

# ***Ternstroemia magnifica* Stapf ex Ridley (Theaceae) and *Kibatalia macrophylla* (Pierre) Woodson (Apocynaceae), Two Species New to Peninsular Malaysia.**

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## **Abstract**

Recent collections of *Ternstroemia magnifica* Stapf ex Ridley (Theaceae) and *Kibatalia macrophylla* (Pierre) Woodson (Apocynaceae) were made in Bangi Permanent Forest Reserve, Selangor, and Langkawi Islands, Kedah, respectively, representing new records for the flora of Peninsular Malaysia. Diagnostic descriptions and keys to species are presented with some morphological notes.

## **Introduction**

The pantropical genus *Ternstroemia* Mutis ex L. f. is represented by shrubs and trees in Peninsular Malaysia. Keng (1978) listed a total of seven species as occurring in the peninsula, viz. *T. bancana* Miq., *T. corneri* H. Keng, *T. evenia* (King) A.C. Smith, *T. maclellandiana* Ridl., *T. montana* Ridl., *T. penangiana* Choisy and *T. wallichiana* (Griff.) Engler. In the course of our preparation of a checklist of the flowering plants of Bangi Permanent Forest Reserve, Selangor, one theaceous specimen belonging to *Ternstroemia magnifica* was collected. The discovery of this species in Peninsular Malaysia is both surprising and phytogeographically noteworthy. In a similar exercise of collecting plants in the Langkawi Archipelago, Kedah, for the preparation of the Checklist of Langkawi flowering plants, two specimens of an interesting apocynaceous tree species were collected. It was subsequently identified as *Kibatalia macrophylla* which proved to be a new record for both Peninsular Malaysia and the Malaysian flora. A diagnostic description and a key to the species is herein given.

## ***Ternstroemia magnifica* Stapf ex Ridl., Kew Bull. (1938) 175**

Tree c. 20 m tall, no buttress. Bole straight, bark profusely lenticellate becoming large cracks; inner bark reddish, sapwood cream; branches terete, greyish, the ultimate ones c. 5 mm in diameter; branching terminalian-type. Leaves spirally arranged, crowded at the shoot, very coriaceous, 16.4-18.7 × 7.0-9.2 cm, oblanceolate to obovate, apex abruptly acuminate, base cuneate, margin entire, lateral nerves c. 12 on each side, very inconspicuous; petioles c. 2 cm long. Flowers not observed. Fruits ellipsoid, brown when dry, smooth, 7.6 × 6.4 cm, calyx-lobes thick, persistent, verrucose, strongly attached to the base, the stalk c. 2.4 cm long. Seeds oblong, rounded at both ends, c. 6 × 2.4 cm attached to the central axis by funiculus, the funiculus flat, filiform.

Specimen examined: Peninsular Malaysia, Selangor, Bangi Permanent Forest Reserve; 22.1.1994, A. Zainudin et al. AZ 4751 (UKMB).

Representative Specimens from Borneo examined: Sarawak, P. Chai S. 19717 (K, SAR), Ilias Paie S. 16973 (K, SAR); Sabah, Aban & Saikah SAN 71858 (SAN, K), Chew & Corner RSNB 4038 (SAN, K), Jacobs 5702 (L, K, SAR), Mikil 33943 (SAN), Mujin SAN 33772 (K, SAN).

Distribution: Borneo and Malay Peninsula.

Ecology: In Borneo the species is found in the lowland dipterocarp forest of Sabah, Sarawak and Kalimantan. The new record in the Malay Peninsula was collected from a twice logged-over lowland dipterocarp forest of the Bangi Permanent Forest Reserve, Selangor. The occurrence of the species in Peninsular Malaysia is therefore very interesting as it extends its present geographical range of distribution westwards from Borneo island. The close affinity of the Bornean flora to that of the southeast coast of Peninsular Malaysia is quite well accepted and known. However, the new locality for the species at the Bangi Permanent Forest Reserve, Selangor is about 300 km inland from the east coast of Peninsular Malaysia. By extrapolation, it is quite probable that the species is also found in the south of the peninsula, notably in the Endau-Rompin area.

*T. magnifica* is related to *T. evenia* because of the character of inconspicuous leaf venation on the lower leaf surfaces but differs in fruit morphology and also to *T. philippinensis* Merr. but differs from it in the character of the fruits and leaves. In Peninsular Malaysia it is perhaps more closely related to *T. corneri*, from which it can be distinguished as follows:-

Leaves 20-28 cm long; petioles c. 1 cm long; fruits 4.5-5 × 2-2.5 cm, apex briefly forked; calyx smooth, margin free, deflexed; swamp forest.....*T. corneri*

Leaves 16-19 cm long; petioles c. 2 cm long; fruits 7.6 × 6.4 cm, apex not forked; calyx verrucose, margin firmly attached; dry lowland forest.....*T. magnifica*

**Morphological notes.** The type specimen (Haviland 1984, K!) was collected in the vicinity of Kuching, Sarawak, and the species is now known to be widely distributed in Borneo. Generally the fruits of the type specimen are not as large as that of the Bangi specimen and the persistent calyx are always more or less deflexed or at least the margin is free from adnation to the mature fruit. Dr. S. C. Chin (SING) confirmed the occurrence of leaf sclereids, a characteristic feature of the Theaceae. However, the character of the seeds bothered Dr. Hsuan Keng (SING) a little. The ovules (and later seeds) are generally attached at the central axis of the ovary in almost all the theaceous plants known to him but in the Bangi specimen the seeds are attached to the funiculus which arise from the top of the central column. This appears to be a discrepancy, axile versus basal placentation in the Theaceae. According to Dr. M. van Balgooy (L. pers. comm.) this is also true for the Kalimantan

specimens which he observed. It appears that this character is common for the species in its range of distribution. When describing the species, Ridley (1938) stated that it is unlike any other species in the genus in its very large staminate flowers and glaucous leaves. The above variations prompted us to suggest that the position of this species within the genus should be assessed. After all the position of *Ternstroemia* itself within the Theaceae has been assessed many times in its taxonomic history.

### Notes on other *Ternstroemia* species in Peninsular Malaysia.

*T. bancana* Miq., Fl. Ind. Bat. suppl. (1861) 477. Quite widespread, more often near the sea.

*T. corneri* H. Keng, Gdns'. Bull. Sing. 29 (1977) 143-144. Endemic to the swamp forests of South Johor.

*T. evenia* (King) A.C. Smith, Sargentia 7 (1947) 78. Endemic to Peninsular Malaysia, recorded from lowland to montane forests in Perak, Kelantan, Pahang and Selangor.

*T. maclellandiana* Ridl., J. Fed. Mal. Stat. Mus. 6 (1915) 140. Widespread in montane forests.

*T. montana* Ridley, J. Str. Br. Roy. As. Soc. 73 (1916) 141. Restricted to the montane forests of Gunung Jerai (Kedah), Gunung Korbu (Perak) and Cameron Highlands (Pahang).

*T. penangiana* Choisy, Mem. Soc. Phys. Hist. Nat. Geneve 1 (1822) 118. Widespread.

*T. wallichiana* (Griff.) Engler, Pflanzenfam. Nachtr. 1 (1897) 246. Widespread in the lowland forests.

***Kibatalia macrophylla* (Pierre) Woodson**, *Philipp. Journ. Sci.* 60 (1936) 214; Rudjiman, *Agric. Univ. Wagenigen Papers* 86(5) (1986) 38 (as *K. anceps*), fig. 10.

Tree c. 12 m high, probably deciduous. Trunk c. 15 cm in diameter. Leaves 12-14 by 2.3-4.1 cm, elliptic; apex acuminate; base cuneate to obtuse; margin entire, glossy, glabrous above, beneath sparsely pubescent, coriaceous, with 18 secondary veins on each side; tertiary veins inconspicuous; petioles 0.5 cm, glabrous. Infrutescence lax; mericarps 9-12 × 0.5 cm, narrowly ellipsoid; pedicels 1.5 cm long; peduncle 0.2 cm long.

Ecology: A component of beach forests.

Specimens studied: Malaysia, Kedah, Pulau Langkawi, Pulau Beras Basah, A. Latiff, A. Zainudin & Hamid Salleh ALM 3568, 21.11.90 (UKMB); Pulau Singa Besar, A. Zainudin et al. AZ 4394, 19.11.92 (UKMB).

Other specimens examined: Thailand, Winit 1246 (K); Vietnam, Tonkin, Balansa 2103 (K), Poillane 17/2 (K)

Distribution: China (Yunan), Peninsular Burma, Thailand, Indochina and Peninsular Malaysia (Langkawi island).

Rudjiman (1986) recognised 15 species of *Kibatalia* in the world and five of them occur in Malaysia, viz. *K. arborea* (Bl.) G. Don, *K. borneensis* (Stapf) Merr., *K. laurifolia* (Ridl.) Woodson, *K. maingayi* (Hook. f.) Woodson and *K. villosa* Rudjiman. *K. borneensis* is endemic to Sarawak. Earlier, Whitmore (1973) gave an account for Peninsular Malaysia and listed two species only, namely *K. maingayi* and *K. arborea*. Ridley (1923) considered the taxa under *Vallaris*. With the discovery of this new record for Peninsular Malaysia the number of species for the peninsula is now five and for Malaysia six. The occurrence of the species in the Langkawi archipelago represents the current southermost limit for the species as before this the southern limit known is Tennaserim in Burma. Similar pattern of distribution was shown by *K. laurifolia*, another Asiatic species.

### Key to the *Kibatalia* species in Malaysia (adapted from Rudjiman, 1986)

1. Stamens exserted for 0.5-4 mm ..... 2  
    Stamens included for 3-30 mm ..... 5
2. Leaves 12-34 cm long; costa hairy beneath; petioles 6- 15 cm long, sparsely pubescent ..... *K. macrophylla*  
    Leaves 4-19 cm long; costa glabrous; petioles 2-10 cm long, glabrous ..... 3
3. Leaves 4-14 × 0.8-5.5 cm; secondary veins 4-8 on each side; corolla tube 5-10 mm long ..... *K. maingayi*  
    Leaves 8-19 × 2-7 cm; secondary veins 7-14 on each side; corolla tube 11-14 cm long ..... 4
4. Corolla mouth glabrous; inflorescence 1- to 6-flowered; axis with many bracts; petioles 2-6 mm long ..... *K. laurifolia*  
    Corolla mouth hairy; inflorescence 8- to 25-flowered; axis without bracts; petioles 5-15 mm long ..... *K. villosa*
5. Leaves 16-26 × 8-13 cm; leaf apex acuminate; veins 11-18 on each side; corolla tube glabrous; pedicels 4-6 cm long; peduncles 2-6 mm long ..... *K. arborea*  
    Leaves 6-20 × 1-6.5 cm; leaf apex caudate; veins 8-11 on each side; corolla tube hairy; pedicels 7-10 mm long; peduncles 12-23 mm long ..... *K. borneensis*

### Notes on other *Kitabalia* species in Malaysia.

*K. arborea* (Bl.) G. Don, Gen. Syst. Bot. 4 (1837) 86; Whitmore, Tree Fl. Mal. 2 (1973) 18. Quite rare. Peninsular Malaysia (Pahang and Selangor), and Sabah.

*K. borneensis* (Stapf) Merrill, Philip. J. Sc. 17 (1920) 309. A species endemic to Sarawak, in the swamp or heath forests.

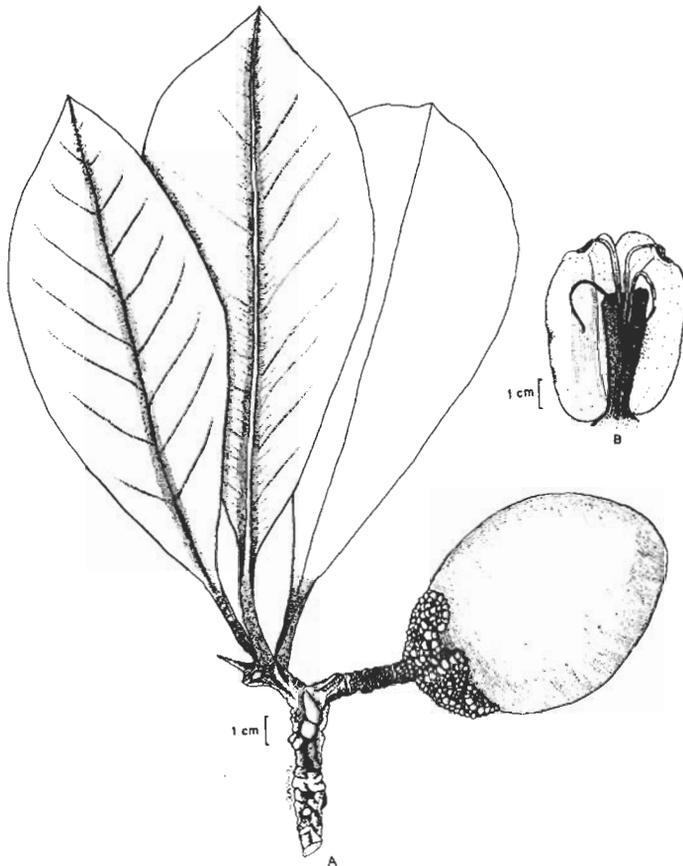
*K. laurifolia* (Ridl.) Woodson, Philip. J. Sc. 60 (1936) 212. Rudjiman (1986)

recorded this species for Peninsular Malaysia. Known from one collection from Perak.

*K. maingayi* (Hook. f.) Woodson, Philip. J. Sc. 60 (1936) 213; Whitmore, Tree Fl. Mal. 2 (1973) 1973; *Vallaris maingayi* Hook. f. in Ridley, Fl. Mal. Penin. 2 (1923) 351.

Common throughout Peninsular Malaysia and in Sarawak known only in Semenggoh Forest Reserve.

*K. villosa* Rudjiman, Agric. Univ. Wagenigen Papers 86-5 (1986) 82. Rudjiman (1986) recorded this species for Malaysia. Apparently very rare, known only from Rengam F.R. (Johor) and a few localities in Sarawak.



**Fig. 1.** *Ternstroemia magnifica*. A. fruiting branch; note the verrucose calyx which are tightly attached to the base. B. seeds with funiculus attached.

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