaria. The early published works on the plants of Pulau Tioman were scattered too in many local and overseas journals and transactions. The earliest comprehensive accounts were given by Ridley (1893) and Henderson (1930) and the latest was given by Stone (1977). Corner (1985) also described collections he made from the surrounding islets in 1935. Those early plant collectors as well as those recent ones visited the most accessible parts of the

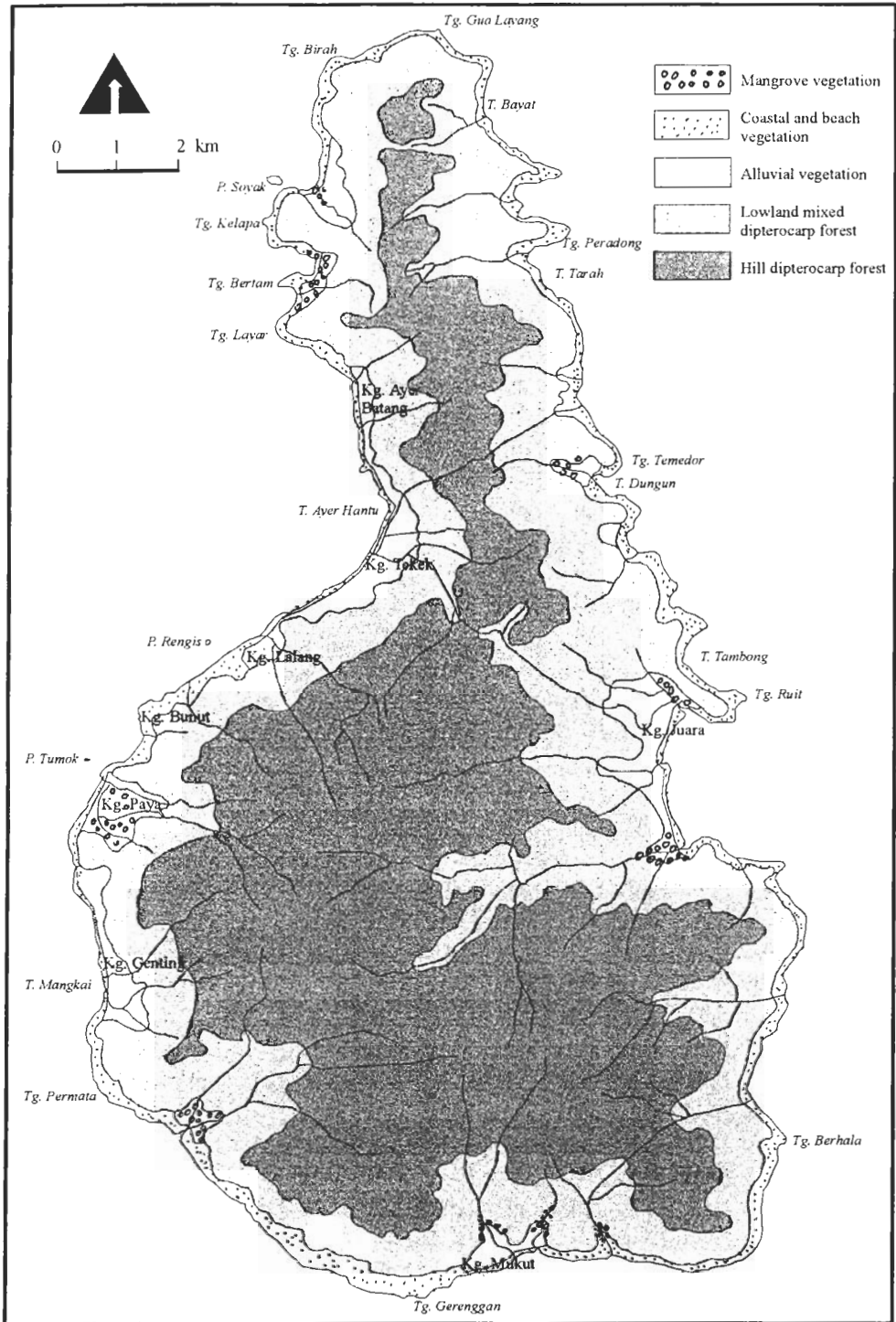


Fig. 1. Vegetation of Pulau Tioman.

islands such as Kampung Juara, Kampung Mukut, Tanjung Nipah, Tanjung Pauh, Tanjung Berhala, Kampung Tekek, including Gunung Kajang. However, many more localities which are less accessible due to the ruggedness of the terrain have yet to be sampled.

Topographically Pulau Tioman is fairly rugged, with very little flat lands which is mainly limited to the coasts, especially around Teluk Juara and Kampung Tekek. Much of other terrains are steeply sloping and there are often many rocky outcrops. Many small streams flow into the sea from the central highland. An excellent account of its topography was given by Stone (1977).

## VEGETATION TYPES

Generally, the vegetation of Pulau Tioman can be divided into four types, namely coastal vegetation, mangrove, lowland forest and hill dipterocarp forest (Fig. 1).

### Coastal Vegetation

The eastern sides of the island are covered by rocky beach, and Teluk Juara is one of the many strips of sandy beach on the eastern part of the island. However the western coast has many beautiful sandy beaches which have attracted tourists and there are facilities such as chalets, a hotel, air strip, small shops, schools, etc. Closer to the coast, especially on rocky beaches, particularly the north-east of the island, the conspicuously large pandan, *Pandanus dubius* is abundant, as also are some of the other characteristically coastal plants such as *Scaevola taccada*. On the more flat coasts the observed plant species include *Calophyllum inophyllum*, *Vitex trifolia*, *Eugenia grandis*, *Hibiscus tiliaceus*, *Thespesia populnea*, *Cassytha filiformis*, *Catharathus roseus*, *Cocos nucifera*, *Pandanus odoratissimus*, *Casuarina equisetifolia*, *Rhodomyrtus tomentosa*, *Anacardium occidentale*, *Pongamia pinnata*, *Phyllanthus amarus*, *Terminalia catappa*, *Tetractomia tetrandum* and *Chromalaena odorata*.

### Mangrove Swamp forest

Pulau Tioman has a small but extremely old mangrove forest where typical mangrove species such as *Rhizophora apiculata*, *Bruguiera gymnorhiza*, *Excoecaria agallocha*, *Avicennia alba* have grown to unusually tall height and large girth. Localities such as Tanjung Said, Tanjung Pauh, Sungai Nipah, Kampung Asah, and Tanjung Dungun have patches of mangrove forest.

### Lowland Dipterocarp Forest

The type of the lowland forest of the island includes the alluvial up to 300 m, usually dominated by non-dipterocarp forest species such as *Calamus* spp., *Arenga pinnata*, *Caryota mitis*, *Nenga macrocarpa*, *Smilax calophylla*, *Memecylon megacarpum*, *Ancistrocladus tectorius*, *Alphonsea elliptica*, *Desmos dasymaschalus*, *Polyalthia* spp., *Uvaria* spp., *Garcinia* spp., *Alstonia angustiloba*, *Bauhinia* spp., *Ficus* spp., *Schefflera* spp., *Hoya* spp., *Ixonanthes icosandra* and many others. A few ground ginger species such as *Boesenbergia* sp., *Elettariopsis* sp., and *Globba* spp. have been observed. Two durians, *Durio lowianus* and *D. zibethinus* are present.

Among the dipterocarps, species of *Shorea* have been observed. *Anisoptera curtisii* and *Neobalanocarpus heimii* are also present.

At the fringes of lowland forest many species of *Mallotus* (*M. paniculatus*, *M. oblongifolius*) and *Macaranga* (*M. gigantea*, *M. tanarius*) are common.

### Hill Dipterocarp Forest

This vegetation covers from the elevation of 300 m up to 750 m, mostly dominated by tall trees including species of *Shorea* and *Dipterocarpus* which are somewhat distant from each other. At the summit of Gunung Kajang where mossy forest predominates, lichens and bryophytes and some fern species are very common. At this altitude many species which are adapted to damp habitats typical of hill forest are found. Among them include *Leptospermum flavescens*, *Licuala tiomanensis*, *Dacrycarpus imbricatus*, *Podocarpus neriifolius*, *P. polystachyus*, *Scleria sumatrensis*, *Digitaria setigera*, *Paphiopedilum* spp., *Spathoglottis aurea*, *Ilex* spp., *Garcinia penangiana*, *Medinilla speciosa*, *Ficus fistulosa*, *Ardisia colorata*, *Argostemma pictum*, *Glycosmis decipiens* and many others.

## A CHECKLIST OF SEED PLANTS ON PULAU TIOMAN

The following checklist is a summation of the account given by Stone (1977) and our own after a few short scientific expeditions to the island beginning in April 1995. Specimens at the Herbaria, Singapore Botanic Gardens (SING), Forestry Research Institute Malaysia (KEP), University of Malaya (KLU) and Universiti Kebangsaan Malaysia (UKMB) were checked. Two records (*Licuala* spp.) have also been included below from Saw (1997). Nomenclature, habit, ecological and distributional data mostly follow those of Turner (1995). The enumeration includes a total of 650 species of gymnosperms and angiosperms.

### GYMNOSPERMAE

#### 1. GNETACEAE

- 1.1 *Gnetum gnemon* L. var. *tenerum* Markgr.  
Melinjau hutan  
Pulau Tulai. Kadim & Noor, K & N 642 (SING). Shrub to 3 m tall; lowland and hill forest. Uncommon from Pahang southward.
- 1.2 *Gnetum latifolium* Blume var. *funiculare* (Blume) Markgr.  
Akar melinjau  
Pulau Tulai. Kadim & Noor, K & N 644 (SING). Large liana; lowland forest; widespread.

#### 2. PODOCARPACEAE

- 2.1 *Dacrycarpus imbricatus* (Blume) de Laub. var. *patulus* de Laub.  
Podo gunung  
Gunung Kajang. Md.Nur, SFN 18608 (SING). Tree 5 m to 40 m tall; hill dipterocarp forest; uncommon, recorded from Kedah, Perak, Pahang and Selangor.
- 2.2 *Podocarpus neriifolius* D. Don  
Podo bukit  
Gunung Kajang. Md. Nur, SFN 18606 (SING) & E.Soepadmo, ES 1353 (KLU). Tree to 40 m tall; hill dipterocarp forest. Common, recorded from Kedah, Penang, Perak, Pahang, Selangor, Malacca and Johore.

- 2.3 *Podocarpus polystachyus* R.Br. ex Endl.  
Podo laut  
Telok Paya and Kampung Paya. E.Soepadmo, ES 1400 (KLU); Henderson SFN 18420; Sidek 496 (SING). Shrub or tree to 20 m tall; coastal vegetation, sometimes inland. Common, recorded from Perak, Pahang, Selangor, Johore and Singapore.

## ANGIOSPERMAE

### 3. ACANTHACEAE

- 3.1 *Acanthus ilicifolius* L.  
Jeruju  
At the mangrove margins. B.C. Stone and A. Latiff & A. Zainudin (Observed).
- 3.2 *Andrographis paniculata* (Burm.f.) Wall. ex Nees  
Kampung Paya. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 80 (KEP). Herb to 100 cm tall; weed of wasteland or cultivation; widespread; medicinal plant distributed from India through to northern Peninsular Malaysia and Java, now naturalized.
- 3.3a *Asystasia gangetica* (L.) T. Anderson ssp. *micrantha* (Nees) Ensermu  
Rumput Israel  
Weed around kampung Juara. A. Latiff & A. Zainudin (Observed).
- 3.3b *Asystasia gangetica* (L.) T. Anderson ssp. *gangetica*  
Akar ruas-ruas  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 22 (KEP). Creeping or climbing herb to 2 m long; weed of wasteland or cultivation; common; naturalized from India.
- 3.4 *Justicia ovalis* Ridl.  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 45 cm tall; endemic.
- 3.5 *Justicia vasculosa* Wall.  
Track to Gunung Kajang. Henderson s.n. (SING). Weak strangling herb to 30 cm tall; lowland forest; widespread.
- 3.6 *Peristrophe acuminata* Nees  
Ridley s.n. (SING). Herb to 1 m tall; waste ground; widespread.
- 3.7 *Strobilanthus latebrosa* Ridl.  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 2 m tall; lowland forest; endemic.

### 4. ALANGIACEAE

- 4.1 *Alangium ebenaceum* (C.B. Clarke) Harms var. *ebenaceum*  
Mentulang daun bujur  
Track to Gunung Kajang summit. A.H.B. Loo, PTM 90 (KEP). Tree to 20 m tall; lowland and hill forest; Terengganu and Perak southwards.
- 4.2 *Alangium kurzii* Craib  
Mentulang  
Trail from Kampung Tekek to Kampung Juara. Henderson s.n. (SING). Tree to 20 m tall; lowland forest; so far recorded from Kedah, Penang, Perak, Selangor, Pahang and Negeri Sembilan.

## 5. AMARANTHACEAE

- 5.1 *Cyathula prostrata* (L.) Blume  
Ridley s.n. (SING). Herb to 50 cm tall; common in lightly shaded places especially villages, etc.; throughout.

## 6. AMARYLLIDACEAE

- 6.1 *Crinum asiaticum* L.  
Bakong  
Along shores. B.C. Stone, BCS 11884 (KLU). Herb to 2 m tall; widespread.
- 6.2 *Proiphys amboinensis* (L.) Herb.  
Along shores. E. Soepadmo s.n. (KLU). Bulbous herb to 30 cm tall; in sandy and rocky places near the sea; commoner in the north of Peninsular Malaysia.

## 7. ANACARDIACEAE

- 7.1 *Anacardium occidentale* L.  
Gajus, Ketereh  
Kampung Juara. B.C. Stone; A. Latiff (Observed). Common trees along the coast and also in the villages, presumably introduced years ago and cultivated for its fruits and seeds.
- 7.2 *Buchanania arborescens* (Blume) Blume  
Otak udang tumpul  
Kuala Sungai Asah, near the seaside. A. Zainudin & Bedul, AZ 5473 (UKMB). Tree to 27 m tall; common sandy and rocky coasts and riverbanks; throughout.
- 7.3 *Mangifera indica* L.  
Mempelam, Mangga, Pauh  
Kampung Juara. A. Zainudin; A. Latiff (Observed). Cultivated and some escape from cultivation into the secondary forest.
- 7.4 *Swintonia floribunda* Griff.  
Track to Gunung Kajang. K.M. Kochummen (Observed). Large tree to 45 m tall; lowland and hill forests to 1000 m; recorded from Kedah, Kelantan, Penang, Pahang, Selangor, Negeri Sembilan and Johore.

## 8. ANCISTROCLADACEAE

- 8.1 *Ancistrocladus tectorius* (Lour.) Merr.  
Sungai Air Besar. Kadir & Noor, K & N 552 (SING), B.C. Stone, BCS 12000 (KLU); E. Soepadmo, ES 1436 (KLU). Trailing shrub or liana; often near sea; widespread.

## 9. ANISOPHYLLEACEAE

- 9.1 *Anisophyllea apetala* Scort. ex King  
Pualu Tulai. Kadim & Noor, K & N 638 (SING). Small tree to 14 m tall; lowland and hill forest to 600 m; not common.

10. ANNONACEAE

- 10.1 *Alphonsea elliptica* Hook.f. & Thomson  
Mempisang  
Juara Bay. Burkill 1001 (SING). Tree to 25 m tall; lowland forest; recorded from Terengganu, Pahang, Selangor, Negeri Sembilan, Malacca and Johore.
- 10.2 *Artabotrys* sp.  
Akar mempisang  
Trail along Kampung Juara to Kampung Tekek. A. Zainudin (Observed). Liana, sterile.
- 10.3 *Cananga odorata* (Lam.) Hook.f. & Thomson  
Kenanga  
Kampung Juara. A. Zainudin (Observed). Tree to 33 m tall; forest margin; widespread.
- 10.4 *Cyathocalyx pruniferus* (Maingay ex Hook.f. & Thomson) J. Sinclair  
Antoi  
Trail from Kampung Tekek to Kampung Juara. A. Zainudin (Observed). Tree to 23 m tall; lowland and hill forest; recorded from Kelantan, Terengganu, Perak, Pahang, Selangor, Malacca and Johore; endemic.
- 10.5 *Cyathostemma argenteum* (Blume) J. Sinclair  
Akar mempisang  
Sungai Air Besar. Kadim and Noor, K & N 551 (SING). Woody climber; lowland forest; recorded from Pahang and Selangor.
- 10.6 *Desmos dasymachalus* (Blume) Safford  
Akar mempisang  
Air Batang. M.R.Henderson. SFN 18457 (SING). Shrub to 8 m tall; lowland forest; recorded from Perlis, Penang, Kelantan, Perak Pahang, Johore and Singapore.
- 10.7 *Enicosanthum magnoliiflorum* (Hook.f. & Thomson) Airy Shaw  
Mempisang  
Sungai Air Besar. Kadim and Noor, K & N 537 (SING). Tree to 17 m tall; lowland forest; recorded from Perak, Pahang, Selangor and Malacca.
- 10.8 *Meiogyne virgata* (Blume) Miq.  
Sungai Air Besar. Nur, SFN 18865 (SING). Tree to 20 m tall; lowland forest; recorded from Kedah, Terengganu, Perak, Pahang, Selangor, Malacca, Johore and Singapore.
- 10.9 *Orophea* sp.  
Lubuk Lanun. Nur, SFN 18863 (SING). Small tree to 6 m tall.
- 10.10 *Polyalthia cauliflora* Hook.f. & Thomson var. *desmantha* (Hook.f. & Thomson) J. Sinclair  
Mempisang  
Kampung Juara. Kadim & Noor, K & N 562 (SING); Buluh Telang.Nur, SFN 18585 (SING). Shrub or small tree; lowland forest; recorded from Penang, Perak, Pahang, Negeri Sembilan, Malacca and Johore.
- 10.11 *Polyalthia cinnamomea* Hook.f. & Thomson  
Mempisang  
Trail to Kampung Juara from Kampung Tekek. A. Zainudin & Bedul, AZ 5513 (UKMB); Sungai Air Besar. Kadim & Noor, K & N 540 (SING).Tree to 20 m tall; lowland forest; widespread.
- 10.12 *Polyalthia clavigera* King  
Mempisang  
Sungai Air Besar. Kadim & Noor, K & N 537 (SING). Tree to 15 m tall; lowland and hill forest; recorded from Penang, Perak, Pahang, Selangor, Negeri Sembilan and Singapore.

- 10.13 *Polyalthia sumatrana* (Miq.) Kurz  
Mempisang  
Sungai Asah, trail to waterfall. A. Zainudin & Bedul AZ 5472 (UKMB). Tree to 24 m tall; lowland and hill forest; widespread.
- 10.14 *Polyalthia* sp.  
Mempisang  
Sungai Asah, trail to waterfall. A. Zainudin & Bedul, AZ 5477 (UKMB). Medium size tree.
- 10.15 *Popowia* sp.  
Mempisang  
Sungai Air Besar. Burkill 1148 (SING); Kadim & Noor, K & N 547 (SING); Nur, SFN 18854 (SING). Small tree.
- 10.16 *Pseuduvaria macrophylla* (Oliv.) Merr.  
Mempisang  
Sungai Air Besar. Kadim & Noor, K & N 538 (SING). Small tree; lowland and hill forest; widespread.
- 10.17 *Stelechocarpus cauliflorus* (Scheff.) R.E.Fr.  
Mempisang  
Kampung Juara. Burkill 1006 (SING); K.M. Kochummen, FRI 77832 (KEP). Tree to 12 m tall; lowland forest; widespread.
- 10.18 *Trivalvaria macrophylla* (Blume) Miq.  
Mempisang  
Kampung Juara. Burkill 1015 (SING). Sungai Air Besar. Kadim & Noor, K & N 541 (SING). Tree to 13 m tall; lowland forest; widespread.
- 10.19 *Uvaria grandiflora* Roxb. ex Hornem.  
Akar mempising  
Tanjung Duatah. Burkill 1122 (SING). Climbing shrub; lowland forest; throughout.
- 10.20 *Uvaria lobbiana* Hook.f. & Thomson  
Akar mempising  
Tanah Runtuh; Nur SFN 18876 (SING). Large climber reaching 50 m or more; lowland forest; recorded from Penang, Perak, Pahang, Selangor, Malacca and Singapore.

## 11. APOCYNACEAE

- 11.1 *Aganosma marginata* (Roxb.) G. Don  
Sekati lima  
Pulau Chibeh. Corner, SFN 29843 (SING). Tanjung Ruit. Corner, SFN 29811 (SING). Climbing shrub; open areas; widespread.
- 11.2 *Alstonia angustiloba* Miq.  
Pulai penipu  
Track from Kampung Juara to Tekek. B.C. Stone, BCS 11970 (KLU); K.M.Kochummen FRI 77825 (KEP). Big tree to 45 m tall; lowlands and hills to 700 m; common throughout Peninsular Malaysia.
- 11.3 *Alstonia scholaris* (L.) R.Br.  
Pulai  
Kampung Sri Asah, Kampung Juara and Kampung Tekek. A. Zainudin (Observed). Tree up to 36 m tall; lowlands to mountains at 1000 m, including secondary forest; widespread.
- 11.4 *Alyxia reinwardtii* Blume var. *lucida* (Wall.) Markgr.  
Gunung Kajang. Kadim & Noor, K & N 603 (SING); Kampung Paya. Sidek 471 (SING). Slender climber; often coastal; widespread.

- 11.5 *Catharanthus roseus* (L.) G. Don  
Kemunting cina  
Kampung Juara. A.Zainudin; A. Latiff (Observed). Herb; seashores and waste sandy places: widespread.
- 11.6 *Cerbera manghas* L.  
Pong pong  
Kampung Juara. B.C.Stone, BCS 12005 (KLU); Kampung Paya. Sidek 495 (SING). Small tree; on rocky and sandy coast; widespread.
- 11.7 *Kopsia alba* Ridley ex M.R. Hend.
- 11.8 *Kopsia pauciflora* Hook.f.  
Track to Gunung Kajang. Henderson s.n.(SING). Shrub or small tree to 7 m.
- 11.9 *Neisosperma oppositifolium* (Lam.) Fosberg & Sachet  
Pulai Tulai. Kadim & Noor, K & N 651 (SING). Small tree to 10 m tall; on rocky and sandy shores; uncommon and recorded from Perak, Johore and Singapore.
- 11.10 *Parsonsia alboflavescens* (Dennst.) Mabb.  
Kampung Tekek. Kadim & Noor, K & N 667 (SING). Kampung Paya; Sidek 494 (SING). Vine; climbing on bushes, often near the sea; widespread.

## 12. AQUIFOLIACEAE

- 12.1 *Ilex triflora* Blume  
Gunung Kajang. Kadim & Noor, K & N 594 (SING); E. Soepadmo, ES 1359 (KLU); Sidek 470 (SING). Strangling bush to 5 m tall; common in hill forest; widespread.
- 12.2 *Ilex* sp.  
Gunung Kajang. Samsuri 937 (SING); E. Soepadmo, ES 1362 (KLU).

## 13. ARACEAE

- 13.1 *Alocasia curtissi* N.E.Br.  
Pulau Tulai. Henderson. SFN 18506 (SING). Herb; endemic.
- 13.2 *Alocasia lowii* Hook.  
Telok Saing. Nur, SFN 18902 (SING); South of Kampung Juara. Burkill 1128 (SING). Herb to 1 m tall.
- 13.3 *Colocasia esculenta* (L.) Schott  
Keladi  
Kampung Juara. B.C. Stone (Observed). Herb to 40 cm tall; relic of cultivation in damp areas.
- 13.4 *Homalomena* sp.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11969 (KLU). Herb.
- 13.5 *Raphidophora* sp.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11977 (KLU); E. Soepadmo, ES 11977 (KLU). Climber.
- 13.6 *Scindapsus* sp.  
Above Kampung Paya. Sidek 488 (SING). Creeper.

#### 14. ARALIACEAE

- 14.1 *Arthrophyllum diversifolium* Blume  
Susun daun  
Kuala Sungai Asah. A. Zainudin & Bedul, AZ 5474 (UKMB). Sparsely-branched tree to 14 m tall; forest margins or secondary forest in lowlands and hills; abundant throughout.
- 14.2 *Polyscias scutellaria* (Burm.f.) Fosb.  
Kampung Juara. B.C.Stone (Observed). Cultivated as ornamental plant.
- 14.3 *Polyscias pinnata* Forst.  
Kampung Juara. B.C.Stone (Observed). Cultivated as ornamental plant.
- 14.4 *Schefflera elliptica* (Blume) Harms  
Track to Gunung Kajang. Henderson s.n. (SING). Climber or strangling shrub, often epiphytic; lowland and hill forest, also mangrove and on limestone; widespread.
- 14.5 *Schefflera heterophylla* (Wall. ex G.Don) Harms  
Track to Gunung Kajang. Henderson s.n. (SING). Scrambling shrub; lowland forest; recorded from Kedah, Terengganu, Penang, Perak, Johore and Selangor; endemic.
- 14.6 *Schefflera oxyphylla* (Miq.) R.Vig.  
Bukit Penak. Samsuri 747 (SING); Bukit Nipah. Samsuri 757 & 981 (SING). Epiphytic climber; lowland and hill forest; widespread.

#### 15. ARISTOLOCHIACEAE

- 15.1 *Aristolochia tagala* Cham.  
Kampung Juara. B.C. Stone (Observed). Twining climber reaching 20 m long; lowland forest; widespread.

#### 16. ASCLEPIADACEAE

- 16.1 *Asclepias curassavica* L.  
Kampung Paya. E. Soepadmo, ES 1450 (KLU). Herb to 1 m tall; open sandy spots; widespread; naturalized from tropical America.
- 16.2 *Hoya diversifolia* Blume  
Kampung Juara. B.C. Stone, BCS 11866; 11955 (KLU). Twining epiphyte; lowland forest; widespread.
- 16.3 *Hoya latifolia* G.Don  
Track to Gunung Kajang. Henderson s.n. (SING). long climbing and creeping epiphyte; lowland forest; recorded from Pahang, Johore and Singapore.
- 16.4 *Hoya multiflora* Blume  
Ridley s.n. (SING). Shrubby epiphyte; mostly in hill forest at 500-900 m; widespread.
- 16.5 *Hoya verticillata* (Vahl) G.Don var. *verticillata*  
Pulau Tulai. Kadim & Noor, K & N 664 (SING); Kampung Tekek. B.C. Stone, BCS 11954 (KLU); E. Soepadmo, ES 1475 (KLU). Climbing twining epiphyte; often near the sea; all coasts.

17. AVICENNIACEAE

- 17.1 *Avicennia alba* Blume  
Tanjung Pauh to Tanjung Said. B.C. Stone, BCS 11921 (KLU). Tree to 21 m tall; muddy mangroves; widespread.

18. BALANOPHORACEAE

- 18.1 *Balanophora abbreviata* Blume  
Track to Gunung Kajang. Henderson s.n. (SING ). White or yellow parasitic herb to 10 cm tall; lowland forest to 1000 m; rare.

19. BEGONIACEAE

- 19.1 *Begonia tiomanensis* Ridley  
Gunung Kajang. Henderson s.n. (SING). Herb to 40 cm tall; montane forest; endemic to Pulau Tioman.

20. BIGNONIACEAE

- 20.1 *Dolichandrone spathacea* (L.f.) K.Schum.  
Kampung Juara near the confluence of Sungai Juara. E. Soepadmo, ES 1414 (KLU). Tree to 24 m tall, usually smaller; mangroves and other muddy areas near the sea; widespread.
- 20.2 *Stereospermum fimbriatum* (Wall. ex G. Don) A.DC.  
Kampung Juara. K.M. Kochummen & B.C. Stone (Observed). Tree reaching 27-30 m tall; lowland and hill forest to 1000 m, often planted; widespread.

21. BIXACEAE

- 21.1 *Bixa orellana* L.  
Telok Berhala. Henderson, SFN 18535 (SING). Tree to 6 m tall; introduced to the island as an ornamental plant.

22. BOMBACACEAE

- 22.1 *Durio lowianus* Scort. ex King  
Durian daun  
Track to Gunung Kajang. K.M. Kochummen. s.n. (KEP). Tree to 40 m tall; lowland forest; scattered.
- 22.2 *Durio zibethinus* Murray  
Durian kampung  
Kampung Juara. E. Soepadmo; A. Latiff (Observed). Tree to 30 m tall; widespread in cultivation in the Asiatic tropics; possibly wild in Sumatra and Borneo.
- 22.3 *Kostermansia malayana* Soegeng  
Kerepal  
Sri Asah Waterfall. A. Zainudin (Observed). Tree to 45 m tall; lowland forest; not common; endemic.

### 23. BORAGINACEAE

- 23.1 *Ehretia timorensis* Decne.  
Pulau Chibeh. Corner, SFN 29827 (SING). Scrambling shrub or small tree to 16 m tall; lowland forest, often near the sea, also on limestone; recorded from Pulau Langkawi, Perak, Pahang, Selangor and Johore.
- 23.2 *Tournefortia tetrandra* Blume  
Kampung Penak. Samsuri 761 (SING). Shrub or woody climber; lowland to lower montane forest, reaching 1130 m; recorded from Penang, Perak, Pahang, Selangor, Johore and Singapore.

### 24. BURSERACEAE

- 24.1 *Canarium hirsutum* Willd.  
Track to Gunung Kajang. Henderson s.n. (SING). Tree 10-25 m tall; lowland forest; very rare species, one collection each from Perak, Pahang and Johore.
- 24.2 *Canarium pilosum* Benn.  
Track to Gunung Kajang. Henderson s.n. (SING). Tree 20 m tall; lowland and hill forest to 600 m; widespread.

### 25. CACTACEAE

- 25.1 *Opuntia monacantha* Haw.  
Kampung Juara. B.C. Stone, BCS 11881 (KLU). Introduced to the island as an ornamental plant.

### 26. CAPPARACEAE

- 26.1 *Capparis* sp.  
Trail to Kg. Tekek from Kg. Juara. Elev. 40 m. A. Zainudin & Bedul, AZ 5494. Spiny climber with white to cream flowers.
- 26.2 *Cleome gynandra* L.  
Maman  
Telok Paya. Henderson SFN 18437 (SING). Erect herb 15-80 cm tall; weed of cultivation, in waste places to 500 m; traditionally pickled by the Malays.

### 27. CARICACEAE

- 27.1 *Carica papaya* L.  
Betik  
Kampung Juara. B.C. Stone; A. Latiff (Observed). Cultivated.

### 28. CASUARINACEAE

- 28.1 *Casuarina equisetifolia* J.R. Forst. & G. Forst.  
Ru  
Kampung Juara. K.M. Kochummen FRI 77848 (KEP); E. Soepadmo, ES 1469 (KLU). Tree to 50 m tall; sandy coast.

**29. CECROPIACEAE**

- 29.1 *Poikilospermum suaveolens* (Blume) Merr.  
Trail to Kg. Juara from Kg. Tekek. Elev. 120 m. A. Zainudin & Bedul, AZ 5516 (UKMB).  
Hemi-epiphyte; along water courses in forest to 1500 m; widespread.

**30. CELASTRACEAE**

- 30.1 *Bhesa paniculata* Arn.  
Biku-biku  
Trail to waterfall, Sungai Asah. Elev. 60 m. A. Zainudin & Bedul, AZ 5470 (UKMB). Tree  
to 20 m tall; lowland and montane forest to 1300 m; widespread.
- 30.2 *Euonymus javanicus* Blume  
Trail to Kampung Juara from Kampung Tekek. Elevation. 100 m. A. Zainudin & Bedul, AZ  
5512 (UKMB); Gunung Lalang. Kadim & Noor, K & N 575 (SING); Kampung Penak. Samsuri  
755 (SING); Gunung Kajang. E. Soepadmo, ES 1426 (KLU); Bukit Sejulang. Sidek 483  
(SING). Tree to 23 m tall; lowland and hill forest to 400 m; widespread.
- 30.3 *Perrottetia alpestris* (Blume) Loes.  
Trail to Kampung Juara from Kampung Tekek. Elev. 80 m. A. Zainudin & Bedul, AZ 5508  
(UKMB); Bukit Penak. Samsuri 761 (SING). Shrub or small tree to 8 m tall; common in  
montane forest above 900 m; widespread.
- 30.4 *Salacia chinensis* L.  
Rakaat kecil  
Tanjung Ruit. Corner (1985). Liana, scandent shrub or rarely, small tree; lowland forest to  
450 m; widespread.
- 30.5 *Salacia macrophylla* Blume  
Kampung Penak. Samsuri 756 (SING). Liana sometimes shrubby; lowland and hill forest to  
1200 m; also in open country; widespread.

**31. CHLORANTHACEAE**

- 31.1 *Chloranthus erectus* (Buch.-Ham.) Verdc.  
Kampung Juara. Kadim & Noor, K & N 566 (SING); E. Soepadmo, ES 1365 (KLU); Kampung  
Paya. Sidek 457 (SING). Shrub to 3 m tall; lowland and hill forest; widespread.

**32. CHRYSOBALANACEAE**

- 32.1 *Maranthes corymbosa* Blume  
Pulau Chibeh. Ridley, SFN 29825 (SING). Tree to 39 m tall; mostly coastal, but also in the  
mountains; widespread.

**33. COMBRETACEAE**

- 33.1 *Lumnitzera littorea* (Jack) Voigt  
Kampung Juara. B.C.Stone, BSC 11918 (KLU). Red-flowered tree to 30 m with kned  
pneumatophores; back mangrove, sandy shores; all coasts.
- 33.2 *Lumnitzera racemosa* Willd.  
Kampung Juara. B.C. Stone, BCS 11919 (KLU). White-flowered tree to 8 m without  
pneumatophores; mangrove; all coasts but commoner on the East.

- 33.3 *Terminalia catappa* L.  
Ketapang.  
Kampung Juara. E. Soepadmo, ES 1467 (KLU). Pagoda tree 10-35 m tall; sandy and rocky shores, widely planted shade tree; all coast.

### 34. COMMELINACEAE

- 34.1 *Amischotolype* sp.  
Kampung Juara to Kampung Tekek trail. B.C. Stone, BCS 11962 & 11984 (KLU); E. Soepadmo, ES 1427 (KLU). Ground herb.
- 34.2 *Murdannia nudiflora* (L.) Brenan  
Teluk Juara. I.H. Burkill, s.n. 1915 (SING). Lubuk Lanun. Md. Nur, 18858 (SING). Creeping herb to 30 cm long; dry sandy areas; throughout.
- 34.3 *Polia thyrsiflora* (Blume) Steud.  
Trail to Kampung Juara from Kampung Tekek. Elevation 120 m. A. Zainudin & Bedul, AZ 5515 (UKMB). Herb to 60 cm tall; damp hill forest; with shiny blue fruits; recorded so far from Pahang, Perak and Selangor.

### 35. COMPOSITAE

- 35.1 *Adenostemma viscosum* J.R. Forst. & G. Forst.  
Telok Nipah. Ridley s.n. (SING). Herb to 1 m tall; weed of cultivation, waste ground; naturalized from tropical America.
- 35.2 *Ageratum conyzoides* L.  
Rumput tahi ayam  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 69 (KEP). Herb to 50 cm tall; weed of cultivation or wasteland; common, naturalized from tropical America.
- 35.3 *Blumea balsamifera* (L.) DC.  
Sembong  
Kampung Juara. B.C. Stone (Observed). Shrub to 4 m tall; open places, lowlands and hills; widespread.
- 35.4 *Chromolaena odorata* (L.) R.M. King & H. Rob.  
Kampung Juara. A. Zainudin (Observed). Erect or sprawling herb; forest margins and clearings; widespread; naturalized from tropical America.
- 35.5 *Eclipta prostrata* (L.) L.  
Aring-aring  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 20 (KEP). Erect or prostrate herb to 25 cm tall; weed of wasteland or cultivation; widespread.
- 35.6 *Mikania micrantha* Kunth  
Selaput tunggul  
Sungai Asah. A. Zainudin (Observed). Twining herb; forest margins, waste ground; naturalized from tropical America.
- 35.7 *Sphagneticola calendulacea* (L.) Pruski  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 10 (KEP). Creeping herb to 2 m long; weed of wasteland or cultivation; common; naturalized from tropical America.
- 35.8 *Siegesbeckia orientalis* L.  
Kampung Juara. B.C. Stone (Observed). Erect herb; open sandy waste ground; naturalized from tropical America.

- 35.9 *Vernonia arborea* Buch.-Ham.  
Gambong  
Trail to Kg. Mukut from Sri Asah. A. Zainudin & Bedul AZ 5523 (UKMB). Tree to 20 m tall; lowland and hill forest to 1500 m; Kedah, Perak, Pahang and Kelantan.
- 35.10 *Vernonia cinerea* (L.) Less.  
Rumput tahi babi  
H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 11 (KEP). Herb to 30 cm tall; weed of wasteland or cultivation; common and widespread.
- 35.11 *Wedelia biflora* (L.) DC.  
Pulau Tulai. Kadim & Noor, K & N 655 (SING). Scrambling herb; common in tidal mud; widespread.

### 36. CONNARACEAE

- 36.1 *Agelaea* sp.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11899 (KLU). Big woody climber.
- 36.2 *Cnestis palala* (Lour.) Merr.  
Kuala Sungai Asah. A. Zainudin (Observed). Liana, sterile.
- 36.3 *Cnestis* sp.  
Track to Gunung Kajang. E. Soepadmo, ES 1410 (KLU). Liana.
- 36.4 *Connarus euphlebius* Merr. var. *euphlebius*  
Air Surin. M.R. Henderson, SFN 21724. Liana, reaching to 25 m, or scandent shrub; lowland forest to 600 m; Pahang.
- 36.5 *Rourea* sp.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone. BCS 11915 (KLU). Climber.

### 37. CONVULVULACEAE

- 37.1 *Ipomoea pes-caprae* (L.) R.Br. ssp. *brasiliensis* (L.) Ooststr.  
Tapak kuda  
Beaches. K.M. Kochummen, FRI 77841 (KEP); B.C. Stone, BCS 12004 (KLU). Common along the sandy coast.
- 37.2 *Ipomoea triloba* L.  
Gasing  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 54 (KEP). Twining or creeping vine; weed of wasteland or sandy areas, often on fences; widespread; naturalized from tropical America.
- 37.3 *Merremia* sp.  
Trail from Kampung Juara to Kg. Tekek. A. Zainudin & Bedul, AZ 5492 (UKMB). Large climber with yellow flowers.
- 37.4 *Xenostegia tridentata* (L.) D.F. Austin & Staples  
Kampung Juara. B.C. Stone, 11887 (KLU). Twining vine to 2 m long; open grassy places, often near the sea; widespread.

### 38. COSTACEAE

- 38.1 *Costus speciosus* (J. Konig) Sm.  
Setawar  
Trail to Kampung Tekek from Kampung Juara. A. Zainudin (Observed). Herb 2-3 m tall; common at margins of lowland forests; widespread.
- 38.2 *Costus globosus* Blume  
Sungai Air Besar. B.C. Stone. BCS 11959 (KLU). Herb 2-3 m tall; In damp lowland forests, especially in the valleys.

### 39. CRASSULACEAE

- 39.1 *Kalanchoe pinnata* (Lam.) Pers.  
Kampung Tekek. Kadim & Noor, K & N 675 (SING); B.C. Stone, BCS 11922 (KLU); E. Soepadmo, ES 1413 (SING). Herb 30-300 cm tall; open dry places to 1000 m; scattered; naturalized from tropical Africa.

### 40. CRYPTERONIAACEAE

- 40.1 *Crypteronia griffithii* C.B. Clarke  
Bekoi  
Trail to Kampung Tekek from Kampung Juara. Elevation 60 m. A. Zainudin & Bedul, AZ 5496 (UKMB). Tree to 45 m tall; lowland and hill forest to 600m; widespread.

### 41. CYPERACEAE

- 41.1 *Carex cruciata* Wahlenb.  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 2 m; hill forest at 1100-1500 m; recorded from Perak and Pahang.
- 41.2 *Cyperus cyperinus* (Retz.) J.V. Suringar  
Rumput payung  
Air Batang. Henderson, SFN 18460 (SING). Tanjung Ruit. Corner, SFN 29798 (SING). Teluk Paya. Henderson, 18432 (SING). Herb to 50 cm tall; wasteland to 1300 m; common throughout.
- 41.3 *Cyperus dubius* Rottb.  
Tanjung Ruit. Corner, SFN 29810 (SING). Teluk Paya. Henderson, SFN 18433 (SING). Herb to 50 cm tall; sandy beaches; all coasts.
- 41.4 *Cyperus javanicus* Houtt.  
Pulau Chibeh. Corner, s.n. 19 Aug 1935 (SING). Tanjung Ruit. Corner, SFN 29814 (SING). Tanjung Said. Henderson, SFN 18492 (SING). Teluk Juara. I.H. Burkill, s.n. Jun 1915 (SING). Herb to 70 cm tall; mangrove to seashores; west coast of the Peninsular.
- 41.5 *Cyperus laxis* Lam.  
Tanjung Ruit. Corner (1985). Herb; lowland forest to 700 m; throughout.
- 41.6 *Cyperus odoratus* L.  
Herb to 100 cm tall; open wet areas in low lands.
- 41.7 *Cyperus pilosus* Vahl  
Rumput para-para  
Track to Gunung Kajang summit. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 89 (KEP). Herb to 50 cm tall; common in wet areas to 1500 m; throughout.

- 41.8 *Fimbristylis cymosa* R.Br.  
Kampung Juara. B.C. Stone (Observed). Densely tufted herb to 50 cm; on muddy, sandy or rocky shores; common on coast.
- 41.9 *Fimbristylis dichotoma* (L.) Vahl  
Rumpun purun batu  
Tanjung Ruit. Corner, SFN 29815 (SING). Herb to 75 cm tall; open grassland to 1500 m; common throughout.
- 41.10 *Fimbristylis ferruginea* (L.) Vahl  
Kampung Juara. K.M. Kochummen, FRI 77849 (KEP). Tufted herb to 80 cm; muddy wet places near the sea.
- 41.11 *Gahnia tristis* Nees  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 120 cm tall; forming tussocks on mountain ridges; recorded from Perak to Pahang.
- 41.12 *Hypolythrum nemorum* (Vahl) Spreng. var. *nemorum*  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 120 cm tall; in swampy places in forests to 1200 m; common throughout.
- 41.13 *Kyllinga nemoralis* (J.R. Forst. & G. Forst.) Dandy ex Hutch. & Dalziel  
Kampung Juara. B.C. Stone, BCS 11949 (KLU). Creeping herb to about 50 cm tall; waste places in lowlands; very common throughout.
- 41.14 *Mapania micropandanus* Holtum
- 41.15 *Mapania petiolata* C.B. Clarke  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11979 (KLU). Tufted short-stemmed plants like dwarf pandan to 1 m tall; lowland forest; widespread.
- 41.16 *Remirea maritima* Aubl.  
Kampung Juara. K.M. Kochummen, FRI 77842 (KEP). Creeping herb to 15 cm tall; sandy beaches.
- 41.17 *Scleria lithosperma* (L.) Sw.  
Salip  
Air Batang. Henderson, 18459 (SING). Tanjung Ruit. Corner, SFN 29802 (SING). Herb to 60 cm tall; open areas; Perak, Johore.
- 41.18 *Scleria sumatrana* Retz.  
Beluncas  
Sri Asah waterfall trail. A. Zainudin (Observed). Tall slender herb to 4 m; swamps, dry open places or forest to 500 m; throughout Peninsular Malaysia.

#### 42. DICHAPETALACEAE

- 42.1 *Dichapetalum gelonioides* (Roxb.) Engl. ssp. *tuberculatum* Leenh.  
Sedagong  
No locality; Nur, SFN 18843 (SING). Small shrubby tree; lowland forest; scattered.

#### 43. DILLENACEAE

- 43.1 *Tetracera scandens* (L.) Merr.  
Mempelas  
Tanjung Siak. Sidek 505 (SING). Liana to 30 m, sometimes shrubby; forest and forest margins to 1000 m; widespread.

#### 44. DIPTEROCARPACEAE

- 44.1 *Anisoptera curtisii* Dyer ex King  
Track to Gunung Kajang. K.M. Kochummen, (Observed). Large buttressed tree; lowland and hill forest to 700 m; widespread but more common in the north of Peninsular Malaysia.
- 44.2 *Dipterocarpus grandiflorus* (Blanco) Blanco  
Tanjung Duatah. Burkill 1110 (SING). Very large buttressed tree; lowland forest; widespread.
- 44.3 *Hopea nutans* Ridley  
Giam  
Sri Asah waterfall. Elev. 80 m. A. Zainudin (Observed).
- 44.4 *Shorea curtisii* Dyer ex King  
Meranti seraya  
Tanjung Duatah. Burkill 1112 (SING). Large tree; ridges to 850 m; throughout.
- 44.5 *Shorea glauca* King  
Track to Gunung Kajang. K.M. Kochummen (Observed).
- 44.6 *Shorea maxima* (King) Sym.  
Sengkawang putih  
Sri Asah waterfalls. Elev. 80 m. A. Zainudin (Observed). Small to medium-size tree; lowland and hill forest to 1300 m; Perak and Pahang southward; endemic.

#### 45. EBENACEAE

- 45.1 *Diospyros ferrea* (Willd.) Bakh.  
Kayu arang  
Air Batang. Md. Nur, SFN 18619 (SING). Pulau Tulai. Corner, SFN 29821 (SING). Teluk Juara. I.H. Burkill, SFN 1038 (SING). Tree to 12 m tall; sandy and rocky shores; widespread.
- 45.2 *Diospyros frutescens* Blume  
Kampung Tekek and Pulau Tulai. Kadim & Noor, K & N 572 & 639 (SING). Tree to 10 m tall; lowland forest; recorded from Kelantan, Terengganu, Perak and Pahang.
- 45.3 *Diospyros insidiosa* Bakh.  
Kampung Juara. Kadim & Noor, K & N 564 (SING). Tree to 15 m tall; lowland forest; twice from Pulau Tioman; endemic.
- 45.4 *Diospyros pilosanthera* Blanco var. *oblonga* (Wall. ex G. Don) Ng  
Track to Gunung Kajang. K.M. Kochummen, FRI 77837 (KEP). Tree to 24 m tall; lowland and hill forest to 900 m; widespread.
- 45.5 *Diospyros* sp.  
Bukit Penak and Gunung Kajang. Samsuri 750 & 929 (SING).

#### 46. ELAEOCARPACEAE

- 46.1 *Elaeocarpus* sp.  
Mendung  
Kampung Juara. B.C. Stone, BCS 11882 (KLU). Tree to 10 m.

#### 47. ERICACEAE

- 47.1a *Rhododendron jasminiflorum* Hook. var. *punctatum* Ridley  
Gunung Kajang. Henderson s.n.; Samsuri 925 (SING). Shrub to 3 m tall; submontane forest at 800-1800 m; recorded from Kedah, Perak and Pahang; endemic variety.
- 47.1b *Rhododendron jasminiflorum* Hook. var. *oblongifolium* Sleumer
- 47.2 *Vaccinium viscifolium* King & Gamble  
Gunung Kajang. Henderson, s.n. (SING). Shrub to 5 m tall; sometimes epiphytic; hill and montane forest; recorded from Kelantan, Perak, Pahang, Selangor, Negeri Sembilan and Johore.
- 47.3 *Vaccinium* sp.  
Gunung Kajang. E. Soepadmo, ES 1352 (SING).

#### 48. ERYTHROXYLACEAE

- 48.1 *Erythroxylon cuneatum* (Miq.) Kurz  
Tanjung Layar. Henderson, SFN 18482 (SING); B.C. Stone, BCS 11873 (KLU); Kampung Paya. Sidek 507 (SING). Tree to 30 m tall; lowland and hill forest, common near the sea; throughout.

#### 49. EUPHORBIACEAE

- 49.1 *Actephila excelsa* (Dalzell) Mull. Arg. var. *javanica* (Miq.) Pax & K. Hoffm.
- 49.2 *Actephila ovalis* (Ridley) Gage  
Sungai Air Besar. Kadin & Noor, K & N 553 (SING). Shrub; mostly on limestone.
- 49.3 *Agrostistachys longifolia* (Wight) Benth.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11983 (KLU); E. Soepadmo, ES 1422 (KLU). Small tree to 9 m tall; lowland to lower montane forest at 1050 m; throughout.
- 49.4 *Antidesma cuspidatum* Muell.-Arg  
Kampung Tekek. Samsuri 745 (SING); Kadim 569 (SING); Kampung Paya. Sidek 445 (SING). Small tree to 6 m tall; lowland forest; common throughout.
- 49.5 *Antidesma montanum* Blume  
Bukit Nipah. Samsuri 919 (SING). Small tree about 12 m tall; lowland and hill forest; throughout.
- 49.6 *Antidesma pahangense* Airy Shaw  
Trail to waterfall, Sungai Asah. Elev. 45 m. A. Zainudin & Bedul, AZ 5465 (UKMB). A small tree; hill and montane forest; recorded from Perak, Pahang and Johore; endemic.
- 49.7 *Antidesma velutinosum* Blume  
Track to Gunung Kajang. K.M. Kochummen, KEP 77826 (KEP). Small tree to 5 m tall; lowland to lower montane forest at 1200 m; common throughout.
- 49.8 *Baccaurea ramiflora* Lour.  
Track to Gunung Kajang. Henderson s.n. (SING). Tree to 15 m tall; lowland, rarely in the hills; widespread.
- 49.9 *Breynia discigera* Muell.-Arg.  
Bukit Rokam. Md. Nur, 18804 (SING). Scandent shrub; lowland and coasts; throughout.

- 49.10 *Breynia reclinata* (Roxb.) Hook.f.  
Pokok hujan panas  
Pulau Tioman. Ridley, s.n. Aug 1889 (SING). Durian Sabak. Md. Nur, 18828 (SING). Tekek-Juara Track. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 64 (KEP). Scandent shrub; lowland secondary forest or forest fringes and seacoasts; throughout.
- 49.11 *Claoxylon longifolium* (Blume) Endl. ex Hassk.  
Salang  
Track to Gunung Kajang. Henderson s.n (SING). Kampung Paya; Sidek 449 (SING). Tree to 9 m tall; lowland to montane forest at 1350 m; throughout; young leaves are taken as vegetable.
- 49.12 *Cleistanthus polyphyllus* F.N. Williams  
Track to Gunung Kajang. Henderson s.n. (SING). Small tree; forest near the sea; recorded from Perlis, Kedah, Penang, Perak and Pahang.
- 49.13 *Codiaeum variegatum* L.  
Bunga puding  
Kampung Juara. B.C. Stone; A. Latiff (Observed). Cultivated as an ornamental plants.
- 49.14 *Croton cascarilloides* Raeusch.
- 49.15 *Croton erythrostachys* Hook.f.  
Track to Gunung Kajang. Henderson s.n. (SING); Gunung Lalang. Kadin & Noor, K & N 576 (SING). Tree to 15 m tall; hill forest to 900 m; widespread; endemic.
- 49.16 *Croton hirtus* L'Hérit.  
Kampung Mukut. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 31 (KEP). Herb to 1 m tall; wasteland weed; widespread; naturalized from tropical America.
- 49.17 *Endospermum diadenum* (Miq.) Airy Shaw  
Sesendok  
Track to Gunung Kajang. K.M. Kochummen, KEP 77831 (KEP). Tree to 40 m tall; Lowland to lower montane forest at 1000 m; common throughout.
- 49.18 *Euphorbia atoto* G.Forst.  
Kampung Tekek. Kadim & Noor, K & N 678 (SING); K.M. Kochummen, KEP 77850 (KEP). Succulent herb to 60 cm tall; sandy seashores.
- 49.19 *Euphorbia heterophylla* L.  
Kampung Juara. B.C. Stone (Observed). Succulent herb to 1 m tall; seashores and waste ground; waste ground; widespread; naturalized from tropical America.
- 49.20 *Euphorbia hirta* L.  
Kampung Juara. B.C. Stone (Observed). Herb to 30 tall; common weed of waste ground; throughout; naturalized from tropical America.
- 49.21 *Excoecaria agallocha* L.  
Buta-buta  
Along the river banks, inland mangrove. A. Zainudin; A. Latiff & Faridah Hanum (Observed). Small to medium size tree.
- 49.22 *Glochidion penangense* (Muell.-Arg.) Airy Shaw  
Gunung Kajang. Samsuri 931 (SING). Shrub or small tree; lowland and hill forest to 900 m; rare.
- 49.23 *Hevea brasiliense* Muell.-Arg  
Getah para  
Kampung Juara. B.C. Stone; A. Latiff & Faridah Hanum (Observed). The rubber tree; ubiquitously planted, often escaping and persisting; throughout.

- 49.24 *Homalanthus populneus* (Geisel.) Pax  
Trail to Kampung Juara from Kampung Tekek. Elevation 80 m. A. Zainudin & Bedul, AZ 5507 (UKMB). Small tree to 9 m tall; lowlands and mountains.
- 49.25 *Macaranga gigantea* (Rchb.f. & Zoll.) Muell.-Arg.  
Kubin  
Kampung Juara. B.C. Stone; A. Latiff & Faridah Hanum (Observed). Tree to 15 m tall; disturbed lowland forest; throughout.
- 49.26 *Macaranga hypoleuca* (Rchb. & Zoll.) Muell.-Arg.  
Mahang putih  
Kampung Juara. B.C. Stone; A. Latiff & Faridah Hanum (Observed). Tree to 30 m tall; secondary forest; throughout.
- 49.27 *Macaranga tanarius* (L.) Muell.-Arg.  
Mahang  
Kampung Juara. B.C. Stone; A. Latiff & Faridah Hanum (Observed). Tree to 9 m tall; secondary forest; common throughout.
- 49.28 *Macaranga subcuneatus* (Gage) Airy Shaw  
Mahang  
Trail to waterfalls, Sungai Asah. Elev. 70 m. A. Zainudin & Bedul, AZ 5483 (UKMB). A small tree; lowland forest; scattered throughout.
- 49.29 *Mallotus dispar* (Blume) Muell.-Arg.  
Balik angin  
Trail to Kampung Juara from Kampung Tekek. Elevation 80 m. A. Zainudin & Bedul, AZ 5505 (UKMB). Small tree; common around the area.
- 49.30 *Mallotus oblongifolius* (Miq.) Muell.-Arg.  
Balik angin  
Trail to Ulu Sungai Benuang. Elev. 540 m. Zulkifli Mohamad & R. Jaman, ZM 371 (UKMB). Tree to 9 m tall; lowland forest; common throughout.
- 49.31 *Mallotus paniculatus* (Lam.) Muell.-Arg.  
Balik angin  
Trail to waterfall, Sungai Asah. Elevation 10 m. A. Zainudin & Bedul, AZ 5484 (UKMB). Tree to 12 m tall; secondary forest in the lowlands and hills to 900 m; throughout.
- 49.32 *Mallotus* sp.  
Balik angin  
Trail to Ulu Sungai Kelayak. Elev. 650 m. Zulkifli Mohd & R. Jaman, ZM 373 (UKMB).
- 49.33 *Manihot esculenta* Crantz  
Ubi kayu  
Kampung Juara. B.C. Stone; A. Latiff & Faridah Hanum (Observed). Common relic of cultivation; wasteground throughout.
- 49.34 *Microstachys chamaelea* (L.) Muell.-Arg.  
Amin-amin  
Kampung Paya. H.T.W. Tan & M.W.K. Goh, PTM 75 (KEP). Herb to 90 cm tall; open areas of sandy beaches; widespread.
- 49.35 *Pedilanthus tithymaloides* (L.) Poit.  
Kampung Juara. B.C. Stone; A. Latiff & Faridah Hanum (Observed). Cultivated as a ornamental plant.
- 49.36 *Phyllanthus acidus* (L.) Skeels  
Cerma  
Fruit tree of 8 m tall; widely cultivated for its edible fruits; native probably of coastal N.E. Brazil.

- 49.37 *Phyllanthus amarus* Schum. & Thonn.  
Dukung anak  
Kampung Juara. B.C. Stone, BCS 11957 (SING). Slender herb to 60 cm tall; weed of dry ground; widespread; naturalized from tropical America; used locally for treating high blood pressure and hypertension.
- 49.38 *Phyllanthus debilis* Klein ex Willd.  
Dukung anak  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 18 (KEP). Herb to 100 cm tall; weed of cultivation or wasteland; widespread; naturalized from southern India.
- 49.39 *Phyllanthus urinaria* L.  
Amin buah  
Kampung Mukut. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 34 (KEP). Herb to 60 cm tall; weed of cultivation, waste ground or sandy areas; widespread.
- 49.40 *Sapium baccatum* Roxb.  
Ludai  
Kampung Tekek and Sungai Asah Water falls trail. A. Zainudin (Observed). Tree to 36 m tall; lowland and hill forest to 600 m; throughout.
- 49.41 *Sauropus androgynus* (L.) Merr.  
Cukor manis  
Tanjung Ruit. Corner, SFN 29804 (SING). Shrub or small tree; often cultivated, lowlands; widespread.
- 49.42 *Suregada multiflora* (Juss.) Baill.  
Kampung Juara and Kampung Paya. B.C. Stone, BCS 11861 (KLU); E. Soepadmo, ES 1475 (KLU); Sidek 484 (SING). Shrub or small tree to 12 tall; rocky and sandy shores, also inland in rocky places to 750 m; widespread.
- 49.43 *Trigonostemon arboreus* Ridley  
Kampung Juara. Henderson s.n. (SING); Kadim & Noor, K & N 561 (SING); Sidek 484 (SING); Nur, SFN 18595 (SING). Small tree to 6 m tall; rare.
- 49.44 *Trigonostemon laevigatus* Muell.-Arg.  
Kampung Juara, Henderson s.n. (SING). Shrub
- 49.45 *Trigonostemon longifolius* Baill.  
Trail to Gunung Kajang. Henderson s.n. (SING). Shrub or small tree to 4 m tall; lowland and hill forest to 600 m; throughout.

## 50. FLACOURTIACEAE

- 50.1 *Casearia greuiifolia* Vent. var. *deglabrata* Koord. & Valeton  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub or tree; lowland forest.
- 50.2 *Flacourtia rukam* Zoll. & Mor.  
Rukam  
Kampung Tekek. A. Zainudin (Observed). Small thorny tree; lowland forest; widespread.
- 50.3 *Hemiscolopia trimera* (Boerl.) Slooten  
Pulau Tulai. Corner, SFN 29822 (SING). Tree to 10 m tall; coastal forest; recorded from Pahang, Malacca and Johore.
- 50.4 *Hydnocarpus ilicifolia* King  
Pulau Chibeh. Corner, SFN 29827 (SING). Small prickly-leaved tree; usually on limestone; recorded from Perlis, Pulau Langkawi, Kedah and Pahang.

- 50.5 *Pangium edule* Reinw.  
Kepayang  
Durian Sabak. Nur, SFN 18821 (SING). Tree to 210 m tall; around villages, possibly not wild; widespread.

## 51. FLAGELLARIACEAE

- 51.1 *Flagellaria indica* L.  
Rotan dini, Rotan kera  
Kampung Juara. E. Soepadmo; A. Latiff (Observed). Climber 2-15 m long; common in damp forest near the sea, but also inland to 1500 m; widespread.

## 52. GESNERIACEAE

- 52.1 *Cyrtandra pendula* Blume  
Sungai Air Besar. B.C. Stone, BCS 11964 (KLU). Creeping herb; lowland forests; widespread.
- 52.2 *Cyrtandra suffruticosa* Ridley  
Ridley s.n. (SING). Shrub to 130 m tall; on rocks or epiphytic; endemic.
- 52.3 *Cyrtandra wallichii* (C.B. Clarke) B.L. Burt  
Sungai Air Tawar. Kadim & Noor, K & N 518 (SING). Shrub to 1 m tall; on river banks in lowland and hill forest; widespread.
- 52.4 *Didymocarpus corchorifolius* Wall. ex DC.  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to to m tall; hill forest; rare.
- 52.5 *Didymocarpus densifolius* Ridley  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 1 m tall; lowland and hill forest; Pulau Tioman and Johore; endemic.
- 52.6 *Didymocarpus tiumanicus* (Ridley) B.L. Burt  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 10 cm tall; lowland forest; Pulau Tioman, Pulau Tinggi, Pulau Pemanggil and Johore; endemic.
- 52.7 *Loxonia hirsuta* Jack  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 60 cm tall; hill forest; recorded from Pahang and Johore.

## 53. GOODENIACEAE

- 53.1 *Scaevola taccada* (Gaertn) Roxb.  
Ambong-ambong  
Kampung Juara. K.M. Kochummen, KEP 77844 (KEP); B.C. Stone, BCS 11946 (KLU). Large succulent shrub; sandy shores.

## 54. GRAMINEAE

- 54.1 *Centotheca lappacea* (L.) Desv.  
Sungai Air Besar. B.C. Stone (Observed). Rosette-forming herb to 1 m tall; shady places to 1500 m; widespread.
- 54.2 *Chloris barbata* Sw.  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 4 (KEP). Herb to 100 cm tall; weed of open, dry areas; Penang, Perak, Selangor, Johore, Singapore; naturalized from tropical America.

- 54.3 *Chrysopogon aciculatus* (Retz.) Trin.  
Kemuncup  
Kampung Tekek. B.C. Stone; A. Latiff & Faridah Hanum (Observed). Creeping herb forming a dense turf, 20-60 cm tall; abundant in open places; throughout.
- 54.4 *Cynodon dactylon* (L.) Pers.  
Rumput minyak  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 14 (KEP). Creeping herb to 40 cm tall; open sandy areas in the lowlands; throughout.
- 54.5 *Dactyloctenium aegyptium* (L.) Willd.  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 9 (KEP). Herb to 50 cm tall; sandy areas near seashores; Penang, Perak, Selangor, Pahang, Johore, Singapore.
- 54.6 *Dendrocalamus pendulus* Ridley  
Track to Gunung Kajang. Henderson s.n. (SING). Bamboo to 25 m tall; opening in lowland forest to 800 m; widespread; endemic.
- 54.7 *Digitaria ciliaris* (Retz.) Koeler  
Rumput kerbau  
Track to Gunung Kajang. Henderson s.n. (SING). Herb forming loose mats, to 60 cm tall; waste places to 700 m; widespread.
- 54.8 *Digitaria setigera* Roem. & Schult.  
Near the summit of Gunung Kajang. Henderson, SFN 18265 (SING). Herb forming loose mats to 90 cm tall; waste places; Pahang, Malacca, Johore and Singapore.
- 54.9 *Eleusine indica* (L.) Gaertn.  
Rumput sambau  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 8 (KEP). Herb to 70 cm tall; weed of wasteland or cultivation to 1700 m; throughout.
- 54.10 *Eragrostis amabilis* (L.) Wight & Arn. ex Hock. & Arn.  
Rumput telur kutu  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 19 (KEP). Herb to 30 cm tall; open wasteland or cultivated areas; Kedah, Penang, Kelantan, Perak, Selangor, Malacca, Singapore.
- 54.11 *Imperata cylindrica* (L.) P. Beauv.  
Lalang  
Kampung Juara. A. Zainudin; A. Latiff & Faridah Hanum (Observed). Rhizomatous herb about 100 cm tall; frequent colonizer of bare ground in lowlands and mountains; throughout.
- 54.12 *Isachne globosa* (Thunb.) Kuntze  
Kampung Mukut. A. Zainudin (Observed). Herb 20-90 cm tall; open wet places; widespread.
- 54.13 *Ischaemum muticum* L.  
Kampung Mukut. A. Zainudin (Observed). Herb 20-40 cm tall; open wet places; widespread.
- 54.14 *Leptaspis urceolata* (Roxb.) R.Br.  
Trail to Kampung Tekek From Kampung Juara. B.C. Stone, BCS 11900 (KLU). Herb to 1 m tall; lowland forest to 600 m; throughout.
- 54.15 *Lophotherum gracile* Brongn.  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 100 cm tall often forming loose rosette; opening in forest to 1650 m; widespread.
- 54.16 *Melinis repens* (Willd.) Zizka  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 1 (KEP). Herb to 70 cm tall; sandy areas or wasteland; widespread; naturalized from tropical Africa.

- 54.17 *Mnesithea glandulosa* (Trin.) de Koning & Sosef  
Tanjung Ruit. Corner (1985). Prop-rooted herb to 2.5 m tall; open areas in lowlands and hills, often riverine; widespread.
- 54.18 *Paspalum distichum* L.  
Kampung Juara. B.C. Stone (Observed). Stoloniferous herb about 60 cm tall; pantropical weed of damp places; recorded so far from Penang.
- 54.19 *Paurotis indica* (L.) O.K.  
Kampung Juara to Kampung Tekek. B.C. Stone, BCS 11929 (KLU). Herb.
- 54.20 *Pennisetum polystachion* (L.) Schult.  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 17 (KEP). Tufted herb to 3 m tall; wasteland; Johore, Singapore; naturalized from tropical Africa.
- 54.21 *Schizostachyum gracile* (Munro) Holtt.  
Kampung Juara. B.C. Stone, BCS 11917 (KLU). Bamboo to 4 m tall; bending over at the top; forest margins and river banks; not common; endemic.
- 54.22 *Schizostachyum jaculans* Holtt.  
Track to Gunung Kajang. Henderson 18486 (SING). Bamboo to 7 m tall; lowlands; widespread.
- 54.23 *Spinifex littoreus* (Burm.f.) Merr.  
Rumput bebaling  
Kampung Paya. Sidek 508 (SING). Stiff creeping bushy herb; sandy coast; Terengganu, Pahang and Johore; common on the beach.
- 54.24 *Sporobolus virginicus* (L.) Kunth  
Tanjung Ruit. Corner (1985). Tufted herb to 50 cm tall; seashores; Kedah, Singapore.
- 54.25 *Thuarea involuta* (G. Forst.) R.Br. ex Roem. & Schult.  
Kampung Juara. B.C. Stone (Observed). Creeping herb 5-10 cm tall; sea shores; Kedah, Kelantan, Terengganu, Penang, Pahang, Johore and Singapore.

## 55. GUTTIFERAE

- 55.1 *Calophyllum inophyllum* L.  
Bitanggor laut  
Telok Berhala. Henderson, SFN 18530 (SING). Tree to 25 m tall; rocky and sandy shores; widespread.
- 55.2 *Calophyllum* sp.  
Kampung Paya. Sidek 452 (SING).
- 55.3 *Cratoxylum formosum* (Jack) Dyer  
Derum  
Trail to Kampung Mukut from Sri Asah, A. Zainudin & Bedul, AZ 5520 (UKMB). Tree to 45 m tall; lowland forest to 600 m; throughout.
- 55.4 *Garcinia dumosa* King  
Sungai Air Besar. Nur, SFN 18760 (SING). Shrub; lowland forest; Kelantan, Perak, Pahang and Selangor; endemic.
- 55.5 *Garcinia hombroniana* Pierre  
Beruas  
Telok Paya. Henderson, SFN 18412 (SING). Tree to 30 m tall; most frequently near the sea; all coasts.

- 55.6 *Garcinia nervosa* Miq.  
Kandis gajah, Manggis beruang  
Sri Asah waterfall trail. A. Zainudin (Observed). Tree to 21 m tall; lowland forest; scattered widely.
- 55.7 *Garcinia nigrolineata* Planch. ex T. Anderson  
Kampung Paya. Sidek 461 (SING). Tree; lowland forest to 600 m; throughout.
- 55.8 *Garcinia parvifolia* (Miq.) Miq.  
Pulau Tulai. Kadim & Noor, K & N 643 (SING). Tree to 33 m tall; lowland forest to 600 m; throughout.
- 55.9 *Garcinia penangiana* Pierre  
Track to Gunung Kajang. Kadim & Noor, K & N 591 (SING). Tree to 15 m tall; lowland forest to 300 m; not common.
- 55.10 *Mesua* sp.  
Penaga  
Sungai Air Besar. Kadim & Noor, K & N 557 (SING). Tree to 20 m tall.

#### 56. HANGUANACEAE

- 56.1 *Hanguana malayana* (Jack) Merr.  
Gunung Lalang. Kadim & Noor, K & N 609 (SING). Herb to 2 m tall, terrestrial or aquatic; in lowland and hill forest to 1500 m or in lowland ponds and rivers; widespread.

#### 57. HERNANDIACEAE

- 57.1 *Hernandia nymphaeifolia* (Presl) Kubitzki  
Juara Bay. Nur, SFN 18839 (SING). Tree to 18 m tall; coastal and offshore island; Pulau Langkawi, Kedah, Terengganu, Pahang and Johore.

#### 58. HYDRANGEACEAE

- 58.1 *Dichroa febrifuga* Lour.  
Gunung Kajang. Henderson s.n. (SING). Shrub to 2 m tall; montane forest; Perak, Pahang and Selangor.

#### 59. HYPOXIDACEAE

- 59.1 *Molineria latifolia* (Dryand.) Herb. ex Kurz var. *latifolia*  
Lemba  
Kampung Juara. B.C.Stone, BCS 11877 & 11980 (KLU). Hairy herb to over 1 m tall; forests and forest margins, lowlands to mountain tops; throughout.

#### 60. ICACINACEAE

- 60.1 *Gomphandra quadrifida* (Blume) Sleumer var. *ovalifolia* (Ridley) Sleumer  
Gunung Kajang. Kadim & Noor, K & N 597 (SING). Shrub; lowland to lower montane forest; widespread.

## 61. IXONANTHACEAE

- 61.1 *Ixonanthes icosandra* Jack  
Pagar anak  
Sungai Asah waterfalls trail. A. Zainudin, (Observed). Tree to 30 m tall; primary and secondary forest, mostly lowlands; throughout.

## 62. LABIATAE

- 62.1 *Gomphostemma curtisii* Prain  
Bukit Bayoh. Nur, SFN18567 (SING). Herb to 1.5 m tall; hill and montane forest at 250-1300 m; Perak and Pahang.
- 62.2 *Hyptis capitata* Jacq.  
Kampung Juara. A. Zainudin (Observed). Herb to 2.5 m tall; waste ground; naturalized from tropical America.
- 62.3 *Leucas zeylanica* (L.) R.Br.  
Ketumbit  
Kampung Juara. A. Zainudin (Observed). Herb to 60 m tall, waste ground, roadsides; widespread.
- 62.4 *Ocimum basilicum* L.  
Selasih  
Teluk Paya. B.C. Stone, BCS 11923 (KLU). Very aromatic herb to 1 m tall; waste ground, much cultivated; widespread.
- 62.5 *Ocimum tenuiflorum* L.  
Ruku-ruku  
Kampung Juara. Samsuri 942 (SING). Bushy herb to 60 cm tall; common weed of waste ground; widespread.

## 63. LAURACEAE

- 63.1 *Cassytha filiformis* L.  
Kampung Juara. K.M. Kochummen, KEP 77845 (KEP). Leafless twining parasitic vine; common on sandy coasts; widespread.
- 63.2 *Cryptocarya kurzii* Hook.f.  
Sungai Air Besar. Kadim & Noor, K & N 550 (SING). Tree to 21 m, usually smaller; lowland forest; Kedah, Perak, Pahang, Terengganu, Johore and Malacca.
- 63.3 *Endiandra macrophylla* (Blume) Boerl.  
Tekek-Juara trail, Kadim & Noor K. & N. s.n. (SING). Tree of ca. 15 m.
- 63.4 *Litsea johorensis* Gamble  
Track to Gunung Kajang. Henderson s.n. (SING). Tree to 18 m tall; lowland to lower montane forest at 1200 m; Kelantan, Terengganu, Perak, Pahang, Negeri Sembilan and Johore.
- 63.5 *Litsea myristicifolia* Hook.f.  
Kampung Juara. Kadim & Noor, K & N 563 (SING). Tree up to 27 m tall; lowland to montane forest; widespread.
- 63.6 *Litsea rubicunda* Kosterm.  
Kampung Juara. Kadim & Noor, K. & N. s.n. (SING). Tree of ca. 15 m.

- 63.7 *Neolitsea zeylanica* (Nees) Merr.  
Teja pasir  
Tanjung Ruit. Corner (1985). Shrub or treelet; lowland to hill forest to 1000 m; throughout.

#### 64. LECYTHIDACEAE

- 64.1 *Barringtonia asiatica* (L.) Kurz  
Putat laut  
Sri Asah beach. A. Zainudin; A. Latiff (Observed). Tree to 20 m tall or more; sandy shores.
- 64.2 *Barringtonia macrostachya* (Jack) Kurz  
Kampung Tekek. Kadim & Noor, K & N 568 (SING). Tree to 20 m tall; lowland forest, rarely in mountains; throughout.
- 64.3 *Barringtonia scortechinii* King  
Putat  
Trail to waterfalls, Sungai Asah. Elev. 40 m. A. Zainudin & Bedul, AZ 5464 (UKMB). Tree to 21 m tall; lowland and hill forest to 1200 m; throughout.

#### 65. LEEACEAE

- 65.1 *Leea aequata* Lam.  
Memali  
Kampung Juara. A. Zainudin; A. Latiff (Observed). Shrub; lowland forest; so far recorded from Kedah, Pahang and Perak.
- 65.2 *Leea indica* (Burm.f.) Merr.  
Memali  
Trail to Kampung Juara from Kampung Tekek. Elevation 80 m. A. Zainudin & Bedul, AZ 5510 (UKMB). Tree to 10 m tall; lowland forest, particularly secondary regrowth; throughout.
- 65.3 *Leea saxatilis* Ridley  
Memali duri  
Kampung Tekek, near small river. A. Zainudin & Bedul, AZ 5490 (UKMB). Small treelet, rare and endemic to Peninsular Malaysia.

#### 66. LEGUMINOSAE

- 66.1 *Abrus precatorius* L.  
Akar saga keneri  
Kampung Tekek. Kadim & Noor, K & N 669 (SING). Vine; on hedges and thickets often near the sea; widespread; a poisonous plant of South American origin.
- 66.2 *Adenanthera malayana* Kosterm.  
Saga  
Kampung Tekek, trail to Kg. Juara. A. Zainudin (Observed). Tree sometimes to 45 m tall; lowland and hill forest to 900 m, often planted; widespread but scattered.
- 66.3 *Adenanthera pavonina* L.  
Saga  
Kampung Tekek. B.C. Stone. (Observed). Tree 25-40 m tall; lowland forest, usually near the sea; often planted; wild on East Coast and offshore islands.
- 66.4 *Albizia lebbek* (L.) Benth.  
Kampung Tekek. B.C. Stone. (Observed). Tree to 30 m tall; open sandy places, also cultivated.

- 66.5 *Albizzia retusa* Benth.  
Kampung Tekek. B.C. Stone (Observed). Tree up to 20 m
- 66.6 *Bauhinia* sp.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11867 (KLU). A climber.
- 66.7 *Bauhinia glauca* (Wall. ex Benth.) Benth.  
Tapak kuda  
Bukit Penak. Samsuri 744 (SING). Liana or climbing shrub; on rock or climbing in lowland forest; recorded from Perlis, Kedah, Perak, Pahang and Selangor.
- 66.8 *Caesalpinia crista* L.  
Kampung Tekek. B.C. Stone, (Observed). Prickly liana to m tall; sandy beaches, back mangrove and on limestone; widespread.
- 66.9 *Callerya atropurpurea* (Wall.) Schot  
Tulang daing  
Kampung Juara. B.C. Stone, (Observed). Tree to 30 m tall; open country, sometime planted; widespread.
- 66.10 *Canavalia rosea* (Sw.) DC.  
Kampung Juara. B.C. Stone, BCS 12002 (KLU). Trailing vine; sandy shore.
- 66.11 *Crotalaria striata* DC.  
Kampung Juara. A. Zainudin, (Observed). Herb to 1 m tall; weed in waste land; widespread.
- 66.12 *Dalbergia candenatensis* (Dennst.) Prain  
Kampung Tekek. B.C. Stone, BCS 12006 (KLU). Scandent shrub or liana; coastal shrub and mangrove; widespread.
- 66.13 *Derris* sp.  
Bukit Penak. Samsuri 753 (SING). Liana.
- 66.14 *Dendrolobium umbellatum* (L.) Benth.  
Kampung Tekek. Kadim & Noor, K & N 567 (SING). Shrub 2-3 m tall; muddy and sandy shores; all coasts.
- 66.15 *Desmodium heterocarpon* (L.) DC. ssp. *heterocarpon* var. *strigosum* Meeuwen  
Kacang Kayu betina  
Berjaya Resort Golf Course (north of Tanjung Berhala). H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 81 (KEP). Shrub to 1 m tall; wasteland or roadsides; widespread; this variety was overlooked in Turner (1995) but mentioned by Ohashi (1973) to occur in Penang.
- 66.16 *Desmodium triflorum* (L.) DC.  
Kampung Tekek. B.C. Stone, (Observed). Creeping herb; common in lawn and waste places; throughout.
- 66.17 *Entada spiralis* Ridley  
Beluru  
The trail to Kampung Mukut from Sri Asah. A. Zainudin, (Observed). Woody climber to 40 m long; lowland forest to 540 m; widespread.
- 66.18 *Erythrina variegata* L. var. *orientale* (L.) Merr.  
Dedap  
Kampung Juara. B.C. Stone; Latiff (Observed). Tree to 7 m tall.
- 66.19 *Flemingia strobilifera* (L.) Roxb.  
Kampung Juara. B.C. Stone, BCS 11965 (KLU). Shrub to 1.5 m tall; dry open spots, roadsides; widespread.

- 66.20 *Indigofera suffruticosa* Mill.  
Kampung Tekek. Kadim & Noor, K & N 666 (SING). Shrub to 2.5 m tall; waste places; naturalized from tropical America.
- 66.21 *Intsia bijuga* (Colebr.) Kuntze  
Kampung Juara. K.M. Kochummen, (Observed). Tree to 25 m tall; coasts and tidal reaches of rivers; throughout.
- 66.22 *Intsia palembanica* Miq.  
Merbau  
Track to Gunung Kajang. K.M. Kochummen, (Observed). Large buttressed tree to 55 m tall; common in lowland forest; throughout.
- 66.23 *Mimosa diplotricha* C. Wright ex Sauvalle  
Tekek-Juara Track. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 51 (KEP). Scrambling shrub; weed of wasteland or plantations; widespread; naturalized from tropical America.
- 66.24 *Mimosa pudica* L.  
Semalu  
Kampung Juara. A. Zainudin; A. Latiff, (Observed). Erect or prostrate herb or subshrub; waste places, weed of grassland; throughout.
- 66.25 *Moghania strobilifera* (L.) St. Hil.  
Seringan  
Trail to Kampung Tekek from Kampung Juara. A. Zainudin & Bedul, AZ 5489. Shrub common in open areas at Kampung Juara.
- 66.26 *Parkia speciosa* Hassk.  
Petai  
Sri Asah waterfalls. Elev. 80 m. A. Zainudin; A. Latiff, (Observed). Tree to 35 m tall; sometimes bigger; lowland and hill forest to 900 m, often planted; widespread.
- 66.27 *Pongamia pinnata* (L.) Pierre  
Mempari  
On the coast near Sri Asah and Kg. Mukut. A. Zainudin; A. Latiff & Faridah Hanum (Observed). Small tree sometimes to 20 m tall; sandy and rocky shores; all coast.
- 66.28 *Senna alata* (L.) Roxb.  
Gelenggang besar  
Kampung Juara and Kampung Mukut. A. Zainudin; A. Latiff & Faridah Hanum (Observed). Shrub to 5 m tall; common in damp waste ground; throughout; naturalized from tropical America.
- 66.29 *Senna occidentalis* (L.) Link  
Kacang kota  
Kampung Mukut. A. Zainudin, (Observed). Herb, sometimes shrubby, to 3 m tall; waste ground; widespread; naturalized from tropical America.
- 66.30 *Senna tora* (L.) Roxb.  
Gelenggang padang  
Kampung Juara and Kampung Mukut. A. Zainudin; A. Latiff & Faridah Hanum (Observed). Foetid herb to 120 cm tall; weed of cultivation; widespread; naturalized from tropical America.
- 66.31 *Sindora echinocalyx* (Bentham) Prain  
Sepetir  
Track to Gunung Kajang. K.M. Kochummen, KEP 77824 (KEP). Tree to 30 m or more tall; hill forest to 700 m; widespread.

- 66.32 *Sophora tomentosa* L.  
Bukit Genting. Samsuri 947 (SING); Teluk Nipah, A. Latiff & Faridah Hanum (Observed). Silvery shrub to 5 m tall; sea shores; common on the East Coast.
- 66.33 *Uraria lagopodioides* (L.) Desv. ex DC.  
Kampung Juara. E. Soepadmo, ES 1456 (KLU). Creeping shrub; open sandy places; Pahang and Selangor northward.
- 66.34 *Zornia diphylla* (L.) Pers.  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 52 (KEP). Prostrate herb; open sandy areas; Penang, Singapore.

#### 67. LOGANIACEAE

- 67.1 *Fagraea auriculata* Jack  
Tembusu laut  
Bukit Nipah. Samsuri 915 (SING). Woody epiphyte or climber, sometimes free-standing; lowland and hill forest to 1200 m, sometimes cultivated; widespread.
- 67.2 *Strychnos ignatii* Berg.  
Akar ipuh  
Tekek-Juara Track. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 100 (KEP). Large liana; lowland and hill forest; widespread.

#### 68. LORANTHACEAE

- 68.1 *Dendrophthoe pentandra* (L.) Miq.  
Dedalu  
Kampung Juara. B.C. Stone, BCS 11948 (SING); A. Latiff (Observed). Large shrubby mistletoe; lowland to mountain, common; widespread.

#### 69. LYTHRACEAE

- 69.1 *Lagerstroemia speciosa* (L.) Pers.  
Bungor  
East coast of Tioman. Kloss SFN 13157 (SING). Tree to 15 m tall; open country, often near river, commonly cultivated ornamental elsewhere.
- 69.2 *Pemphis acidula* J.R. Forst. & G. Forst.  
Kampung Juara. E. Soepadmo, (Observed). Shrub to 8 m tall; rocky and sandy shores; scattered, more common in the south.

#### 70. MALPHIGIACEAE

- 70.1 *Tristellateia australasiae* A. Rich.  
Batang Air. Henderson, SFN 18601 (SING). Slender liana to 10 m long; back mangroves, also widely cultivated; widespread.

#### 71. MALVACEAE

- 71.1 *Abutilon indicum* (L.) Sweet  
Kampung Tekek. B.C. Stone, BCS 11943 (KLU). Small shrub; waste ground; common throughout.

- 71.2 *Hibiscus tiliaceus* L.  
Bebaru  
Coastal. K.M. Kochummen, KEP 77846 (KEP); B.C. Stone, BCS 12009 (KLU); A. Latiff & Faridah Hanum (Observed). Tree to 12 m tall; sea shores, rocky coasts and river banks; throughout.
- 71.3 *Sida acuta* Burm.f.  
Kampung Tekek. Kadim & Noor, K & N 672 (SING). Shrub to 1 m tall; waste places; throughout.
- 71.4 *Sida cordifolia* L.  
Telu k Paya. Henderson SFN 18421 (SING). Herb to 1 m tall; sandy open places.
- 71.5 *Sida rhombifolia* L.  
Kampung Tekek. B.C. Stone, BCS 11941 (KLU). Erect shrub to 1 m tall; sea shores and waste places; widespread.
- 71.6 *Thespesia populnea* (L.) Sol. ex Correa  
Pulau Tulai. Henderson SFN 18515 (SING); Kampung Tekek, A. Latiff & Faridah Hanum (Observed). Tree to 15 m tall; sandy and rocky shores; all coasts.
- 71.7 *Urena lobata* L.  
Pulut-pulut  
Kampung Juara. A. Zainudin & Bedul, AZ 5493 (UKMB). Shrub to 1.5 m tall; open places, roadsides, commoner in the hill; throughout.

## 72. MELASTOMATACEAE

- 72.1 *Blastus borneensis* Cogn. var. *borneensis*  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 3 m tall; hill forest; widespread.
- 72.2 *Clidemia hirta* (L.) D. Don  
Senduduk bulu  
Sri Asah. A. Zainudin; A. Latiff & Faridah Hanum (Observed). A very common undershade shrub with white flowers and hairy stem and leaves.
- 72.3 *Medinilla speciosa* (Reinw. ex Blume) Blume  
Gunung Kajang. Kadim & Noor, K & N 592 (SING). Shrub to 3 m tall; often epiphyte; hill forest, 500-1200 m; recorded from Penang, Perak, Pahang and Selangor; endemic.
- 72.4 *Melastoma malabathricum* L.  
Senduduk  
Kampung Tekek. A. Zainudin; A. Latiff & Faridah Hanum (Observed). Shrub to 3 m tall; secondary growth in lowland and hills; throughout.
- 72.5 *Memecylon caeruleum* Jack  
Delik-delik jambu  
Tanjung Ruit. Corner (1985). Shrub or small tree to 12 m tall; lowlands near the sea; widespread.
- 72.6 *Memecylon excelsum* Blume  
Gunung Lallang. Kadim & Noor, K & N 580 (SING). Tree to 18 m tall; lowland and hill forest to 1200 m; widespread.
- 72.7 *Memecylon floridum* Ridley  
Pulau Tulai. Kadim & Noor, K & N 660 (SING). Tree to 17 m tall; hill forest to 1200 m; not very common; endemic.

- 72.8 *Memecylon megacarpum* Furtado  
Trail to waterfalls, Sungai Asah. Elev 50 m. A. Zainudin & Bedul, AZ 5499 (UKMB). Tree to 15 m tall; lowland to montane forest at 1800 m; widespread.
- 72.9 *Pternandra echinata* Jack  
Sial menahun  
Trail to waterfalls, Sungai Asah. A. Zainudin, (Observed). Tree to 20 m tall; lowland and hill forest to 1200 m; widespread.
- 72.10 *Sonerila erecta* Jack  
Gunung Kajang. E. Soepadmo, ES 1384 (KLU). Wiry herb to 50 cm tall; montane forest; Penang, Perak and Pahang; endemic.
- 72.11 *Sonerila heterostemon* Naudin  
Bukit Nipah. Samsuri 920 (SING). Herb to 50 cm tall; lowland forest; widespread.

### 73. MELIACEAE

- 73.1 *Aglaia argentea* Blume  
Trail to waterfalls, Sungai Asah. Elev. 60 m. A. Zainudin & Bedul, AZ 5468. Tree to 30 m tall; lowland forest; a silvery appearance of the under leaves surface always attract the collector. A common medium size trees; widespread.
- 73.2 *Aglaia palembanica* Miq.  
Kampung Paya. Sidek 462 (SING). Tree to 5 m tall; lowland forest; Pahang, Selangor, Malacca and Singapore.
- 73.3 *Azadirachta excelsa* (Jack) M. Jacobs  
Kampung Tekek. trail to Kampung Juara. A. Zainudin, (Observed). Tree to 50 m tall; lowland forest and villages; commoner in the north.
- 73.4 *Chisocheton pentandrus* (Blanco) Merr. ssp. *paucijugus* (Miq.) Mabb.  
Tanah Runtuh. Nur, SFN 1888 (SING). Tree to 18 m tall; lowland forest; Penang, Perak, Pahang, Selangor, Johore and Singapore.
- 73.5 *Dysoxylum arborescens* (Blume) Miq.  
Juara Bay. Burkill 1003 (SING). Tree to 30 m tall; lowland and hill forest to 1500 m; throughout.
- 73.6 *Dysoxylum cauliflorum* Hiern  
Trail to waterfall, Sungai Asah. Elev. 50 m. A. Zainudin & Bedul, AZ 5501 (UKMB). Tree to 30 m tall; lowland and hill forest; very common around the area.
- 73.7 *Heynea trijuga* Roxb. ex Sims  
Pulau Tulai. Kadim & Noor, 649 (SING). Tree to 8 m tall; lowland forest; scattered.
- 73.8 *Lansium domesticum* Correa  
Langsat  
Kampung Juara. A. Zainudin (Observed). Tree to 15 m tall; lowland forests, frequently cultivated; widespread.
- 73.9 *Toona sinensis* (A. Juss.) M.J. Roemer  
Surian bawang  
Kampung Tekek trail to Kampung Juara. A. Zainudin, (Observed). Tree to 36 m tall; hill and lower montane forest, 600-1200 m.
- 73.10 *Xylocarpus granatum* J.Konig  
Pulau Tulai. Henderson, SFN 18519 (SING). Tree to 15 m tall; mangroves; all coasts.

- 73.11 *Xylocarpus moluccensis* (Lam.) M. J. Roemer  
Pulau Tulai. Henderson, SFN 18527 (SING). Tree to 18 m tall; mangroves; all coasts.

#### 74. MELIOSMACEAE

- 74.1 *Meliosma sumatrana* (Jack) Walp.  
Kampung Penak. Samsuri 763 (SING). Tree to 20 m tall; lowland to lower montane forest at 1500 m; widespread.

#### 75. MENISPERMACEAE

- 75.1 *Cocculus orbiculus* (L.) DC.  
Kampung Juara. B.C. Srtone, BCS 11876 (KLU). Slender liana; sandy shores; both coasts.
- 75.2 *Cyclea laxiflora* Miers  
Sri Asah waterfalls trail. A. Zainudin, (Observed). Slender climber to 15 m long; forest margins, lowlands to mountains at 1200 m; widespread and common.
- 75.3 *Pericampylus glaucus* (Lamk.) Merr.  
Akar menkunyit  
Air Batang. Henderson, SFN 18455 (SING). Liana; lowland forest; widespread.

#### 76. MORACEAE

- 76.1 *Ficus albipila* (Miq.) King  
Tanjung Ruit. Corner s.n. (SING). Tall tree; lowland; scattered.
- 76.2 *Ficus annulata* Blume  
Kampung Juara. B.C.S tone, BCS 11956 (KLU). Strangler to 24 m tall; lowland forest; widespread, common in the north.
- 76.3 *Ficus caulocarpa* Miq.  
Tanjung Ruit. Corner (1985). Strangler with many aerial roots; widespread.
- 76.4 *Ficus crassiramea* Miq.  
Tanjung Ruit. Corner (1985). Large strangler; lowland forest; throughout.
- 76.5 *Ficus deltoidea* Jack var. *intermedia* Corner  
Mas kontek  
Gunung Kajang. Henderson s.n. (SING). Shrub to 4 m tall; sometimes epiphytic; montane forest.
- 76.6 *Ficus drupacea* Thunb.  
Tanjung Ruit. Corner, s.n. 17 Aug 1935 (SING). Large tree; lowland and hill forest; northern Peninsular Malaysia.
- 76.7 *Ficus fistulosa* Reinw. ex Blume  
Gunung Lalang. Kadim & Noor, K & N 623 (SING). Weedy tree to 15 m tall; secondary forest, wayside; common throughout.
- 76.8 *Ficus grossularioides* Burm.f.  
Ara  
Trail to waterfalls, Sungai Asah. Elev. 10 m. A. Zainudin & Bedul, AZ 5485 (UKMB). Shrub to 9 m tall; secondary forest; common throughout.

- 76.9 *Ficus hispida* L.f.  
Ara senial  
Trail to Kampung Juara from Kampung Tekek. Elev. 80 m. A. Zainudin & Bedul, AZ 5509 (UKMB). Tree to 12 m tall; previously not reported south of Selangor
- 76.10 *Ficus kurzii* King  
Trail to Kampung Juara, A. Zainudin (Observed). Scrambler.
- 76.11 *Ficus lepicarpa* Blume  
Sungai Air Besar. Kadim & Noor, K & N 529 (SING). Tree to 12 m tall; lowland to montane forest, usually near the stream; widespread.
- 76.12 *Ficus microcarpa* L.f.  
Ara jejawi  
Tanjung Ruit and Kampung Tekek. Corner (1985) and H.T.W. Tan, M.W.K. Goh & A.H.B. Loo (Observed). Large tree with aerial roots; swampy areas; common and widespread.
- 76.13 *Ficus retusa* L.  
Pulau Tulai. Kadim & Noor, K & N 658 (SING). Tree to 18 m tall; by river; Perak, Pahang, Selangor and Johore.
- 76.14 *Ficus schwarzii* Koord.  
Sungai Air Besar. Kadim & Noor, K & N 525 (SING). Small tree to 12 m tall; lowland and hill forest to 1200 m ; widespread.
- 76.15 *Ficus semicordata* Buch-Ham. ex Sm.  
Ara tanah  
Trail to Kampung Tekek from Kampung Juara. A. Zainudin; A. Latiff (Observed). Earth-fig tree to 12 m tall; secondary forest, often near streams.
- 76.16 *Ficus sinuata* Thunb.  
Kampung Penak. Samsuri 758,759 & 762 (SING). Epiphyte or small tree; lowlands to mountains; common throughout.
- 76.17 *Ficus sundaica* Blume var. *sundaica*  
Telok Nipah. Ridley s.n. (SING). Big silt-rooted tree; lowland forest; common throughout.
- 76.18 *Ficus tinctoria* G.Forst.f. ssp. *gibbosa* (Blume) Corner  
Juara Bay. Corner SFN 25754 (SING). Big tree with many aerial roots; lowlands, often on rocky coasts.
- 76.19 *Ficus superba* (Miq.) Miq.  
Pulau Tulai. Kadim & Noor, K & N 663 (SING). Big tree; rocky coasts; common throughout.
- 76.20 *Ficus variegata* Blume  
Pulau Tulai. Corner (1985). Tree to 33 m tall; open areas and forest margins; common throughout.
- 76.21 *Ficus* sp. 1  
Ara  
Trail to waterfalls, Sungai Asah. Elev. 45 m. A. Zainudin & Bedul, AZ 5466 (UKMB). Common along the riverbank.
- 76.22 *Ficus* sp. 2  
Ara  
Trail to waterfalls, Sungai Asah. Elev. 70 m. A. Zainudin & Bedul, AZ 5480 (UKMB). Small tree 6 m tall.

- 76.23 *Streblus ilicifolius* (Vidal) Corner  
Trail to Gunung Kajang. Henderson s.n. (SING). Small spiny tree; limestone and other rocky habitat; widespread.

## 77. MUSACEAE

- 77.1 *Musa x sapientum* L.  
Pisang nipah  
Kampung Juara. A. Zainudin (Observed). Cultivated.
- 77.2 *Musa x paradisiacum* L.  
Pisang tandok  
Kampung Tekek. Cultivated.

## 78. MYRISTICACEAE

- 78.1 *Horsfieldia polyspherula* (Hook.f.) J. Sinclair var. *sumatrana* (Miq.) W.J.de Wilde  
Penarahan  
Kampung Mukut. A. Zainudin & Bedul, AZ 5524 (UKMB). Tree to 35 m tall; lowland forest; widespread.
- 78.2 *Knema globularia* (Lam.) Warb.  
Pulau Tulai. Kadim & Noor, K & N 641 & 661 (SING). Tree about 10 m tall; usually coastal; widespread.
- 78.3 *Knema hookeriana* (Wall. ex Hook.f. & Thomson) Warb.  
Sungai Air Besar. Kadim & Noor, K & N 526 (SING). Tree to 25 m tall; lowland and hill forest; widespread.
- 78.4 *Knema intermedia* (Blume) Warb.  
Sungai Air Besar. Kadim & Noor, K & N 528 (SING). Tree to 10 m tall; lowland forest; Perak, Pahang, Selangor, Malacca, Johore and Singapore.
- 78.5 *Knema laurina* (Blume) Warb.  
Kampung Paya. Sidek 459 (SING). Small tree; lowland forest; widespread.
- 78.6 *Knema* sp.  
Penarahan. Trail to waterfalls, Sungai Asah. Elev. 70 m. A. Zainudin & Bedul, AZ 5481. AZ 5500 and 5521 (UKMB). A small tree to 12 m tall.
- 78.7 *Myristica guatterifolia* A. DC.  
Pulau Tulai. Kadim & Noor, K & N 640 (SING). Tree to 20 m tall; beach forest; Terengganu, Pahang and Johore.

## 79. MYRSINACEAE

- 79.1 *Aegiceras corniculatum* (L.) Blanco  
Mangrove, Kampung Juara. B.C. Stone, BCS 11920 (KLU). Small tree to 5 m tall; tidal mud, river estuaries; widespread.
- 79.2 *Ardisia colorata* Roxb. var. *complanata* C.B. Clarke  
Gunung Lalang. Kadim & Noor, K & N 585 (SING). Shrub or small tree to 8 m tall; lowland and hill forest; widespread.
- 79.3 *Ardisia crenata* Sims  
Tekek-Juara Track. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 49 (KEP). Shrub or treelet; open areas or beach forest; throughout.

- 79.4 *Ardisia elliptica* Thunb.  
Mata ayam  
Kampung Paya. Sidek 499 (SING). Shrub to 3 m tall; tidal areas, sea shore; coasts from Penang to Singapore.
- 79.5 *Ardisia lanceolata* Roxb.  
Sungai Air Besar. Kadim & Noor, K & N 527 (SING). Tree to 8 m tall; lowland and hill forest; Kedah to Singapore.
- 79.6 *Ardisia pachysandra* (Wall. ex Roxb.) Mez  
Bukit Nipah. Samsuri 917 (SING). Shrub or tree to 12 m tall; lowland and hill forest; not common.
- 79.7 *Ardisia solanacea* Roxb  
Telok Nipah. Ridley s.n. (SING). Shrub to 2 m tall; lowland and hill forest; so far the only record from Perak; endemic.
- 79.8 *Ardisia* sp. 1  
Mata pelanduk  
Trail to waterfall, Sungai Asah. Elev. 50 m. A. Zainudin & Bedul. AZ 5502 (UKMB). Shrub of 3 m tall.
- 79.9 *Ardisia* sp. 2  
Mata pelanduk. Trail to Kg. Juara from Kg. Tekek. Elev. 50 m. A. Zainudin & Bedul, AZ 5504 (UKMB). Small tree of 4 m tall.
- 79.10 *Embelia ribes* Burm.  
Along the Sri Asah waterfalls trail. A. Zainudin (Observed). Liana; lowland forest; throughout.
- 79.11 *Labisia pumila* (Blume) Fern.-Vill.  
Kacip fatimah  
Track to Sri Asah waterfall. A. Zainudin (Observed). Herbaceous undershrub; lowland and hill forest; a local herb known for its use by women after birth; widespread.
- 79.12 *Maesa ramentacea* Wall. ex Roxb.  
Gambir-gambir  
Trail to waterfalls, Sungai Asah. Elev. 70 m. A. Zainudin & Bedul, AZ 5482 (UKMB). Shrub or small tree to 15 m tall; lowland and hill forest to 1200 m; throughout.
- 79.13 *Rapanea porteriana* Wall. ex A.DC.  
Near the summit of Gunung Kajang. Kadim & Noor, K & N 600 (SING). Shrub or small tree to 10 m tall; coasts, lowlands, hills and mountains to 1700 m; throughout.

## 80. MYRTACEAE

- 80.1 *Baeckia frutescens* L.  
Cucur atap  
Gunung Kajang. Samsuri 927 & Sidek 475 (SING). Shrub or small tree to 6 m tall; mountain top, quartzite ridges and sandy lowland heaths; widespread; used as traditional medicine.
- 80.2 *Decaspermum parviflorum* (Lam.) A.J. Scott var. *parviflorum*  
Kelentit kering.  
Air Batang. Henderson, SFN 18469 (SING). Tanjung Ruit. Corner, SFN 29800 (SING). Shrub or tree to 15 m tall; secondary forest or margins of primary forest; widespread.
- 80.3 *Eugenia aquea* Burm.  
Jambu air  
Sungai Air Besar. Kadim & Noor, K & N 524 (SING). Tree to 10 m tall; cultivated; the fruits are edible.

- 80.4 *Eugenia ciliaris* Ridley  
Track to Gunung Kajang. Henderson s.n. (SING).
- 80.5 *Eugenia claviflora* Roxb.  
Bukit Nipah. Samsuri 921 (SING). Medium-sized tree; lowland and hill forest; widespread.
- 80.6 *Eugenia grandis* Wight  
Jambu laut  
Kampung Juara. A. Zainudin; A. Latiff & Faridah Hanum, (Observed). Tree to 30 m tall; sandy and rocky coasts, also widely planted; throughout.
- 80.7 *Eugenia malaccensis* L.  
Jambu bol  
Kampung Tekek. A. Zainudin, (Observed). Tree to 20 m tall; cultivated; the red or crimson fruits are edible.
- 80.8 *Eugenia operculata* Roxb.  
Track to Gunung Kajang. K.M. Kochummen, KEP 77833 & 77834 (KEP).
- 80.9 *Eugenia pendens* Duthie  
Sungai Air Besar. Kadim & Noor, K & N 524b (SING). Small tree; lowland forest; widespread; endemic.
- 80.10 *Eugenia tiumensis* Ridley  
Track to Gunung Kajang. Henderson s.n. (SING).
- 80.11 *Eugenia* sp.  
Kelat  
Trail to Waterfalls, Sungai Asah. Elev. 40 m. A. Zainudin & Bedul, AZ 5478 (UKMB). Tree of 10 m tall.
- 80.12 *Leptospermum amboinense* Blume  
Summit of Gunung Kajang. Samsuri 928 (SING). Shrub or small tree; hill forest; Kedah, Malacca and Johore; new to Pahang.
- 80.13 *Psidium guajava* L.  
Jambu batu  
Kampung Tekek. A. Zainudin; A. Latiff & Faridah Hanum, (Observed). Tree to 6 m tall; lowland sandy places; cultivated and running wild; fruits are edible.
- 80.14 *Rhodamnia cinerea* Jack  
Mempoyan  
Sri Asah. A. Zainudin, (Observed). A shrub in the open sandy area near the sea.
- 80.15 *Rhodomyrtus tomentosa* (Aiton) Hassk.  
Kemunting  
Sri Asah. A. Zainudin; A. Latiff & Faridah Hanum, (Observed). Shrub to 3 m tall; open sandy ground; common.

## 81. NEPENTHACEAE

- 81.1 *Nepenthes ampullaria* Jack  
Periuk kera  
Track to Gunung Kajang. E. Soepadmo, ES 1355 (KLU). Climber; secondary forest, forest margins; Penang, Perak, Malacca, Johore and Singapore; new to Pahang.

**82. NYCTAGINACEAE**

- 82.1 *Boerhaavia diffusa* L.  
Kampung Juara. B.C. Stone, BCS 11942 (KLU). Creeping or erect herb to 1 m tall; dry sandy open places; widespread.
- 82.2 *Pisonia aculeata* L.  
Telok Nipah. Samsuri 754 (SING). Thorny scrambling liana reaching to 20 m; not common.
- 82.3 *Pisonia grandis* R. Br.  
Pulau Chibeh. Corner, SFN 29828 (SING). Pulau Rengis. Corner, SFN 29788 (SING); H.T.W. Tan, M.W.K. Goh & A.H.B. Loo (Observed). Shrub or tree to 30 m tall; coastal; both coasts and offshore islands.

**83. OCHNACEAE**

- 83.1 *Campliospermum serratum* (Gaertn.) Bittrich & M.C.E. Amaral  
Tanjung Siak. Sidek 490, 505 (SING). Tree to 25 m tall; lowland and hill forest to 1000 m; common near the sea; throughout.

**84. OLACACEAE**

- 84.1 *Olex psittacorum* (Willd.) Vahl  
Telok Nipah. Ridley s.n. (SING). Prickly scandent shrub; open sandy country; widespread.
- 84.2 *Ximenia americana* L.  
Kampung Paya. Sidek 501 (SING). Sprawling shrub or small tree to 10 m tall; sandy shores; common on the west coast of Malaya and rare on the east coast.

**85. OLEACEAE**

- 85.1 *Chionanthus ramiflorus* Roxb.  
Tanjung Ruit. Corner, s.n. 17 Aug 1935 (SING). Tree to 17 m tall; coastal, riverine and swamp forest; throughout.

**86. ORCHIDACEAE**

- 86.1 *Anoectochilus* sp.  
Track To Kampung Tekek from Kampung Juara. B.C. Stone, (Observed). Herb to 15 cm tall; lowland forest.
- 86.2 *Appendicula cornuta* Blume  
Gunung Lalang. Kadim & Noor, K & N 574 (SING). Epiphyte to 50 cm long; lowland forest; common.
- 86.3 *Appendicula pendula* Blume  
Gunung Lalang. Kadim & Noor, K & N 584 (SING). Pendulous epiphyte to 2 m long; lowland and hill forest; fairly common.
- 86.4 *Bromheadia finlaysonian* (Lindl.) Miq.  
Track To Gunung Kajang. Henderson s.n. (SING). Herb, occasionally to 2 m tall; lowland secondary forest and scrub; common throughout.
- 86.5 *Bromheadia rupestris* Ridley  
Track to Gunung Kajang, hill forest. R. Jaman (Observed)

- 86.6 *Bulbophyllum membranifolium* Hook. f.  
Track to Kampung Tekek from Kampung Juara. B.C.Stone (Observed). Epiphyte.
- 86.7 *Calanthe triplicata* (Willemet) Ames  
Kampung Penak. Samsuri 764 (SING). Herb to 75 cm tall; wet lowland and hill forest to 1700 m; widespread.
- 86.8 *Calanthe* sp.  
Kampung Paya. Sidek 486 (SING). Herb.
- 86.9 *Coelogyne massangeana* Rchb. f.  
Gunung Lalang. Kadim & Noor, K & N 590 (SING). Epiphyte about 40 cm tall; hill forest; not common.
- 86.10 *Coelogyne tiomanensis* M.R. Hend.  
Track to Gunung Kajang. Henderson s.n. (SING). Epiphyte about 20 cm tall; hill forest; about 1000 m; known only from Pulau Tioman; endemic.
- 86.11 *Corymborchis veratifolia* Blume  
Track to Kampung Tekek from Kampung Juara. B.C. Stone (Observed). Unbranched herb to 3 m tall; lowland and montane forest; widespread.
- 86.12 *Cymbidium finlaysonianum* Lindl.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11883 (KLU). Epiphyte often forming large masses; on exposed lowland tree; most abundant in the north.
- 86.13 *Dendrobium crumenatum* Sw.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone (Observed). Epiphyte sometimes over 1 m long; ubiquitous on roadside tree in the lowlands.
- 86.14 *Dendrobium hercoglossum* Rchb.f.  
Track to Gunung Kajang. Henderson s.n. (SING). Epiphyte about 20 cm long; lowland forest.
- 86.15 *Dendrobium sinuatum* (Lindl.) Lindl. ex Rchb.f.  
Track to Gunung Kajang. Henderson s.n. (Observed). Pendulous epiphyte about 25 cm long; lowlands and mountains; widespread.
- 86.16 *Eria nutans* Lindl.  
Track to Gunung Kajang. Henderson s.n. (Observed). Epiphyte to 30 cm tall; lowlands and hills, often near rivers; widespread.
- 86.17 *Eria pellipes* Hook.f.  
Track to Gunung Kajang. Henderson s.n. (SING). Creeping epiphyte to 15 cm tall; montane forest to 1300 m; common, widespread.
- 86.18 *Eria pulchella* Lindl.  
Tanjong Nipah. Ridley s.n. (SING). Creeping epiphyte to 20 cm tall; lowlands; widespread, common.
- 86.19 *Eulophia graminea* Lindl.  
Bawang hantu  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 3 (KEP). Herb to 80 cm tall; weed of open areas in the lowlands; common and widespread.
- 86.20 *Eulophia spectabilis* (Dennst.) Suresh  
Tampoi (north of Kampung Mukut). H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM (KEP). Herb to 100 cm tall; open or lightly shaded areas including plantations; common and widespread.

- 86.21 *Liparis elegans* Lindl.  
Track to Gunung Kajang. Henderson s.n. (SING). Creeping epiphyte or epilith; lowland and hill to 1000 m; widespread.
- 86.22 *Liparis wrayi* Hook.f.  
Track to Gunung Kajang. Henderson s.n. (SING). Plant about 25 cm tall; lowland freshwater swamp forest; rare.
- 86.23 *Ludisia discolor* (Ker Gawl.) A. Rich.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone (Observed). Purple-leaved creeping herb to 20 cm tall; on rocks in the lowlands and hills; not common.
- 86.24 *Oberonia rufilabris* Lindl.  
Track to Gunung Kajang. Henderson s.n. (SING). Epiphyte about 10 cm long; hill forest; recorded from Kedah and Pulau Tioman.
- 86.25 *Paphiopedilum barbatum* (Lindl.) Pfitz.  
Anggerik selipar  
Gunung Kajang. Kadim & Noor, K & N 631 (SING). Epiphyte. It is not known whether this species is still found on this island as it had become the targets of collectors.
- 86.26 *Paphiopedilum bullenianum* (Rchb. f.) Pfitz.  
Anggerik selipar  
Gunung Kajang. Samsuri 926 (SING). Epiphyte.
- 86.27 *Podochilus microphyllus* Lindl.  
Gunung Lalang. Kadim & Noor, K & N 614 (SING). Slender tufted epiphyte to 20 cm long; lowland and hill forest to 1000 m; widespread.
- 86.28 *Robiquetia spatulata* (Blume) J.J. Smith  
Above Kampung Tekek. Kadim & Noor, K & N 680 (SING). Epiphyte on tree; lowland, near river.
- 86.29 *Spathoglottis aurea* Lindl.  
Near the summit of Gunung Kajang. Kadim & Noor, K & N 606 (SING). Herb to 60 cm tall; grassy spots in the mountains at 900-1500 m; widespread.
- 86.30 *Spathoglottis gracilis* Rolfe ex Hook. f.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone (Observed). Herb; montane forest at 900 m.
- 86.31 *Trichoglottis lanceolaria* Blume  
Track to Gunung Kajang, hill forest, R. Jaman (Observed).
- 86.32 *Ventricularia tenicaulis* (Hook.f.) Garay  
Bukit Nipah. Samsuri 924 (SING). Pendulous plant to 30 cm long; chiefly on limestone; not common.

## 87. OXALIDACEAE

- 87.1 *Averrhoa bilimbi* L.  
Belimbing buluh  
Kampung Juara. B.C. Stone; BCS 11927 (KLU). Tree to 15 m tall; lowland forest, often near river; native in the north, widely cultivated for its fruits; widespread.
- 87.2 *Averrhoa carambola* L.  
Belimbing besi  
Kampung Juara. B.C. Stone, BCS 11928 (KLU). Tree to 10 m tall; cultivated for its fruits.

## 88. PALMAE

- 88.1 *Areca catechu* L.  
Pinang sirih  
Kampung Tekek. A. Zainudin; A. Latiff (Observed). Cultivated at many places on the island, especially in the villages for its fruits.
- 88.2 *Arenga pinnata* (Wurmb) Merr.  
Kabong  
Kampung Juara. B.C. Stone, BCS 11992 (KLU). Feather palm to 10 m tall or more; naturalizing around villages; native of Assam and Burma; few trees were observed along the trail from Juara to Tekek.
- 88.3 *Calamus burkillianus* Becc. ex Ridley  
Rotan  
Track to Gunung Kajang. Henderson s.n. (SING). Clustering rattan climbing to 20 m; forming thickets near the sea; Terengganu, Pahang and Johore: endemic.
- 88.4 *Calamus diepenhorstii* Miq.  
Rotan  
Track to Gunung Kajang. Henderson s.n. (Observed). Clustering rattan climbing to 20; lowland and hill forest to 700 m; widespread.
- 88.5 *Calamus polystachys* Becc.
- 88.6 *Calamus* sp.  
Rotan  
Track Kampung Juara to Kampung Tekek. B.C.Stone, BCS 11993 (SING). Clustering rattan climbing.
- 88.7 *Caryota mitis* Lour.  
Tukas, Dudar  
Kampung Juara. B.C.Stone (Observed). Clump-forming fishtail palm to 4 m tall; lowland secondary forest; throughout.
- 88.8 *Cocos nucifera* L.  
Kelapa  
Kampung Juara and Kampung Tekek. A. Zainudin; A. Latiff (Observed). Commonly observed in the villages and along the sea coasts.
- 88.9 *Daemonorops calicarpa* (Griff.) Martelli  
Track to Gunung Kajang. Henderson s.n. (SING). Thicket-forming, usually stemless, feather palm; lowland and hill forest; less common.
- 88.10 *Korthalsia* sp.  
Rotan  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11974 (KLU). Clustering rattan.
- 88.11 *Licuala spinosa* Wurmb  
Palas  
Teluk Saing. Nur, SFN 18901 (SING). Clumping-stemmed fan palm to 6 m tall; damp open areas; throughout.
- 88.12 *Licuala tiomanensis* Furtado  
Gunung Kajang. Nur, 18611 (SING; holotype); Nur, 18910 (K, SING); L.G. Saw et al., FRI 40085 (A, K, L, KEP, QRS, SAN, SAR). Gunung Lalang. Kadim & Noor, K 608 (C, K, L, SING). Tree to 6 m tall; dominates understorey of lower montane forest; endemic to Pulau Tioman.

- 88.13 *Metroxylon sagu* Rottb.  
Sagu  
Kampung Mukut. A. Zainudin; A. Latiff (Observed). Tall palm to 10 m or more, sterile.
- 88.14 *Nenga macrocarpa* Scort. ex Becc.  
Track to Gunung Kajang. Henderson s.n. (SING). Solitary feather palm to 7 m tall; montane forest to 1300 m, sometimes in the lowland; not common.
- 87.15 *Oncosperma horridum* (Griff.) Scheff.  
Bayas  
Track to Kampung Tekek from Kampung Juara. B.C. Stone (Observed). Ferociously spiny, clustered feather palm to 20 m tall; lowland and hill forest to 500 m; throughout.
- 87.16 *Oncosperma tigillarium* (Jack) Ridley  
Nibung  
Track to Kampung Tekek from Kampung Juara. B.C. Stone; A. Latiff (Observed). 20 m tall spiny feather palm growing in many-stemmed clumps; common near the sea; throughout.
- 87.17 *Phoenix paludosa* Roxb.  
Kampung Tekek. B.C. Stone (Observed). Clumping feather palm to 6 m tall; inland edge of mangrove forests; not common.

#### 89. PANDACEAE

- 89.1 *Galearia fulva* (Tul.) Miq.  
Sri Asah waterfalls trail. A. Zainudin (Observed). Small tree; lowland and hill forest to 690 m; throughout.

#### 90. PANDANACEAE

- 90.1 *Freycinetia javanica* Blume  
Track to Gunung Kajang. E. Soepadmo, ES 1351 (KLU). Woody climber with clasping adventitious roots; humid forest, lowlands to mountains; widespread.
- 90.2 *Freycinetia sumatrana* Hemsl.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11991 (SING). Forest liana; lowlands and mountains; widespread.
- 90.3 *Pandanus dubius* Spr.  
Coastal. D. W. Lee s.n. (KLU); A. Latiff (Observed). Erect stout-trunked plant; rocky and sandy shores; rare.
- 90.4 *Pandanus lais* Kurz  
Coastal. B.C. Stone, BCS 11901 (KLU). Erect stout-trunked plant; rocky shore; second locality after Pulau Tinggi.
- 90.5 *Pandanus odoratissimus* L.f.  
Pandau laut  
Coastal. B.C. Stone, BCS 11869 & 12007 (KLU); A. Latiff (Observed). Large prop-rooted shrub; the common seashore pandan; widespread; the leaves are used by the locals for weaving mats.

## 91. PASSIFLORACEAE

- 91.1 *Passiflora foetida* L.  
Timun pandang  
Kampung Juara. A. Zainudin (Observed). Slender wiry vine; waste places in the lowland; widespread; naturalized from tropical America.

## 92. PEDALIACEAE

- 92.1 *Sesamum orientale* L.  
Bijan, Lenga  
Kampung Juara. B.C. Stone, BCS 11939 (KLU). Herb to 2 m tall; waste places in the lowlands; naturalized probably from Africa.
- 92.2 *Sesamum radiatum* L.  
Kampung Tekek. Kadim & Noor, K & N 673 (SING). Herb to 1.2 m tall; waste places; naturalized from Africa.

## 93. PHORMIACEAE

- 93.1 *Dianella ensifolia* (L.) DC.  
Track to Gunung Kajang. A. Zainudin (Observed). Tufted herb to 1 m tall; sea shores and open forest to 1000 m; throughout.

## 94. PIPERACEAE

- 94.1 *Piper betle* L.  
Sirih  
Kampung Tekek. B.C. Stone (Observed). Climber to 10 m high; cultivated in the villages as a traditional medicine, among other uses.
- 94.2 *Piper retrofractum* Vahl  
Pulau Tulai. Kadim & Noor, K & N 650 (SING). Scandent shrub; coastal shrub; recorded from Malacca and Johore; new to Pahang.
- 94.3 *Piper* sp.  
Kampung Juara. B.C. Stone, BCS 11872 (KLU). Climber.

## 95. PITTOSPORACEAE

- 95.1 *Pittosporum ferrugineum* W.T. Ait.  
Cemperai ikan  
Trail to Kampung Tekek from Kampung Juara. Elevation 40 m. A. Zainudin & Bedul, AZ 5495 (UKM) Shrub or tree to 15 m tall; common near rocky or sandy shores, Throughout.

## 96. POLYGALACEAE

- 96.1 *Polygala paniculata* L.  
Kampung Mukut. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 29 (KEP). Herb to 50 cm tall; weed of cultivation or wasteland; Singapore; naturalized from tropical America; roots smell of sasparilla.

- 96.2 *Xanthophyllum affine* Korth. ex Miq.  
Minyak beruk  
Sri Asah waterfall. Elev. 80 m. A. Zainudin (Observed). Tree to 30 m tall; usually smaller; lowlands and mountains; widespread.
- 96.3 *Xanthophyllum eurhynchum* Miq. ssp. *maingayi* (Hook.f. ex A.W.Benn.) Meijden  
Bukit Penak. Samsuri 748 (SING). Tree to 25 m tall; lowlands to Mountains, forest understorey; widespread.

#### 97. PORTULACACEAE

- 97.1 *Portulaca oleracea* L.  
Kampung Juara. B.C. Stone, BCS 11940 (KLU). Fleshy herb to 40 cm tall; waste places, weed of cultivation; widespread.
- 97.2 *Talinum paniculatum* (Jacq.) Gaertn.  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 7 (KEP). Semi-woody plant to 70 cm tall; weed of cultivation or wasteland; Singapore; naturalized from tropical America; roots thought by the locals to be a form of ginseng.

#### 98. PROTEACEAE

- 98.1 *Helicia petiolaris* Benn.  
Trail to waterfall, Sungai Asah. Elev. 40 m. A. Zainudin & Bedul, AZ 5476 (UKMB). Shrub or small tree to 18 m tall; lowland and hill forest to 900 m; not common.

#### 99. RAFFLESIIACEAE

- 99.1 *Rafflesia cantleyi* Solms-Laubach  
Bunga pakma  
Sungai Air Besar. Kadim & Noor, K & N 542 (SING). Parasite of *Tetrastigma* lianas; lowland forest; widespread. This is the commonest Peninsular Malaysian species whose flowers can reach a diameter of 65 cm.

#### 100. RHAMNACEAE

- 100.1 *Colubrina asiatica* L.ex Brongn.  
Bidara laut  
Kampung Tekek. K.M. Kochummen, KEP 77847 (KEP). Shrub to 3 m tall; sandy shores and rocky shores; all coast.

#### 101. RHIZOPHORACEAE

- 101.1 *Bruguiera gymnorhiza* (L.) Lam. ex Savigny in Lam.  
Mangrove. B.C. Stone; A. Latiff (Observed). Tree to 36 m tall; mangroves, usually to the landward fringe; widespread.
- 101.2 *Carallia* sp.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11891 (SING). Small tree to 15 m tall; sterile.
- 101.3 *Gynotroches axillaris* Blume  
Mata keli  
Tekek-Juara Track. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 37 (KEP). Tree, rarely reaching 36 m tall; lowlands, including swamps, to mountains at 1400 m; throughout.

- 101.4 *Rhizophora apiculata* Blume  
Bakau minyak  
Mangrove. A. Zainudin; A. Latiff (Observed). Still-rooted tree to 30 m tall; mangrove gregarious on soft estuarine mud; all coasts.
- 101.5 *Rhizophora mucronata* Lam.  
Bakau kurap  
Kampung Tekek, mangrove areas. Kadim & Noor, K & N 665 (SING); A. Latiff (Observed). Still-rooted tree to 30 m tall; gregarious mangrove of muddy or sandy shores; all coasts.

## 102. ROSACEAE

- 102.1 *Prunus arborea* (Blume) Kalkman var. *densa* (King) Kalkman  
Gunung Kajang. Kadim & Noor, K & N 604 (SING). Tree to 20 m tall; lowland to lower montane forest at 1300 m; Kedah, Perak, Pahang, Johore and Singapore.
- 102.2 *Rubus glomeratus* Blume  
Gunung Kajang. Kadim & Noor, K & N 605 (SING). Weakly prickly scrambling shrub to 3 m tall; forest margins and clearings in the mountains; rare.
- 102.3 *Rubus moluccanus* L.  
Tampu rengat  
Trail to Tekek from Kampung Juara. A. Zainudin (Observed). Climbing and scrambling shrub; forest margins in the lowlands and hills; widespread.

## 103. RUBIACEAE

- 103.1 *Aidia densiflora* (Wall.) Masam.  
Menterbang  
Trail to Kg. Juara from Kg. Tekek. Elev. 120 m. A. Zainudin & Bedul, AZ 5519 (UKMB). Small tree to 15 m tall; lowland to montane forest; throughout.
- 103.2 *Aidia parvifolia* (King & Gamble) K. M. Wong  
Track to Gunung Kajang, R. Jaman (Observed). Small tree.
- 103.3 *Argostemma hookeri* King  
Track to Gunung Kajang. Henderson s.n. (SING). Slender creeping herb to 15 cm tall; hill and montane forest; Penang, Pahang, Selangor and Johore; endemic.
- 103.4 *Argostemma longifolium* Benn.  
Track to Gunung Kajang. Henderson s.n. (SING). Erect herb to 20 cm tall; montane forest; rare.
- 103.5 *Argostemma pictum* Wall.  
Gunung Lalang. Kadim & Noor, K & N 620 (SING). Succulent herb to 15 cm tall; damp rocks in montane forest; widespread.
- 103.6 *Argostemma unifolium* Benn.  
Track to Gunung Kajang. Henderson s.n. (SING). Tuberous herb to 20 cm tall; on rock in hill forest; endemic.
- 103.7 *Borreria laevicaulis* (Miq.) Ridley  
Kampung Tekek. A. Zainudin (Observed). Erect herb to 50 cm tall; weed of cultivation area and wet open area; widespread.

- 103.8 *Chassalia chartacea* Craib  
Beras-beras  
Trail to Kg. Juara from Kg. Tekek. Elev. 50 m. A. Zainudin & Bedul, AZ 5503 (UKMB).  
Shrub to 3 m tall; lowland to lower montane forest; widespread.
- 103.9 *Chassalia curvifolia* (Wall.) Thwaites  
Jarum-jarum  
Bukit Rokam. Md. Nur, SFN 18808 (SING). Pulau Chibeh. Corner, s.n. 19 Aug 1935 (SING).  
Shrub to 2 m tall; lowland and hill forest; Kedah, Penang.
- 103.10 *Coffea robusta* L. Linden  
Kopi  
Kampung Tekek. B.C. Stone, BCS 11925 (KLU). Small tree to 5 m tall; cultivated for its  
fruits.
- 103.11 *Diodia sarmentosa* Sw.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11950 (KLU). Scrambling  
herb; damp waste places; widespread; naturalized from tropical America.
- 103.12 *Diplospora malaccensis* Hook.f.  
Kahwa hutan  
Air Surin. Henderson, SFN 18284 (SING). Pulau Chibeh. Corner, SFN 29835 (SING). Tree  
to 18 m tall; lowland to montane forest at 1500m; throughout.
- 103.13 *Gardenia tubifera* Wall.  
Mentiong  
Trail to waterfall Sungai Asah. Elev. 40 m. A. Zainudin & Bedul, AZ 5477 (UKMB). Tree  
usually 8-15 m but sometimes to 25 m tall; lowland and hill forest; widespread.
- 103.14 *Geophila repens* (L.) I. M. Johnst. var. *asiatica* (Cham. & Schltdl.) Fosberg  
Tanah Runtuh. Nur SFN 18886 (SING). Creeping herb to 10 cm tall; lowland forest; widespread.
- 103.15 *Guettarda speciosa* L.  
Kampung Paya. Sidek 497 (SING). Tree to 10 m tall; sea shores; all coasts.
- 103.16 *Hedyotis biflora* (L.) Lam.  
Tanjung Ruit. Corner (1985). Herb to 20 cm tall; wasteland; Penang, Singapore.
- 103.17 *Hedyotis capitellata* Wall. ex G. Don  
Sri Asah waterfall trail. A. Zainudin (Observed). Scrambling herb; lowlands to mountains;  
common and widespread.
- 103.18 *Hedyotis philippinensis* (Willd. ex Spreng.) Merr. ex C.B. Rob.  
Kampung Mukut from Sri Asah. A. Zainudin (Observed). Herb to 60 cm tall; lowland and hill  
forests; widespread.
- 103.19 *Hedyotis pinifolia* Wall. ex G. Don  
Berjaya Resort Golf Course (north of Tanjung Berhala). H.T.W. Tan & M.W.K. Goh, PTM  
82 (KEP). Herb to 10 cm tall; open sandy areas or lawn weed; widespread.
- 103.20 *Hedyotis verticillata* (L.) Lam.  
Tanjung Ruit. Corner (1985). Herb to 60 m tall; open areas; north Peninsular Malaysia.
- 103.21 *Hydnophytum formicarium* Jack  
Kepala beruk  
Trail to waterfall, Sungai Asah. Elev. 45 m. A. Zainudin & Bedul, AZ 5467 (UKMB). An  
epiphytic herb with tuber forming an ant's nest; forest near the sea; also in the mountains;  
widespread.

- 103.22 *Ixora congesta* Roxb.  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub or small tree to 6 m tall; lowland and hill forest to 1000 m; throughout.
- 103.23 *Ixora javanica* (Blume) DC.  
Jejarum  
Sungai Air Besar. Kadim & Noor, K & N 662 (SING). Shrub to 4 m tall; lowland and hill forest, often cultivated; widespread.
- 103.24 *Ixora pendula* Jack  
Sungai Air Besar. Kadim & Noor, K & N 662 (SING). Shrub to 10 m tall; lowland and hill forest to 600 m; throughout.
- 103.25 *Ixora umbellata* Koord. & Valetton var. *multibracteata* (H. Pearson ex King & Gamble) Corner  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 2 m tall; lowland forest; rare.
- 103.26 *Lasianthus attenuatus* Jack  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 1 m tall; lowland and hill forest; not common.
- 103.27 *Lasianthus barbellatus* Ridley  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 1 m tall; lowland forest; known from Pulau Tioman and Pulau Pemanggil.
- 103.28 *Lasianthus cynocarpus* Jack  
Trail to waterfall, Sungai Asah. Elev. 60 m. A. Zainudin & Bedul, AZ 5469 (UKMB). Shrub to 5 m tall; lowlands and hills forest; not common.
- 103.29 *Lasianthus ellipticus* Wight  
Kampung Juara. Kadim & Noor, K & N 560 (SING). Shrub; lowland and hill forests; rare; endemic.
- 103.30 *Lasianthus pergamaceus* King & Gamble  
Gunung Lalang. Kadim & Noor, K & N 621 (SING). Shrub or small tree; hill and montane forest to 1700 m; not common.
- 103.31 *Morinda citrifolia* L.  
Mengkudu  
Kampung Juara. A. Zainudin; A. Latiff (Observed). Tree to 9 m tall; lowland forests and rocky coasts, often cultivated; scattered.
- 103.32 *Mussaenda mutabilis* Hook. f.  
Track to Gunung Kajang. E. Soepadmo, ES 1459 (KLU). Scrambling shrub; lowland to montane forest; widespread.
- 103.33 *Mussaenda spectabilis* Ridley  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub; lowland forest; Pulau Tioman; endemic.
- 103.34 *Mycetia malayana* (Wall. ex Ridley) Craib  
Nasi-nasi bukit  
Trail to Kg. Juara from Kg. Tekek. Elev. 100 m. A. Zainudin & Bedul, AZ 5514 (UKMB). Shrub or small tree to 4 m tall; lowland and hill forest, also on limestone; not common.
- 103.35 *Ophiorrhiza discolor* R. Br.  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 20 cm tall; lowland and hill forest; widespread.

- 103.36 *Ophiorrhiza* sp.  
Trail to Kg. Juara from Kg. Tekek. Elev. 100 m. A. Zainudin & Bedul, AZ 5511 (UKMB).  
Herb to 15 cm tall; lowland forest.
- 103.37 *Pavetta naucleiflora* R. Br. ex G. Don  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 4 m tall; lowland forest, sometimes  
on limestone; rare.
- 103.38 *Prismatomeris tetrandra* (Roxb.) K. Schum. var. *malayana* (Ridley) J.T. Johanss.  
Akar haji Samat  
Bukit Genting. Samsuri 945 (SING). Shrub to 5 m tall; rocky shores, lowland forest; throughout.
- 103.39 *Psychotria calocarpa* Kurz  
Sungai Air Besar. Kadim & Noor, K & N 519 (SING). Shrub; lowland forest; scattered.
- 103.40 *Psychotria montana* Blume  
Sungai Air Besar. Kadim & Noor, K & N 520 (SING). Shrub; lowland to lower montane  
forest; scattered.
- 103.41 *Psychotria* sp.  
Trail to Kg. Juara from Kg. Tekek. Elev. 80 m. A. Zainudin & Bedul, AZ 5506 (UKMB).  
Shrub; lowland forest.
- 103.42 *Randia cochinchinensis* (Lour.) Merr.  
Track to Gunung Kajang. E. Soepadmo, ES 1418 (KLU). Small tree to 10 m tall; lowland to  
lower montane forest; rare.
- 103.43 *Rothmannia schoemannii* (Teijsm. & Binn.) Tirveng.  
Track to Gunung Kajang. Henderson s.n. (SING). Tree to 30 m tall; lowland and hill forest;  
widespread.
- 103.44 *Spermacoce exilis* (L.O. Williams) C.D. Adams  
Kampung Tekek. A. Zainudin (Observed). Herb, often creeping, ascending to cm; waste places,  
garden weed; throughout.
- 103.45 *Spermacoce latifolia* Aubl.  
Kampung Tekek. A. Zainudin (Observed). Herb to 60 cm tall; waste places; widespread;  
naturalized from tropical America.
- 103.46 *Timonius wallichianus* (Korth.) Val.  
Sungai Asah waterfall trail. A. Zainudin (Observed). Tree to 7 m tall; lowland forests, common  
in secondary vegetation; widespread.
- 103.47 *Urophyllum corymbosum* (Blume) Korth.  
Sungai Air Besar. Kadim & Noor, K & N 521 (SING). Shrub or small tree to 9 m tall; lowland  
to lower montane forest at 1300 m; not common.
- 103.48 *Urophyllum trifurcum* H. Pearson ex King & Gamble  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub or small tree to 15 m tall; lowland  
to lower montane forest at 1200 m; widespread; endemic.
- 103.49 *Urophyllum* sp.  
Track to Gunung Kajang. E. Soepadmo, ES 1386 (KLU). Small tree to 6 m tall; hill forest.
- 103.50 *Zuccarinia macrophylla* Blume  
Track to Gunung Kajang. Henderson s.n. (SING). Small tree; lowland forest; known from  
Pulau Aur, Johore.

**104. RUTACEAE**

- 104.1 *Acronychia pedunculata* (L.) Miq.  
Trail to Kg. Mukut from Sri Asah. A. Zainudin & Bedul, AZ 5522 (UKMB). Tree to 30 m tall; lowland and hill forest; scattered.
- 104.2 *Atalantia monophylla* (L.) DC.  
Limau hantu  
Bukit Genting. Samsuri 948 (SING). Spiny shrub to 6 m tall; rocky and sandy coasts; dry open places; commonest in the north.
- 104.3 *Citrus aurantifolia* (Christm.) Swingle  
Limau nipis  
Kampung Tekek. B.C. Stone; A. Latiff & Faridah Hanum (Observed). Small tree, cultivated for its aromatic leaves and edible fruits.
- 104.4 *Clausena excavata* Burm.f.  
Cemamar, Cerek-cerek  
Trail from Kampung Juara to Kampung Tekek. A. Zainudin & Bedul, AZ 5491 (UKMB). Foetid shrub or small tree; lowland forest margins and open places; throughout; leaves smell like sasparilla.
- 104.5 *Glycosmis decipiens* B.C. Stone  
Track to Gunung Kajang. Kadim & Noor, K & N 593 (SING). Small shrub to 6 m tall; lowland to lower montane forest; scattered.
- 104.6 *Glycosmis mauritiana* (Lam.) Tanaka var. *mauritiana*  
Tanjung Layar. Henderson, SFN 18473 (SING). Shrub; usually on limestone; scattered.
- 104.7 *Luvanga crassifolia* Tanaka  
Sungai Air Besar. Kadim & Noor, K & N 546 (SING). Big liana with hooks; swampy lowland forest; rare.
- 104.8 *Maclurodendron porteri* (Hook.f.) T. G. Hartley  
Sri Asah waterfall. A. Zainudin (Observed). Tree to 25 m tall; lowland to lower montane forest; throughout.
- 104.9 *Melicope* sp.  
Pepauh  
Trail to waterfall, Sungai Asah. Elev. 40 m. A. Zainudin & Bedul, AZ 5487 (UKMB). A tall tree, voucher specimen was collected from fallen twig.
- 104.10 *Murraya koenigii* L.  
Daun kari  
Kampung Juara. A. Zainudin (Observed). Tree to 7 m tall; cultivated; introduced for flavour in cooking.
- 104.11 *Murraya paniculata* (L.) Jack  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11916 (KLU). Shrub or small tree to 5 m tall; wild on limestone hill, also widely cultivated; rare.
- 104.12 *Paramignya lobata* Burkill  
Trail to Kampung Mukut from Sri Asah. A. Zainudin (Observed). Scandent shrub; lowlands; widespread; endemic.
- 104.13 *Tetractomia tetrandrum* (Roxb.) Merr.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11903(KLU); A. Latiff (Observed). Shrub or tree to 35 m tall; lowlands and mountains; widespread.

**105. SANTALACEAE**

- 105.1 *Dendrotrophe varians* (Blume) Miq  
Gunung Kajang. Samsuri 930 (SING). Hemiparasitic twiner; widespread.

**106. SAPINDACEAE**

- 106.1 *Allophyllus cobbe* (L.) Rauesch.  
Gunung Lalang. Kadim & Noor, K & N 617 (SING). Shrub or small tree to 15 m tall; lowland forests, often coastal; throughout.
- 106.2 *Guioa pleuropteris* (Blume) Radlk.  
Senyamuk  
Trail to waterfall, Sungai Asah. Elev. 10 m. A.Zainudin & Bedul, AZ 5486 (UKMB). Tree to 10 m tall; coastal and riverine forest; widespread.
- 106.3 *Lepisanthes ferruginea* (Radlk.) Leenh.  
Track to Gunung Kajang, R. Jaman (Observed). Tree up to 10 m.
- 106.4 *Lepisanthes rubiginosa* (Roxb.) Leenh.  
Mertajam  
Pulau Tulai. Kadim & Noor, K & N 653 (SING). Tree to 10 m tall; coastal forest; widely cultivated for its fruits; widespread.
- 106.5 *Mischocarpus pentapetalus* (Roxb.) Radlk.  
Gunung Lalang. Kadim & Noor, K & N 624 (SING). Tree to 20 m tall; lowland and hill forest to 1500 m; scattered.

**107. SAPOTACEAE**

- 107.1 *Pouteria maingayi* (C.B. Clarke) Baehni  
Nyatuh nangka merah  
Track to Gunung Kajang summit. A.H.B. Loo, PTM 93 (KEP). Tree to 35 m tall; lowland and hill forest; throughout.
- 107.2 *Pouteria obovata* (R. Br.) Baehni  
Pokok barat laut  
Pulau Tioman. Ridley, s.n. 18 Aug 1887 (SING). Tree to 25 m tall; rocky and sandy shores, also on limestone; all coasts.

**108. SCROPHULARIACEAE**

- 108.1 *Cyrtandromoea subsessilis* (Miq.) Radlk.  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 1 m tall; lowland and hill forest; scattered.
- 108.2 *Lindernia viscosa* (Hornem.) Bold.  
Tanjung Ruit. Corner, 29807 (SING). Herb to 15 cm tall; open sandy places; Kelantan, Terengganu, Perak, Pahang, Singapore.
- 108.3 *Scoparia dulcis* L.  
Teh Macau  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 50 (KEP). Herb to 60 cm tall; weed of wasteland or cultivation; common throughout; naturalized from tropical America.

### 109. SIMAROUBACEAE

- 109.1 *Brucea javanica* (L.) Merr.  
Lada pahit  
Kampung Tekek. Kadim & Noor, K & N 670 (SING). Shrub or small tree to 10 m tall; open country, throughout but commoner in the north; locally used by the locals to treat diarrhoea.
- 109.2 *Eurycoma longifolia* Jack  
Tongkat ali, Penawar pahit  
Trail to waterfall, Sungai Asah. Elev. 40 m. A. Zainudin & Bedul, AZ 5475 (UKMB); A. Latiff (Observed). Treelet to 5 m tall; lowlands and hills; throughout.

### 110. SMILACACEAE

- 110.1 *Smilax calophylla* Wall. ex DC.  
Track to Gunung Kajang. Henderson s.n. (SING). Slender straggling shrub 60-230 cm tall; lowland and hill forest; widespread.

### 111. SOLANACEAE

- 111.1 *Lycianthes biflora* (Lour.) Bitter  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub; mostly limestone; rare.
- 111.2 *Solanum* sp.  
Kampung Tekek. E. Soepadmo 1455 (KLU). Shrub.

### 112. SONNERATIACEAE

- 112.1 *Sonneratia alba* J.J. Sim  
Perepat  
Kampung Mukut. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 28 (KEP). Tree to 30 m tall; mangroves or rocky shores; all coasts.
- 112.2 *Sonneratia ovata* Backer  
Gedabu  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 15 (KEP). Tree to 8 m tall; mangroves and tidal creeks; uncommon and scattered widely; occasionally cultivated for fruit.

### 113. STEMONACEAE

- 113.1 *Stemona curtisii* Hook.f.  
Tanjung Kuala Elin. A. Zainudin (Observed). Vine to 3 m long; thickets near the sea; sometimes on limestone; widespread.

### 114. STERCULIACEAE

- 114.1 *Commersonia bartramia* (L.) Merr.  
Kampung Tekek. B.C. Stone, BCS 11860 (KLU). Tree to 12 m tall; lowland disturbed site; widespread.
- 114.2 *Heritiera littoralis* Dry.  
Dungun  
Juara Bay. Burkill 982 (SING). Small bushy tree to 15 m tall; sea shores, mangrove swamps; all coasts.

- 114.3 *Kleinhovia hospita* L.  
Temahau  
Kampung Tekek. Kadim & Noor, K & N 669 (SING). Tree to 20 m tall; lowland forest; so far recorded from Pulau Tinggi and Pulau Tioman.
- 114.4 *Leptonychia caudata* (Wall. ex G. Don) Burret  
Gunung Rokam. Nur, SFN 18771 (SING). Shrub or small tree to 12 m tall; lowlands to lower montane forest; widespread.
- 114.5 *Melochia corchorifolia* L.  
Telok Paya. Henderson SFN 18293 (SING). Subshrub to 60 cm tall; waste ground, open grassy places; throughout.
- 114.6 *Melochia umbellata* (Houtt.) Stapf.  
Along the trail to Kampung Tekek from Kampung Juara. A. Zainudin (Observed). Tree to 10 m tall; often near river, disturbed sites; commoner in the north.
- 114.7 *Pterospermum javanicum* Jungh.  
Bayur bukit  
Along the Sri Asah waterfall trail. A. Zainudin (Observed). Tree to 40 m tall; lowland and hill forest to 1000 m; widespread.
- 114.8 *Scaphium macropodum* (Miq.) Beumee ex Heyne  
Kembang semangkuk jantung  
Sri Asah waterfall trail. A. Zainudin (Observed). Tree to 45 m tall; lowland and hill forest to 1200 m; widespread.
- 114.9 *Sterculia foetida* L.  
Kelumpang jari  
On rocky coast near Tanjung Kuala Elin. A. Zainudin (Observed). Tree to 30 m tall; rocky and sandy coasts.
- 114.10 *Sterculia* sp.  
Bukit Rokam. Nur, SFN 18771 (SING). Tree to 25 m tall.

## 115. SYMPLOCACEAE

- 115.1 *Symplocos adenophylla* Wall. ex G. Don  
Gunung Kajang. Samsuri 933 (SING). Shrub or tree to 15 m tall; sea coasts to montane forest at 1500 m; widespread.
- 115.2 *Symplocos* sp.  
Track to Gunung Kajang. E. Soepadmo, ES 1378 (KLU). Tree to 10 m tall.

## 116. TACCAEAE

- 116.1 *Tacca leontopetaloides* (L.) Kuntze  
Lukih  
Kampung Bunut. H.T.W. Tan & M.W.K. Goh, KBPT 4 (KEP). Tuberous herb to 2 m tall; sandy seashores; widespread but uncommon.
- 116.2 *Tacca palmata* Blume  
Keladi murai  
Trail to Kampung Tekek from Kampung Juara. Elev. 80 m. A. Zainudin & Bedul, AZ 5498 (UKMB). Tuberous palmate-leaved herb to 80 cm tall; forest margins to 1000 m; not common; this species has potential as an ornamental plant.

**117. THEACEAE**

- 117.1 *Ternstroemia penangiana* Choisy  
Air Batang. Henderson SFN 18464 (SING). Tree to 20 m tall; lowland and hill forest to 1000 m; widespread.

**118. THYMELEACEAE**

- 118.1 *Wikstroemia polyantha* Merr.  
Sri Asah waterfall trail. A. Zainudin (Observed). Shrub or small tree to 7 m tall; lowland to montane forest; not common.

**119. TILIACEAE**

- 119.1 *Colona serratifolia* Cav.  
Trail to Kampung Tekek from Kampung Juara. A. Zainudin & Bedul, AZ 5488 (UKMB). Small tree to 15 m tall; near the sea; very common in this locality.
- 119.2 *Grewia laevigata* Vahl  
Pulau Tulai. Henderson SFN 18514 (SING). Liana; lowland forest margins; common and widespread.
- 119.3 *Microcos tomentosa* Sm.  
Cenderai  
Tanjung Ruit. Corner (1985). Small bushy tree; open areas; common and widespread.
- 119.4 *Muntingia calabura* L.  
Kerkup  
Kampung Tekek. B.C. Stone, BCS 11944 (KLU). Small tree; waste ground, around villages; throughout; naturalized from tropical America.
- 119.5 *Triumfetta rhomboidea* Jacq.  
Telok Paya. Henderson. SFN 18439 (SING). Shrubby herb; common weed of waste ground; widespread.

**120. TURNERACEAE**

- 120.1 *Turnera ulmifolia* L.  
Lidah kucing  
Kampung Tekek and Kampung Paya. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 21 (KEP). Herb to 1.5 m tall; open sandy areas; widespread; naturalized from tropical America.

**121. ULMACEAE**

- 121.1 *Trema cannabina* Lour.  
Mengkirai  
Kampung Juara. E. Soepadmo, ES 1460 (KLU). Shrub or small tree to 10 m tall; secondary forest to 1000 m; throughout.
- 121.2 *Trema tomentosa* (Roxb.) Hara  
Menarung  
Kampung Tekek. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 13 (KEP). Tanah Runtoh. Md. Nur, 18878 (SING). Shrub or tree to 15 m tall; wasteland or lowland forest margins; common and widespread.

## 122. UMBELLIFERAE

- 122.1 *Centella asiatica* (L.) Urb.  
Pegaga  
Kampung Mukut. H.T.W. Tan, M.W.K. Goh & A.H.B. Loo, PTM 35 (KEP). Creeping herb; weed of cultivation or grassy areas; throughout.

## 123. URTICACEAE

- 123.1 *Boehmeria malabarica* Wedd.  
Track to Gunung Kajang. Henderson s.n. (SING). Shrub to 4 m tall; forest near stream.
- 123.2 *Debregeasia squamata* King ex Hook. f.  
Track to Gunung Kajang. Henderson s.n (SING). Shrub to 4 m tall; lowlands to 500 m, mostly on limestone; rare.
- 123.3 *Dendrocnide* sp.  
Jelatang  
Kampung Juara. B.C. Stone, BCS 11960 (KLU). Small tree to 6 m tall; human skin is very sensitive to the hairs on its leaves.
- 123.4 *Elatostema* sp.  
Kampung Juara. B.C. Stone, BCS 11890 (KLU). Herb to 30 cm tall; damp wet places.
- 123.5 *Laportea interrupta* (L.) Chew  
Kampung Mukut. A. Zainudin (Observed). Herbaceous weed to 2 m tall; waste ground; widespread.
- 123.6 *Pipturus argenteus* (G.Forst.) Wedd.  
Trail to Kampung Juara from Kampung Tekek. Elev. 120 m. A. Zainudin & Bedul, AZ 5517 (UKMB). Shrub or small tree to 10 m; lowland; scattered.
- 123.7 *Procris frutescens* Blume  
Pulau Tulai. Kadim & Noor, K & N 645 (SING). Shrub to 3 m tall; lowland and hill forest including limestone; not common.

## 124. VERBENACEAE

- 124.1 *Callicarpa longifolia* Lam.  
Kampung Tekek. Kadim & Noor, K & N 570 (SING). Straggling shrub to 5 m tall; open country; widespread.
- 124.2 *Callicarpa* sp.  
Kampung Juara. B.C. Stone, BCS 11865 (KLU ). Shrub to 4 m tall.
- 124.3 *Clerodendrum inerme* (L.) Gaertn.  
Kampung Tekek. A. Zainudin (Observed). Scandent shrub; sandy and muddy shores; common on all coasts.
- 124.4 *Clerodendrum paniculatum* L.  
Kampung Juara. A. Zainudin (Observed). Shrub to 3 m tall; forest, waste ground, often planted.
- 124.5 *Clerodendrum villosum* Blume  
Sungai Asah waterfall trail. A. Zainudin (Observed). Shrub to 2 m tall; waste ground, disturbed areas; common throughout.

- 124.6 *Gmelina elliptica* Sm.  
Kampung Juara. B.C. Stone, BCS 11868 (KLU). Thorny scrambling shrub to 8 m tall; open country near the sea; widespread.
- 124.7 *Lantana camara* L.  
Bunga tahi ayam  
Sri Asah coastal open area. A. Zainudin (Observed). Shrub; waste places; widespread; naturalized from tropical America.
- 124.8 *Peronema canescens* Jack  
Sungkai  
Kampung Tekek trail from Kampung Juara. A. Zainudin (Observed). Tree to 18 m tall; open country, secondary forest; common throughout.
- 124.9 *Premna* sp.  
Kampung Juara. B.C. Stone, BCS 11859 (KLU). Small shrub.
- 124.10 *Stachytarpheta indica* (L.) Vahl  
Selasih dandi, Jolok cacing  
Kampung Mukut. A. Zainudin; A. Latiff (Observed). Herb to 1 m tall; sandy places near the sea; widespread; naturalized from tropical America.
- 124.11 *Stachytarpheta jamaicensis* (L.) Vahl  
Selasih dandi  
Kampung Mukut. A. Zainudin (Observed). Shrub to 1 m tall; waste places; widespread; naturalized from tropical America.
- 124.12 *Vitex gamosepala* Griff.  
Halban, Leban  
Sri Asah waterfall trail. A. Zainudin (Observed). Tree to 18 m tall; lowland and hill forest to 1200 m; throughout
- 124.13 *Vitex pinnata* L.  
Halban, Leban  
Sri Asah waterfall trail. A. Zainudin (Observed). Tree to 24 m tall; disturbed forest; throughout.
- 124.14 *Vitex trifolia* L.  
Halban  
Kampung Paya. Sidek 500 (SING). Shrub to 2.5 m tall; sandy shores, widely cultivated; widespread.

## 125. VIOLACEAE

- 125.1 *Rinorea anguifera* (Lour.) O.K.  
Trail to Kampung Tekek from Kampung Juara. Elevation 60 m. A. Zainudin & Bedul, AZ 5497 (UKMB). Tree to 10 m tall; lowland and hill forest to 600 m; throughout.
- 125.2 *Rinorea bengalensis* (Wall.) O.K.  
Trail to waterfall, Sungai Asah. Elev. 60 m. A. Zainudin & Bedul, AZ 5471 (UKMB). Shrub to 3 m tall; lowland and hill forest to 600 m, common on limestone; widespread.
- 125.3 *Rinorea horneri* (Korth.) O.K.  
Bukit Bayuh. Nur, SFN 18572 (SING). Shrub to 3 m tall; lowland forest; widespread.

126. VISCACEAE

- 126.1 *Viscum articulatum* Burm.f.  
Kuala Sungai Asah. A. Zainudin (Observed). Bushy 'leafless' mistletoe parasitic on other mistletoe species; lowland; widespread.

127. VITACEAE

- 127.1 *Cayratia japonica* (Thunb.) Gagnep.  
Lakum  
Tanjung Ruit. Corner, SFN 29812 (SING). Vine; lowland and hill forest margins also on limestone.
- 127.2 *Cayratia trifolia* (L.) Domin  
Lakum  
Kuala Sungai Asah. A. Zainudin; A. Latiff (Observed). Liana to 40 m long; common on the coast; the berries are said to be eaten by fishes.
- 127.3 *Cissus adnata* Roxb.  
Kampung Juara, A. Latiff (Observed). A climber
- 127.4 *Cissus hastata* Miq.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11863 (KLU). A climber at the forest fringe.
- 127.5 *Cissus repens* Lam.  
Track to Kampung Tekek from Kampung Juara. A. Zainudin; A. Latiff (Observed). Liana to 10 m long; quite common on the forest fringe.
- 127.6 *Cissus rostrata* (Miq.) Planch.  
Track to Kampung Tekek from Kampung Juara. A. Zainudin (Observed). Liana to 8 m long; forest fringe.
- 127.7 *Tetrastigma leucostaphylum* (Denn.) Alston ex Mabb.  
Track to Gunung Kajang. E. Soepadmo, ES 1423 (KLU). Large liana to 30 m long; host of *Rafflesia cantleyi*.

128. ZINGIBERACEAE

- 128.1 *Amomum xanthophlebium* Bak.  
Track to Gunung Kajang. Henderson s.n. (SING). Herb to 5 m tall; lowland and montane forest to 1200 m; scattered; endemic.
- 128.2 *Amomum spiceum* Ridley  
Track to Gunung Kajang. R. Jaman (Observed). Herb.
- 128.3 *Boesenbergia plicata* (Ridley) Holttum var. *plicata*  
Sri Asah Waterfall. A. Zainudin (Observed). Tufted herb about 40 cm tall; lowland forest to 800 m; not common; endemic.
- 128.4 *Boesenbergia* sp.  
Cekur  
Track to Gunung Kajang. E. Soepadmo, 1445 (KLU). Herb.
- 128.5 *Elettariopsis* sp.  
Track to Kampung Tekek from Kampung Juara. B.C. Stone, BCS 11995 (KLU). Creeping herb.

128.6 *Globba variabilis* Ridley ssp. *variabilis*

Track to Gunung Kajang. Henderson s.n. (SING). Herb to 50 cm tall; damp shady places in lowland and hill forest; Perak southward; endemic.

All the enumerated taxa above are summarised in Table 2.

Table 2. Systematic summary of the plants of Pulau Tioman

| No.          | Family            | No. of genera | No. of species |
|--------------|-------------------|---------------|----------------|
| GYMNOSPERMAE |                   |               |                |
| 1.           | GNETACEAE         | 1             | 2              |
| 2.           | PODOCARPACEAE     | 2             | 3              |
| ANGIOSPERMAE |                   |               |                |
| 3.           | ACANTHACEAE       | 6             | 7              |
| 4.           | ALANGIACEAE       | 1             | 2              |
| 5.           | AMARANTHACEAE     | 1             | 1              |
| 6.           | AMARYLLIDACEAE    | 1             | 2              |
| 7.           | ANACARDIACEAE     | 4             | 4              |
| 8.           | ANCISTROCLADACEAE | 1             | 1              |
| 9.           | ANISOPHYLLEACEAE  | 1             | 1              |
| 10.          | ANNONACEAE        | 15            | 20             |
| 11.          | APOCYNACEAE       | 8             | 10             |
| 12.          | AQUIFOLIACEAE     | 1             | 2              |
| 13.          | ARACEAE           | 5             | 6              |
| 14.          | ARALIACEAE        | 3             | 6              |
| 15.          | ARISTOLOCHACEAE   | 1             | 1              |
| 16.          | ASCLEPIADACEAE    | 2             | 5              |
| 17.          | AVICENNIACEAE     | 1             | 1              |
| 18.          | BALANOPHORACEAE   | 1             | 1              |
| 19.          | BEGONIACEAE       | 1             | 1              |
| 20.          | BIGNONIACEAE      | 2             | 2              |
| 21.          | BIXACEAE          | 1             | 1              |
| 22.          | BOMBACACEAE       | 2             | 3              |
| 23.          | BORAGINACEAE      | 2             | 2              |
| 24.          | BURSERACEAE       | 1             | 2              |
| 25.          | CACTACEAE         | 1             | 1              |
| 26.          | CAPPARACEAE       | 2             | 2              |
| 27.          | CARICACEAE        | 1             | 1              |
| 28.          | CASUARINACEAE     | 1             | 1              |
| 29.          | CECROPIACEAE      | 1             | 1              |
| 30.          | CELASTRACEAE      | 4             | 5              |
| 31.          | CHLORANTHACEAE    | 1             | 1              |
| 32.          | CHRYSOBALANACEAE  | 1             | 1              |
| 33.          | COMBRETACEAE      | 2             | 3              |
| 34.          | COMMELINACEAE     | 3             | 3              |
| 35.          | COMPOSITAE        | 10            | 11             |
| 36.          | CONNARACEAE       | 4             | 5              |
| 37.          | CONVOLVULACEAE    | 3             | 4              |
| 38.          | COSTACEAE         | 1             | 2              |
| 39.          | CRASSULACEAE      | 1             | 1              |
| 40.          | CRYPTERONIACEAE   | 1             | 1              |
| 41.          | CYPERACEAE        | 9             | 18             |
| 42.          | DICHAPETALACEAE   | 1             | 1              |
| 43.          | DILLENACEAE       | 1             | 1              |
| 44.          | DIPTEROCARPACEAE  | 4             | 6              |
| 45.          | EBENACEAE         | 1             | 5              |
| 46.          | ELAEOCARPACEAE    | 1             | 1              |

Table 2 - Continue

| No.  | Family          | No. of genera | No. of species |
|------|-----------------|---------------|----------------|
| 47.  | ERICACEAE       | 2             | 3              |
| 48.  | ERYTHROXYLACEAE | 1             | 1              |
| 49.  | EUPHORBIACEAE   | 25            | 45             |
| 50.  | FLACOURTIACEAE  | 5             | 5              |
| 51.  | FLAGELLARIACEAE | 1             | 1              |
| 52.  | GESNERIACEAE    | 3             | 7              |
| 53.  | GOODENIACEAE    | 1             | 1              |
| 54.  | GRAMINEAE       | 23            | 25             |
| 55.  | GUTTIFERAE      | 4             | 10             |
| 56.  | HANGUANACEAE    | 1             | 1              |
| 57.  | HERNANDIACEAE   | 1             | 1              |
| 58.  | HYDRANGEACEAE   | 1             | 1              |
| 59.  | HYPOXIDACEAE    | 1             | 1              |
| 60.  | ICACINACEAE     | 1             | 1              |
| 61.  | IXONANTHACEAE   | 1             | 1              |
| 62.  | LABIATAE        | 4             | 5              |
| 63.  | LAURACEAE       | 5             | 7              |
| 64.  | LECYTHIDACEAE   | 1             | 3              |
| 65.  | LEEACEAE        | 1             | 3              |
| 66.  | LEGUMINOSAE     | 26            | 34             |
| 67.  | LOGANIACEAE     | 2             | 2              |
| 68.  | LORANTHACEAE    | 1             | 1              |
| 69.  | LYTHRACEAE      | 2             | 2              |
| 70.  | MALPHIGIACEAE   | 1             | 1              |
| 71.  | MALVACEAE       | 5             | 7              |
| 72.  | MELASTOMATACEAE | 7             | 11             |
| 73.  | MELIACEAE       | 8             | 11             |
| 74.  | MELIOSMACEAE    | 1             | 1              |
| 75.  | MENISPERMACEAE  | 3             | 3              |
| 76.  | MORACEAE        | 2             | 23             |
| 77.  | MUSACEAE        | 1             | 2              |
| 78.  | MYRISTICACEAE   | 3             | 7              |
| 79.  | MYRSINACEAE     | 6             | 13             |
| 80.  | MYRTACEAE       | 7             | 15             |
| 81.  | NEPENTHACEAE    | 1             | 1              |
| 82.  | NYCTAGINACEAE   | 2             | 3              |
| 83.  | OCHNACEAE       | 1             | 1              |
| 84.  | OLACACEAE       | 2             | 2              |
| 85.  | OLEACEAE        | 1             | 1              |
| 86.  | ORCHIDACEAE     | 20            | 32             |
| 87.  | OXALIDACEAE     | 1             | 2              |
| 88.  | PALMAE          | 12            | 17             |
| 89.  | PANDACEAE       | 1             | 1              |
| 90.  | PANDANCEAE      | 2             | 5              |
| 91.  | PASSIFLORACEAE  | 1             | 1              |
| 92.  | PEDALIACEAE     | 1             | 2              |
| 93.  | PHORMIACEAE     | 1             | 1              |
| 94.  | PIPERACEAE      | 1             | 3              |
| 95.  | PITTOSPORACEAE  | 1             | 1              |
| 96.  | POLYGALACEAE    | 2             | 3              |
| 97.  | PORTULACACEAE   | 2             | 2              |
| 99.  | PROTEACEAE      | 1             | 1              |
| 99.  | RAFFLESIACEAE   | 1             | 1              |
| 100. | RHAMNACEAE      | 1             | 1              |
| 101. | RHIZOPHORACEAE  | 4             | 5              |
| 102. | ROSACEAE        | 2             | 3              |

Table 2 - Continue

| No.   | Family           | No. of genera | No. of species |
|-------|------------------|---------------|----------------|
| 103.  | RUBIACEAE        | 27            | 50             |
| 104.  | RUTACEAE         | 11            | 13             |
| 105.  | SANTALACEAE      | 1             | 1              |
| 106.  | SAPINDACEAE      | 4             | 5              |
| 107.  | SCROPHULARIACEAE | 3             | 3              |
| 108.  | SAPOTACEAE       | 1             | 2              |
| 109.  | SIMAROUBACEAE    | 2             | 2              |
| 110.  | SMILACACEAE      | 1             | 1              |
| 111.  | SOLANACEAE       | 2             | 2              |
| 112.  | SONNERATIACEAE   | 1             | 2              |
| 113.  | STEMONACEAE      | 1             | 1              |
| 114.  | STERCULIACEAE    | 8             | 10             |
| 115.  | SYMPLOCACEAE     | 1             | 2              |
| 116.  | TACCAEAE         | 1             | 2              |
| 117.  | THEACEAE         | 1             | 1              |
| 118.  | THYMELEACEAE     | 1             | 1              |
| 119.  | TILIACEAE        | 5             | 5              |
| 120.  | TURNERACEAE      | 1             | 1              |
| 121.  | ULMACEAE         | 1             | 2              |
| 122.  | UMBELLIFERAE     | 1             | 1              |
| 123.  | URTICACEAE       | 7             | 7              |
| 124.  | VERBENACEAE      | 8             | 14             |
| 125.  | VIOLACEAE        | 1             | 3              |
| 126.  | VISCACEAE        | 1             | 1              |
| 127.  | VITACEAE         | 3             | 7              |
| 128.  | ZINGIBERACEAE    | 4             | 6              |
| Total | 128              | 434           | 650            |

## CONSERVATION

Pulau Tioman and other neighbouring off-shore islands are sparsely populated. Most of the natural forest communities and habitats, especially those in the interior of the island were left intact. Because of its beautiful natural landscape Pulau Tioman and its neighbouring islands have become targets for tourism activities, especially with the establishment of a top-class hotel, small chalets, air strip and golf course. Due to very limited flat land but very steep slopes on the island, agriculture and forestry have no future there. Similarly any efforts to industrialise the island is also meaningless as there is no work force and resources there.

Therefore the best possible use of the island is to leave the natural habitats in the present condition and efforts should be taken to develop more ecotourism activities. Conservation is the best form of sustainable development for Pulau Tioman. More jungle tracks could be constructed and guided walks organised. The present track from Tekek to Juara should be improved. The more adventurous tourists could visit the high peaks such as Gunung Kajang and Bukit Seperok. For those interested in the mangroves, the plant communities at Kampung Paya should be conserved. The population of *Rafflesia cantleyi* at Tekek should also be conserved for it could attract potential tourists who would like to observe one of the largest flowers in the plant kingdom.

There are several villages in Pulau Tioman and many of the households, gardens and orchards contain fruit tree species (Table 3). These could be exploited for agro-tourism purposes.

Table 3. Fruit trees of Pulau Tioman

| Taxa                                       | Local name                    |
|--------------------------------------------|-------------------------------|
| 1. <i>Gnetum gnemon</i> var. <i>gnemon</i> | melinjau                      |
| 2. <i>Anacardium occidentale</i>           | gajus                         |
| 3. <i>Mangifera indica</i>                 | mempelam, mangga, pauh        |
| 4. <i>Areca catechu</i>                    | pinang sirih                  |
| 5. <i>Arenga pinnata</i>                   | kabong                        |
| 6. <i>Cocos nucifera</i>                   | kelapa                        |
| 7. <i>Durio lowianus</i>                   | durian daun                   |
| 8. <i>Durio zibethinus</i>                 | durian                        |
| 9. <i>Canarium hirsutum</i>                |                               |
| 10. <i>Canarium pilosum</i>                |                               |
| 11. <i>Carica papaya</i>                   | betik                         |
| 12. <i>Garcinia dumosa</i>                 |                               |
| 13. <i>Garcinia hombroniana</i>            | beruas                        |
| 14. <i>Garcinia nervosa</i>                | kandis gajah, manggis beruang |
| 15. <i>Muntingia calabura</i>              | kekup                         |
| 16. <i>Baccaurea ramiflora</i>             | rambai hutan                  |
| 17. <i>Sapium baccatum</i>                 | ludai                         |
| 18. <i>Adenanthera pavonina</i>            | saga                          |
| 19. <i>Parkia speciosa</i>                 | petai                         |
| 20. <i>Flacourtia rukam</i>                | rukam                         |
| 21. <i>Pangium edule</i>                   | kepayang                      |
| 22. <i>Barringtonia macrostachya</i>       | putat                         |
| 23. <i>Aglaiia argentea</i>                |                               |
| 24. <i>Lansium domesticum</i>              | langsar                       |
| 25. <i>Ficus grossularioides</i>           | ara                           |
| 26. <i>Ficus lepicarpa</i>                 | ara                           |
| 27. <i>Musa x sapientum</i>                | pisang                        |
| 28. <i>Musa x paradisiacum</i>             | pisang                        |
| 29. <i>Eugenia aquea</i>                   | jambu air                     |
| 30. <i>Eugenia malaccensis</i>             | jambu bol                     |
| 31. <i>Psidium guajava</i>                 | jambu biji                    |
| 32. <i>Averrhoa bilimbi</i>                | belimbing buluh               |
| 33. <i>Averrhoa carambola</i>              | belimbing                     |
| 34. <i>Pandanus odoratissimus</i>          | mengkuang                     |
| 35. <i>Sesamum orientale</i>               | bijan, lenga                  |
| 36. <i>Colubrina asiatica</i>              | bidara laut                   |
| 37. <i>Morinda citrifolia</i>              | mengkudu                      |
| 38. <i>Citrus aurantifolia</i>             | limau nipis                   |
| 39. <i>Lepisanthes rubiginosa</i>          | mertajam                      |
| 40. <i>Scaphium macropodum</i>             | kembang semangkuk jantung     |

Although the vegetation types found on Pulau Tioman are not much different from those found in the mainland Peninsular Malaysia, Pulau Tioman hosts 8 endemic species (Table 4). The occurrence of these endemic species itself makes Pulau Tioman important botanically. There are a few species which are found on Pulau Tioman, occur elsewhere such as Borneo, Java or Sumatra, but not found in the peninsula.

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Table 4. Local endemics of Pulau Tioman

|               |                                 |
|---------------|---------------------------------|
| Euphorbiaceae | <i>Endospermum ronaldii</i>     |
| Myrtaceae     | <i>Eugenia tiomanensis</i>      |
| Begoniaceae   | <i>Begonia tiomanensis</i>      |
| Acanthaceae   | <i>Justicia ovalis</i>          |
| Orchidaceae   | <i>Coelogyne tiomanensis</i>    |
|               | <i>Scaphochlamys sub-biloba</i> |
| Palmae        | <i>Calamus burkillianus</i>     |
|               | <i>Licuala tiomanensis</i>      |

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