

## BOTANICAL NOTES ON THE FLORA OF NORTHERN THAILAND : 3†

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### A B S T R A C T

Eight species of flowering plants are discussed which include two new generic records, four new species records, and amplified descriptions of four other species.

### SCHISANDRACEAE

#### *Schisandra perulata* Gagnep. GENERIC AND SPECIES NEW RECORD

KENG (1972) in his revision of this family for the Flora of Thailand, notes that *Schisandra*, since it has been recorded in other nearby and neighbouring countries, should be present in Thailand.

My first encounter with this genus was a fruiting collection found on Mae Soi Ridge in Jawm Tong (= Chom Thong) District, Chiang Mai Province, at 1475 m in primary evergreen hardwood forest (Maxwell 91-746, 13 August 1991). I did not know what that collection was until I found staminate material from the same area (Maxwell 92-211, 10 May 1992 at 1400 m).

As far as I can determine, both collections are *Schisandra perulata* Gagnep. (Gagnepain, 1938) on the basis of the axillary, solitary pedicel which is scaly (perulate) at the base. The other species listed by Gagnepain do not match with my material.

*Schisandra perulata* Gagnep. was collected by Pételot at Chapa in the northern part of the Tonkin region, N. Vietnam at 1500 m. The genus is recognized by the uvaroid stamens and berries on an elongated, raceme-like, fruiting axis.

### RHAMNACEAE

#### *Sageretia cordifolia* Tard. GENERIC AND SPECIES NEW RECORD

Dr. Hans Bänziger of the Faculty of Agriculture, Chiang Mai University, recently gave me a small set of specimens from a limestone mountain east of Mae Sai in the northern part of Chiang Rai Province which included material of this species. The specimens (Bänziger 1048) were collected at 1350 m on 3 October 1992 and are in flower. The most recent and relevant revision of the Rhamnaceae by TARDIEU-BLOT (1948) includes 4 species in *Sageretia*, of which *S. cordifolia* Tard. is the most appropriate here. Ac-

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ording to Dr. Bänziger's notes, this species grows as a shrub or small tree and has fragrant flowers with a yellow calyx. The species was described in 1946 from material collected in Laos.

## EBENACEAE

### *Diospyros coetanea* Flet., fruits described

The specific epithet refers to the fact that this species, although deciduous, produces leaves and flowers which appear or develop at the same time. It was described in 1937 (FLETCHER, 1937) from 3 staminate collections gathered in Mae Hong Song (type), Phrae, and Pitsanulok Provinces.

I collected staminate material of this species on the south side of Doi Sutep-Pui National Park at 400 m on 4 June 1991 (Maxwell 91-515) in deciduous forest. The most recent revision of Ebenaceae for Thailand (PHENGKLAI, 1981) lacks descriptions of the female flowers and fruits of this species. The following notes are based on two fruiting collections that I have made. The first is Maxwell 91-825 (1 October 1991) in the Mae Soi Valley, Jawm Tong District, Chiang Mai Province at 450 m in degraded deciduous, formerly teak, forest with much bamboo. The second is Maxwell 92-371 (9 July 1992) from along Mae Heeyah Stream on the south side of Doi Sutep-Pui National Park at 375 m in presently open deciduous secondary growth.

Bark thick, deeply cracked, often in 4-angled pieces, black; inner bark dark red. Fruiting pedicels brown. Fruiting calyx thickened, discoid, finely villous on both sides, ca. 15 mm diameter, adpressed to the base of the fruit, 5-lobed to the middle; lobes triangular, 6-7 mm long, tips mostly flat, sometimes slightly reflexed, blackish. Fruits subglobose to globose, smooth, light green and ripening light to medium yellow, drying blackish, 4-5 cm diameter when fresh. Pericarp ca. 1 mm thick. Seeds compressed, narrower along one margin (i.e. wedge-like), rounded at both sides, ca. 25 x 15 mm; testa thin, slightly roughened, drying tan. Endosperm smooth.

## CONVOLVULACEAE

### *Ipomoea sinensis* (Desr.) Choisy NEW RECORD

It seems surprising that this species, which is essentially a weed in the places that I have seen it, has not been recorded for Thailand. I have collected flowering and fruiting material twice, viz. the east side of Doi Sutep in Chiang Mai Province, at 600 m (Maxwell 88-1048, 27 August 1988) and in Phichai District, Uttaradit Province, at 50 m (Maxwell 92-632, 20 October 1992).

This species is distinguished by having pilose indumentum on all vegetative parts, ovate leaf blades with deeply cordate bases, and the 3 outer sepals having broadly cordate bases and marginal cilia. The description by GAGNEPAIN & COURCHET (1915) differs slightly in that the material that I have collected has distinct peduncles 5-15 mm long, while those authors indicate that their material had "pédounele presque nul". The species was described in 1789 and is known from Vietnam, Taiwan, China and Hong Kong.

## VERBENACEAE

*Premna fulva* Craib

CRAIB (1911, 1911a) lacked fruiting material when he described this species from Kerr 1085, collected at 660 m on Doi Sutep. DOP (1935) in his revision of Indo-Chinese Verbenaceae copied the protologue and added one final line which inadequately describes the fruit. Now that I have made 4 collections of this species (Maxwell 88-574, 89-783 (both fruiting), and 88-574 (flowers) all from Doi Sutep; 89-529 (fruits) Doi Chiang Dao) more information can be provided.

The habit ranges from a woody climber with a basal diameter of 7 cm to scandent with basal diameters of 5–8 cm, and a treelet 3–4 m tall with a basal diameter of 9 cm, the tips of some branches somewhat scandent. The oldest bark ranges from thin to thickened, smooth to vertically cracked, mostly is squares; grey-black to brown. The younger bark is thin and finely flaking. The largest blades are 18.5 cm long and 12 cm wide with petioles 5 cm long.

Fruiting calyces thin, unequally and shallowly 5-lobed, finely puberulous, light to medium green, ca. 6 mm diameter and embracing the lower 1/3 of the drupe. Drupes subglobose, glabrous, green and ripening dark violet, drying blackish, c. 5–6 x 6–7 mm when fresh, drying slightly smaller; mostly 1–2 locular, endocarp tuberculate, tan, 1 mm thick. Seeds ellipsoid, ca. 1.5 x 1 mm; testa smooth.

This species flowers in late March to mid-April, fruits from May-June, and is found in primary evergreen monsoon-influenced forests 950–1125 m elevation on Doi Sutep. The specimen from the mixed evergreen-deciduous monsoon forested foothills of Doi Chiang Dao was collected at 600 m. The bedrock on Doi Sutep is granitic while it is limestone on Doi Chiang Dao.

A medicinal plant specimen at CMU (Bragg 219), from Mai Liam Stream, Huay Chompu (= Huai Chompu), Muang District, Chiang Rai Province at 900 m was collected in an Akha village area and is noted to be used for body aches. It is known there as “yaga-pog”.

*Premna fulva*, named in reference to the yellow-brown indumentum on the branches and leaves, is known from northern Thailand, Laos, and Viet-Nam (DOP, 1935; FLETCHER, 1938).

## THYMELAEACEAE

*Linostoma persimile* Craib, fruits described

The type material of this species was collected in flower by Kerr (814) at 915 m elevation on Doi Sutep and described by Craib in 1911 (CRAIB, 1911, 1911a). It is a showy treelet 1–2.5 m tall and often has scandent older branches. It is found in open, fire-prone places in deciduous dipterocarp-oak and open evergreen areas with some deciduous trees, 500–1325 m elevation. It is known to flower during October-November and fruit in late November-December. Since fruiting material is now available from Doi Sutep (Maxwell 89-1440, 22 November 1989, 1325 m), this is described here.

Infructescences emerging from the bracts, 2–3 cm long; axes slender, glabrous, drying brown, nodes distinct; pedicels 1.5–2 mm long. Fruiting perianth urceolate, thin,

glabrous, brown 13–15 x 16–17 mm (body 7–8 x 6–7 mm, and erect lobes 4–5 mm long), splitting longitudinally along one side. Drupes subglobose, apiculate at the tip, sparsely adpressed pilose, venation distinct, tan, 9 x 6 mm. Seed solitary and of similar size and shape as the drupe; testa thin, greyish, with blackish venation.

As Craib notes and alludes to in the specific epithet, this species is very close to *Linostoma pauciflorum* Griff. which is known from the Malay and Burmese Peninsulas, Sumatra, and Borneo. The putative differences lie in some seemingly minor details of the flowers.

## EUPHORBIACEAE

### *Phyllanthus debilis* Klein ex Willd. NEW RECORD

Included in Airy SHAW's (1972) revision of *Phyllanthus* of Thailand are four species of herbs, of which *Phyllanthus amarus* Schumach. & Thonn. could possibly be confused with *P. debilis*. The distinctions of *P. debilis* are microscopic but profound, viz. its larger leaf blades (up to 21 x 15 mm), 3 free anthers and filaments which are united in the lower half, papillate and appearing stellate glands in the male flowers; female flowers with larger, imbricating tepals, minute annular ring with an evenly denticulate margin as the disc, and larger seeds with papillate lamellae.

*Phyllanthus amarus* is a common weed of lowland, disturbed areas while the material of *P. debilis* (Maxwell 92-467) was found in a deciduous dipterocarp-oak forest at 900 m on granite bedrock at Doi Khun Tan National Park, Lamphun Province (22 August 1992).

The description of *P. debilis* by HOOKER (1887) fits my material well, however WEBSTER (1957) notes that the male disc segments (glands) are entire and that the filaments are completely connate. The other features of this species, especially the smooth, angled branchlets, female flowers, and seeds compare well with 92-467. The description and illustration of this species in SOERJANI *et al.* (1987), except for the male disc segments, match my collection. WEBSTER (1975) indicates that *P. debilis* is probably native to southern India and Sri Lanka, and has been introduced in Indonesia, the Pacific Islands, and the West Indies.

## PALMAE

### *Calamus kerrianus* Becc., fruits described

Dr. A.F.G. Kerr (1877–1942) collected staminate flowering material of this species (Kerr 1618B) at 900 m elevation on Doi Sutep on 14 January 1912 which BECCARI (1914) described and named after the collector.

I found fruiting material of this species on the east side of Doi Sutep (Maxwell 88-320) at 925 m elevation on 10 March 1988. It was found in a shaded valley in the evergreen part of the deciduous dipterocarp-oak forest on granite bedrock. It is a slender and presently scarce, due to exploitation, climber with dull dark green, spiny stems. The infructescences are glabrous, green, 40–50 cm long. The fruiting calyx is ca. 4 mm long, 3-lobed 2/3 to the base, faintly striate, the lobes rounded, acute, and often split at the tip.

The petals are triangular, as long as the calyx. Fruits subglobose 8–9 x 10–11 mm, mammiform and terminated by the 3 spreading stigmas, 2mm long. Scales arranged in about 10 longitudinal rows, ca. 20 scales per row, adpressed and imbricating; oblong, obtuse at the tip, glabrous, brownish-greenish when fresh, drying light brown with dark brown tips and margins, ca. 1.5 x 2 mm. Seeds subglobose, ca. 6 x 7 mm; testa rugose, blackish.

I have found this species at elevations of 700–1225 m in shaded monsoonal mixed evergreen-deciduous and evergreen habitats. It is the only species of *Calamus* on the mountain, but not the only rattan. The spaced groups of 2–4 lanceolate leaflets 18–20 x ca. 3.5 cm which are glabrous except for some bristles at the acute tip are easily distinguished from those of the other rattan, *Plectocoma kerriana* Becc., on Doi Sutep, which, among other features, has much longer leaflets which are distinctly puberulous underneath. It is known from shaded stream valleys from 1200–1400 m in evergreen areas and was also described from Kerr's material collected on Doi Sutep.

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