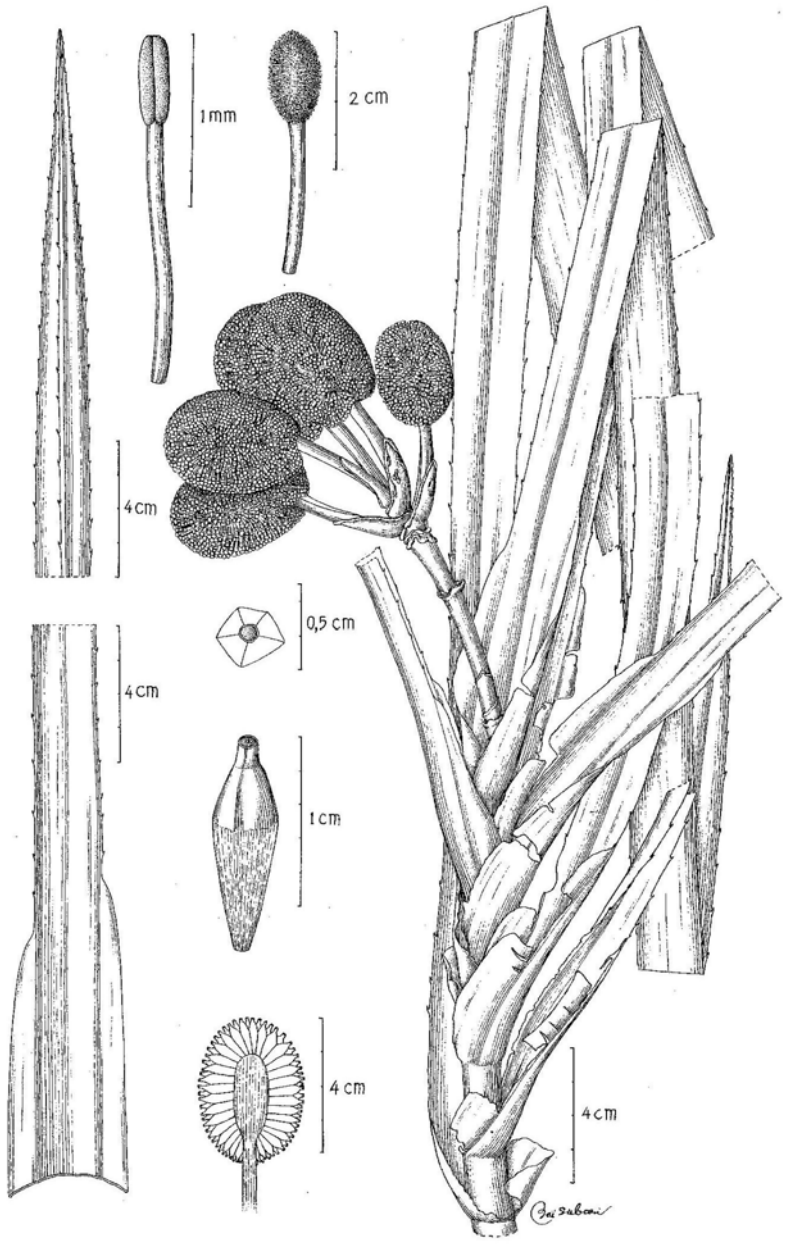
LIPI

A JOURNAL ON TAXONOMIC BOTANY, PLANT SOCIOLOGY AND ECOLOGY

ISSN 0034 – 365 X



REINWARDTIA

13 (2)

REINWARDTIA

A JOURNAL ON TAXONOMIC BOTANY
PLANT SOCIOLOGY AND ECOLOGY

Vol. 13(2): 95 — 220, November 2, 2010

Correspondence on editorial matters and subscriptions for Reinwardtia should be addressed to:
HERBARIUM BOGORIENSE, BOTANY DIVISION,
RESEARCH CENTER FOR BIOLOGY– LIPI,
CIBINONG 16911, INDONESIA
Email: reinwardtia@mail.lipi.go.id

REINWARDTIA
Vol 13, No 2, pp: 101 − 106

A NEW SPECIES OF FREYCINETIA (PANDANACEAE) FROM PAPUA NEW GUINEA

Received November 3, 2009; accepted February 2, 2010

ARY PRIHARDHYANTO KEIM
Herbarium Bogoriense, Research Center for Biology–LIPI. Jl. Raya Jakarta–Bogor Km 46, Cibinong 16911, Indonesia. E-mail: arypkeim@yahoo.com

ABSTRACT
KEIM, A.P. 2010. A new species of *Freycinetia (Pandanaceae)* from Papua New Guinea. *Reinwardtia* 13(2): 101–106. — *Freycinetia streimannii* A.P. Keim is newly described from Papua New Guinea. The novelty is closest to *Freycinetia normanbyensis* Huynh but is clearly separated by differences in the size of the cephalia and in the number of stigmas.

Keywords: *Freycinetia, Pandanaceae*, Papua New Guinea.

ABSTRAK
KEIM, A.P. 2010. Jenis baru *Freycinetia (Pandanaceae)* dari Papua Niugini. *Reinwardtia* 13(2): 101–106. — Jenis baru *Freycinetia streimannii* A.P. Keim dari Papua Niugini dipertelakan. Jenis baru ini dibedakan dengan *F. normanbyensis* Huynh pada ukuran *cephalia* dan jumlah kepala putiknya.

Kata kunci: *Freycinetia, Pandanaceae,* Papua Niugini.

INTRODUCTION

New Guinea is renowned as a centre for floristic diversification in the paleotropics. The spacious nature of its major families is particularly evident in the *Pandanaceae*, and especially so in the genus *Freycinetia*. Although Huynh (1996; 1997; 1999; 2000; 2002) recently added some species to the generic conspectus, there are still many taxa awaiting formal description. The following account presents yet another novelty from New Guinea, lending further support to Stone's (1982) contention that the island is unquestionably the centre of diversity for *Freycinetia*.

Freycinetia streimannii A.P. Keim, *spec. nov.* — Figs. 1–3.

Mediocris scandens; infructescentia terminalis et lateralis, terna et quaterna; bacca rhomboideus; stigmata 1–2. — Typus: Papua New Guinea, Morobe, Menyamya, Aseki–Koki Road, 07° 20'S, 146° 10'E, 9 Jan. 1972, *H. Streimann LAE 51997* (Holotypus–LAE!; Isotypi–A, BO!, BRI, CANB, K, L, SING!).

Medium sized climbing pandan, glabrous. *Stem* 0.6–0.65 cm diam., sulcate or angulate, brunnescent. *Leaves* elliptic–oblong, 14–15 cm long, *ca*. 4.5 cm wide, bifically brunneous, base cuneate, margins entire, apex acuminate; auricle tapered. *Inflorescence* unknown. *Infructescences* terminal and lateral, ternate or quaternate, *ca*. 5 cm long; peduncles *ca*. 1 cm, cicatrose, fibrose, cylindrical, decorticating on older surfaces; prophylls 3, 0.5–1.2 cm long; bracts 6 in 2 whorls, bracts in outer whorl 1.3–1.5 cm long, bracts in inner whorl 3.4–4 cm long; pedicel 1.6–1.7 cm long, glabrous. *Cephalium* ellipsoidal, red, 1.1–1.5 cm long, 0.5–0.6 cm wide. *Berry* rhomboid, red, 1.5–2 mm long, pileus rigid; stigmas 1–2.

Field characters. Leaves green above, pale green below; fruits red.

Distribution. Known only from the type locality.

Habitat and ecology. Disturbed poor montane forest at about 1200 m altitude.

Etymology. Named after Estonian botanist Heinar Streimann, collector of the type specimen.

Conservation status. Probably vulnerable (VU). The Menyamya area has been extensively disturbed by anthropogenic activities. The roadside forest visited by Streimann has been either eradicated or severely impacted.

Fig. 1. *Freycinetia streimannii* A. P. Keim. Holotype (*Streimann LAE 51997*, LAE!) showing the lateral and terminal infructescences (x 2/5). Photo: Wayne Takeuchi.

Fig. 2. *Freycinetia streimannii* A.P. Keim. Holotype (*H. Streimann LAE 51997*, LAE showing the remains of terminal infructescence (x 1). Photo: Wayne Takeuchi.

Fig. 3. *Freycinetia streimannii* A.P. Keim. Holotype (*H. Streimann LAE 51997*, LAE!) showing the ternate and quaternate infructescences (× 1). Photo: Wayne Takeuchi.

Notes. In New Guinea, there are only a few species with both terminal and lateral infructescences. Among the congeners in this group, *Freycinetia streimannii* is the only one with 1–2 stigmas. *Freycinetia normanbyensis* Huynh is probably the closest to the new species (see Huynh, 2002), but can be easily distinguished by the characters listed in Table 1.

There are also apparent similarities between *Freycinetia madangensis* and *F. streimannii*. However Table 2 provides a decisive compilation of their differentiating attributes.

Table 1. Comparison of *Freycinetia normanbyensis* and *F. streimannii*.

Characters	*Freycinetia normanbyensis*	*F. streimannii*
Leaf dimension	14–20 x 2–2.5 cm	14–15 x 4.5 cm
Number of cephalia per infructescence	3	3 or rarely 4
Cephalium dimension	2x3 cm	1.1–1.5 x 0.5–0.6 cm
Length of a berry	5 mm	1.5–2 mm
Number of stigmas	3–4 (also found 5–10)	1–2
Colour of a berry	Orange	Red

Table 2. Comparison of *Freycinetia madangensis* and *F. streimannii*.

Characters	*Freycinetia madangensis*	*F. streimannii*
Infructescence position	Always lateral	Terminal and lateral
Number of cephalia per infructecence	3	3, rarely 4
Cephalium dimension	2 x 1–1.8 cm	1.1–1.5 x 0.5–0.6 cm
Length of a berry	3 mm	1.5–2 mm
Number of stigmas	2	1–2

Stone (1967) mentioned *F. hollrungii* Warburg as a species with both terminal and lateral infructescences. Indeed, with number of stigmas 1 to 2, *F. hollrungii* seems to be the closest morphologically to *F. streimannii*. However, I am not in accordance with his account, as Warburg (1900) did not write that *F. hollrungii* has both terminal and lateral inflorescences and infructescences. In fact, he did not mention anything about the position of the infructescence except that it consists of 2 to 3 cephalia (infructescences binate or ternate). Unfortunately, the syntypes of *F. hollrungii* were destroyed during the World War II and there is no information about the presence of any copies in other Herbaria. Thus, everything is based only on the protologue. Nonetheless, the protologue is not in favour of Stone.

Among the extra–Papuasian taxa, *Freycinetia imbricata* Blume is a well–known species having both terminal and lateral infructescences. This species is commonly found in Java, Borneo, and the Malay Peninsula (Stone 1970a, 1970b, 1970c, 1972), but so far has never been recorded in New Guinea. Nevertheless, with rather globose cephalia (9–10 × 6–7 mm) and with 3–5 stigmas, *F. imbricata* is immediately distinguishable from *F. streimannii*.

ACKNOWLEDGEMENTS

I am grateful to Dr. Wayne Takeuchi (A) for valuable discussions, suggestions, and photographs of the holotype. Deepest appreciation is sent to Dr. Rugayah (BO) for the encouragement. Warmest appreciation is also mailed to Prof. N. Fukuoka (JICA) for constructive suggestions to the manuscript.

REFERENCES

HUYNH, K–L. 1996. The genus *Freycinetia* (*Pandanaceae*) in New Guinea (part 1). *Bot. Jahrb. Syst.* 118: 529–545.

HUYNH, K–L. 1997. The genus *Freycinetia* Gaudich. (*Pandanaceae*) in the Solomon Islands. *Candollea* 52: 359–382.

HUYNH, K–L. 1999. The genus *Freycinetia* (*Pandanaceae*) in New Guinea (part 2). *Bot. Jahrb. Syst.* 121: 149–186.

HUYNH, K–L. 2000. The genus *Freycinetia* (*Pandanaceae*) in New Guinea (part 3). *Candollea* 55 (2): 283–306.

HUYNH, K–L. 2002. The genus *Freycinetia* (*Pandanaceae*) in New Guinea (part 4). *Blumea* 47 (3): 513–536.

STONE, B. C. 1967. Materials for a monograph of *Freycinetia* (*Pandanaceae*) I. *Gard. Bull. Sing.* 22 (2): 129 –152.

STONE, B. C. 1970a. Materials for a monograph of *Freycinetia* Gaud. (*Pandanaceae*). V. Singapore, Malaya & Thailand. *Gard. Bull. Sing.* 25 (2): 189–207.

STONE, B. C. 1970b. Materials for a monograph of *Freycinetia* Gaud. (*Pandanaceae*). VI. Species of Borneo. *Gard. Bull. Sing.* 25 (2): 209–233.

STONE, B.C. 1970c. Malayan climbing *Pandanus*: The genus *Freycinetia* in Malaya. *Malay. Nat. J.* 23: 84–91.

STONE, B.C. 1972. Studies in Malesian *Pandanaceae*: VII. A review of Javanese *Pandanaceae* with notes on plants cultivated in the Hortus Botanicus Bogoriensis. *Reinwardtia* 8 (2): 309–318.

STONE, B.C. 1982. New Guinea *Pandanaceae*: First approach to ecology and biogeography. In GRESSITT, J.L. (ed.). 1982. *Biogeography and ecology of New Guinea*. Vol.1. Monographiae Biologicae Vol. 42. Dr. W. Junk Publ., The Hague.

WARBURG, O. 1900. *Pandanaceae*. In ENGLER, A. (Ed.). 1898–1923. *Das Pflanzenreich*. 4, 9 (3): 1–100.

INSTRUCTION TO AUTHORS

Reinwardtia is a scientific journal on plant taxonomy, plant ecology, and ethnobotany. Manuscript intended for a publication should be written in English represent an article which has not been published in any other journal or proceedings. Every manuscript will be sent to two blind reviewers.

Two printed copies (on A4 paper) of the manuscript of not more than 200 pages together with an electronic copy prepared on Word Processor computer program using Time New Romance letter type and saved in Rich Text File must be submitted.

For the style of presentation, authors should follow the latest issue of Reinwardtia very closely. Title of the article should be followed by author's name and mailing address in one-paragraphed English abstract of not more than 250 words. Keywords should be given below each abstract. On a separated paper, author(s) should send the preferred running title of the article submitted.

Taxonomic identification key should be prepared using the aligned couplet type.

Strict adherence to the International Code of Botanical Nomenclature is observed, so that taxonomic and nomenclatural novelties should be clearly shown. Latin description for new taxon proposed should be provided and the herbaria where the type specimens area deposited should be presented in the long form that is name of taxon, author's name, year of publication, abbreviated journal or book title, volume, number and page.

Map, line drawing illustration, or photograph preferably should be prepared in landscape presentation to occupy two columns. Illustration must be submitted as original art accompanying, but separated from the manuscript. On electronic copy, the illustration should be saved in jpg or gif format at least 350 pixels. Legends or illustration must be submitted separately at the end of the manuscript.

Bibliography, list of literature cited or references follow the Harvard system.

REINWARDTIA
Vol. 13. No. 2. 2010
CONTENTS
Page

Reinwardtia is a LIPI acredited Journal (258/AU 1/P2MBI/05/2010)

Herbarium Bogoriense
Botany Division
Research Centre for Biology – LIPI
Cibinong, Indonesia