NOTES ON FREYCEINETIA (PANDANACEAE) FROM JAMBI, SUMATRA WITH THE DESCRIPTION OF A NEW SPECIES

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ABSTRACT

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INTRODUCTION
Nine species of Freycinetia Gaudich were reported for Jambi (Widjaja & Hidayat 2007). This number is almost as high as recorded previously by Stone (1970a), where he mentioned that there are 10 species occurred in Sumatera. During an inventory of this genus in Jambi, one more species was found and described here as a new species. The present article briefly discusses the nine species which have been written previously by Widjaja & Hidayat (2007) and Widjaja et al. (2009). A key to the nine species in Jambi, nomenclature, habitat, recent new notes of specific morphological characters and specimen examinations are provided.

Many new specimens of Freycinetia for this study were collected by the first authors during an exploration of this genus around Sumatra. The collection were deposited in MEDA, a local university herbarium in Sumatera Utara, belongs to the University of Sumatra Utara, Medan. MEDA is posed to be a herbarium and written in the list of herbaria in Indonesia (Girmansyah et al 2006).

IDENTIFICATION KEY TO THE SPECIES OF FREYCINETIA IN JAMBI

1. a. Leaves lanceolate, elliptic, oblong to oblancoleata ..................................................2
   b. Leaves narrow to widely linear ..................6

2. a. Leaves lanceolate to broadly lanceolate ........3
   b. Leaves elliptic to oblingular or oblancoleata ....5

3. a. Pedicels less than 2 cm long; scars of pedicel bracts
   less than 6 mm long; apex of auricle rounded to truncate,
   entire or minutely fimbriate at the apex ..........................F. imbricata
   b. Pedicels more than 3 cm long, scar of pedicel bracts
   more than 9 mm long, apex of auricle acuminate,
   fimbriate at the apex ............................................F. scabrosa

4. a. Auricles lobed; length of pedicel bract less than half
   of pedicel length .........................................F. sumatrana
   b. Auricle adnate, length of pedicel bract more than
   half of pedicel length ............................. F. scabrosa
5. a. Leaves elliptic, apex acute, sepalae of auricles 4, pedicel robust........................................F. javanica
b. Leaves oblong or oblanceolate, apex acuminate with caudate tip, sepalae of auricles single, pedicel slender
.........................................................................................F. kamiana
6. a. Inflorescence racemose, auricles laciniate, horizontal septa present ........................................F. angustifolia
b. Inflorescence umbellate, auricles adnate, horizontal sept not seen ........................................F. insipida
7. a. Leaves widely linear, auricle apex tapered to slightly rounded glabrous to scarcely hairy fin briate spinule .................................................................F. rigida
b. Leaves narrowly linear, 14–30 × 0.2–0.4 cm, auricle apex attenuate, densely hairy ............F. berbakensis
8. a. Leaves widely linear, 25–63 × 0.5–0.9 cm, densely serrate at the base, auricle tapered to slightly obtuse towards the apex .........................F. winkleiana
b. Leaves widely linear, 15–33 × 0.8–2.5 cm denticulate at the base, auricle rounded and abruptly truncate at the apex ........................................F. rigidifolia

SPECIES NOTES

1. FREYCINETIA ANGUSTIFOLIA Blume

Freycinetia debregaeasiana Gaudich., Voy. Bonite, Bot.: t. 37, f. 1–11. 1841–1852. — Type: not stated, probably Malacca or Singapore (Gaudichaud s.n. 1837; P? fragment in FL, n.v.)
Freycinetia insipida Martelli ex Elmer, Leafl. Philipp. Bot.: 3: 1114. 1911. —Type: Capiz Province, Mt. Magellanes (Giting-giting), May 1910, Elmer 12426 (FI, holo n.v.; PNH, lost, EDINB n.v.).

Distribution. Malay Peninsula (Johor, Malacca, Negeri Sembilan, Penang, Perak, Selangor), Singapore, Sumatra (It is widely distributed in Jambi Province), Java (G. Salak), Borneo (Sarawak, Bantalmasin, Philippines (Sibuyan).

Habitat. Littoral zone, primary and secondary forest, roadsides, swampy areas, lowlands, rarely up to 1800 m altitude.

Notes. This species was first described by Blume from Java and again by Ridley as a new species from the Malay Peninsula, which was duly synonymised by Stone (1970b). Stone (1970b) mentioned that 1–3, rarely 4, very rarely 5 stigma remain, but in the present study it was found that the stigma remain are 1–6, very rarely 7. Also, he mentioned that the outermost bracts would be dark to pale yellow or yellow-orange, sometimes flecked with red on the inner surface. However, in fresh plants in the field, the outermost bracts are pale green to greenish with green tips.

This species is characterized by its linear leaves, basal leaves with spines, leaf auricles laciniate or finely fibrous with 2 (or 3) horizontal septa across the auricle width, and racemose inflorescences.


2. FREYCINETIA BERBAKENSIS Widjaja, Pasaribu & Hidayat


Distribution. Sumatera, Jambi.

Habitat. Swampy areas, c. 50 m altitude.

Notes. This species differs from F. confusa Ridl. by the very slender auricles along the leaf base, of which the apex is slightly rounded and tapering, the margin densely fimbriate and gradually less spinose towards the base, the inner sides of the pedicels scabrous at the apex, glabrous along the edges, and the number of stigma remain 2 or 3 (–7).


3. FREYCINETIA IMBRICATA Blume

Freycinetia imbricata Blume, Rumphia 1: 157, t. 40, f. 1–11. 1835. — Lectotype: Java, “silvis intactis non-
Freycinetia schefferi Solms in Linnaea 42: 98. 1878.
— Syntypes: Java, cult. in Hort. Bog., Scheffer s.n. (GOET, holo)


Distribution. Malay Peninsula (Johor, Pahang, Perak, Selangor), Sumatra (widespread), Java (Jawa Barat dan Jawa Tengah), Borneo (Taraikan).

Habitat. Primary and secondary forest, up to 1350 m altitude.

Notes. This species is characterized by the lanceolate leaves, membranaceous auricles, apex adnate to stem or separate from stem and then slightly rounded to truncated towards, sparsely denticate, globose syncarp—which are elliptic, terminal, placed on a short and glabrous pedicle.


4. FREYCINETIA JAVANICA Blume


Distribution. South Thailand (Kra Peninsula), Malay Peninsula (widespread), Singapore, Sumatera (widespread), Java (Jawa Barat dan Jawa Tengah), Borneo (Taraikan).

Habitat. Primary and secondary forest, roadsides, up to 1600 m altitude.

Notes. Ridley (1907) proposed F. lucens, but after a careful study of the specimens showed it to be indistinguishable from F. javanica. The latter can be distinguished by its elliptic to oblong leaves, an acute apex and entire margin with a few small weak teeth, the membranaceous auricle that is adnate, partly early caducuous, and has an acute to rounded, entire to minutely denticate apex, and with four horizontal septae across the width of the auricle.


5. FREYCINETIA KAMIANA B.C. Stone


Distribution. Malay Peninsula (Selangor), Sumatera (Jambi, Sumatera Utara and Sumatera Barat).

Habitat. Primary and secondary forest, 275 up to 950 m altitude.

Notes. This species is closely resembles to F.
but is a larger plant. The stem is rather stiffly erect. Leaves slightly long oblanceolate to oblong, cordately tipped, auricles short and broadly adnate with a serrate margins and one horizontal septa; syncarps terminal. Stone (1970b) described the species on Malaysian plants from Bukit Lagong, Selangor. The plant cultivated in the Bogor Botanical Gardens (XII–B–V–128) was said to have been introduced from Bukit Tinggi, Sumatera Barat (Stone, 1970b: 206).

Specimens examined. SUMATERA UTARA: Tangkahan, Atthorick s.n. (MEDA), Bukit Lawang, Dransfield 3258 (BO, L), Pasaribu 244 (MEDA). SUMATRA BARAT: Community Garden (Tahura) Muhammad Hatta, Pasaribu 222 (MEDA), Andalas University Forest, Pasaribu 229 (MEDA). JAMBI: Tapan, Sungai Penuh, Dransfield 4152, 4153 (BO).

6. FREYCINETIA RIGIDIFOLIA Hemsl.


Distribution. Malay Peninsula (Johor, Pahang, Perak, Selangor, Terengganu), Sumatera (Jambi, Riau, and Sumatera Barat), Borneo (Sarawak, Sabah, and Kutai).

Habitat. Secondary forests, roadsides, c. 250 up to 1900 m altitude.

Notes. This species is very easily recognizable by its auricles with apical margins prominently fimbriate, pedicel semiterete, finely scabrous and spiny along the pedicel angle, pyramidal berries with rigid pileus. This species is different from F. insignis by the presence of its three syncarps and 2 or 3 (–6) stigma remain.

Etymology. The species epithet scabrosa is given due to its prominent scabrous pedicels.

Specimens examined. JAMBI: Kerinci, Sungai Penuh, Dransfield 2643 (BO), SUMATRA BARAT: Community Garden (Tahura), Muhammad Hatta, Pasaribu 217 (MEDA), RIAU: Natuna Island, Van Steenis 1200 (BO), BORNEO: Sabah, Chew and Corner 4269 (K), Madani 50583 (K), Serawak, Fuchs 21014 (K), Kinabalu, Ranau, Mikil 38635 (K).

7. FREYCINETIA SCABROSA Pasaribu & Widjaja, spec. nov.— Fig 1.

Freyoeriettae minahassae proxima auriculis apicis marginibus prominentibus fimbriatis, pedicelli angulis subtiliter scabris spinosisque, pedicelli bractearum cica-

tricibus prominentibus plus quam medio pedicelli longitudinis, syncarpiis 3, baccis lageniformibus differt. — Type: Jambi, Kerinci District, Gunung Tujuh Subdistrict, Air Terjun Village, Pasaribu 286 (MEDA, holo; BO).

Climber, climbing up to 7 meter high, internodes 1.1–1.4 cm long, 1.9–2.3 cm in diameter. Leaves imbricate, very closely crowded, broadly lanceolate, 44–96 x 3.3–4.2 cm, coriaceous, white waxy on the lower surface, margin armed from the base to the apex, densely denticulate at the base, semi–amplexicaul in the basal leaves, apex acuminate, with long tapering tips, underneath in the upper half with an armed midrib, longitudinal veins prominent on both sides. Auricles persistent in the upper leaves, chartaceous, 10–13 x 0.9–1.5 cm, adnate, apex acuminate, with fimbriate margins, pale green, horizontal septae 1 across the width of the auricle. Inflorescences terminal: peduncle terete, 4.5–6.6 x 0.9–1.2 cm in diameter; pedicels semiterete, 3.4–4.5 x 0.5–0.7 cm in diameter, finely scabrous with spiny angles, light brown; scars of pedicel bracts 2–2.8 cm long, more than half the length of the pedicel. Syncarps 3, elliptic-oblong, 5.4–9.5 x 2.3–3 cm in diameter, dark green (immature), pyramidal and separated berries with rigid pileus, berry 0.5–1.2 cm long, apex obtuse and flat, stigma remain 2 or 3 (–6).

Distribution. Sumatera, Jambi.

Habitat. Roadsides at c.1350 m altitude.

Notes. This species can be distinguished from F. minahassae by its auricles with the apical margins prominently fimbriate, pedicel semiterete, finely scabrous and spiny along the pedicel angle, pyramidal berries with rigid pileus. This species is different from F. insignis by the presence of its three syncarps and 2 or 3 (–6) stigma remain.

Etimology. The species epithet scabrosa is given due to its prominent scabrous pedicels.

Specimen examined. JAMBI: Kerinci District, Gunung Tujuh Subdistrict, Air Terjun Village, Pasaribu 286 (MEDA, BO).

8. FREYCINETIA SUMATRANA Hemsl.

1908. — Type: Palawan, near Puerto Princesa, May 1906, BS 876 (Foxworthy), (PNH, holo, lost; NY, US).


**Distribution.** Andaman and Nicobar islands (B.C. Stone, 1969), widespread in the Malay Peninsula, Singapore, Sumatera (widely distributed), Jawa (Jawa Barat), Borneo (Sarawak, Sabah), and the Philippines (Basilan Isl., Palawan).

**Habitat.** Primary and secondary forests, roadsides, rarely up to 1400 m altitude.

**Notes.** This species can be identified by its big and...
long linear-lanceolate leaves, with spines at their base, auricles purplish, long-lobed, triangular with a serrate margins.

Specimens examined. **ACEH:** Mount Leuser, De Wilde & De Wilde-Duyfjes 18424 (L), Ketambe, Pasaribu 159 (MEDA), TWA Iboih, Sabang, Pasaribu 190 (MEDA). **SUMATERA UTARA:** Sibolangit, Lörzing 12721, 11004 (BO), TWA Daleng Lancuk Lau Kawar, Pasaribu 177 (MEDA), Sibolangit, Pasaribu 195 (MEDA), Bukit Lawang, Langkat, Pasaribu 243 (MEDA), Asahan, Pasaribu 195 (MEDA), Bukit Lawang, Langkat, Pasaribu 243 (MEDA), Asahan, Pasaribu 195 (MEDA), Bukit Lawang, Langkat, Pasaribu 243 (MEDA). **SUMATERA UTARA:** Sibolangit, Lörzing 12721, 11004 (BO), TWA Daleng Lancuk Lau Kawar, Pasaribu 177 (MEDA), Sibolangit, Pasaribu 195 (MEDA), Bukit Lawang, Langkat, Pasaribu 243 (MEDA), Asahan, Pasaribu 195 (MEDA), Bukit Lawang, Langkat, Pasaribu 243 (MEDA), Asahan, Pasaribu 195 (MEDA), Bukit Lawang, Langkat, Pasaribu 243 (MEDA). **SUMATERA SELATAN:** Banyuasin, Endert 1120, 1123 (BO). **BORNEO:** Brunai, Andalau, Ashton 21573 (K), Kuala Temburong, Wong 2001 (K).

9. FREYCINETIA WINKLERIANA Martelli

_Freycinetia winkleriana_ Martelli, Webbia 3: 168, 1910. — Type: S.E. Borneo, Djili, 22/8/1908, Hubert Winkler 3313 (B, holo, lost, FI fragment).

Distribution: Sumatera, Borneo (Sarawak, Banjarmasin)

Habitat: Swamp forest & primary forest rarely up to 50 m altitude.

Notes. This species is characterized by its linear leaves, margin basally densely serrate, becoming serrate toward the apex, longitudinal veins visible on both sides, chartaceous, slender auricles, adnate, tapering to slightly obtuse toward the apex. Inflorescences terminal or axillary.


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