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A NEW SPECIES OF RAFFLESIA (RAFFLESIACEAE) FROM NORTH SUMATRA

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ABSTRACT
WIRIADINATA, H. & SARI, R. 2010. A new species of Rafflesia (Rafflesiaceae) from North Sumatra. Reinwardtia 13(2): 95–100. — Rafflesia meijeri Wiriadinata & Sari spec. nov. from North Sumatra is described. It appears closely related to R. rochussenii Teijsm. & Binn. from West Java which has no processes on the disk, smaller flower, the lobes with a different wart pattern, a wider groove with thin lamellae on the central column, ramenta filiform without swollen apex.

Key words: Rafflesia meijeri, Rafflesiaceae, North Sumatra, taxonomy.

INTRODUCTION
During an expedition to the north of the Taman Wisata Alam (TWA= Recreation Nature Forest) Sicikeh–cikeh, North Sumatra, in early 2003, it was a surprise that a new species of Rafflesia R. Br. (Rafflesiaceae) encountered. This species is similar to R. rochussenii Teijsm. & Binn. of West Java (Fig.1), which also has no processes on the disc. The genus Rafflesia in the world has at least 27 known species (Mat–Salleh et al., 2010.) This super–parasitic plant with its gigantic flower has long been a source of fascination to botanists and laymen. These species are very rare in nature and of great local and international interest and a major tourist’s attraction (Mat–Salleh & Latiff, 1989). They are threatened by the destruction of their habitat through logging and clearing for e.g. oil palm plantations. Unfortunately, attempts to grow the plants in Botanic Gardens have met with very limited success (Veldkamp, 2007). Recently, however, the Bogor Botanic Garden has successfully cultivated R. patma Blume of West Java. Several species of narrowly endemic have also provided botanists with insights into the evolution and biogeography of tropical biodiversity (See e.g. Barkman et al., 2008; Davis et al., 2007; Barcelona et al., 2009a; 2009b). The taxonomy of the genus Rafflesia is also very unique because the species delimitation is based on details of the flower morphology, since the vegetative part consist of mycelium–like structure living inside the root or bole of the specific host of particularly species of family Vitaceae, especially Tetrastigma coriaceum (DC.) Gagnep. which usually has been misidentified as T. leucostaphyllum (Dennst.) N.P. Balakr. (Veldkamp, 2009). In his revision of Malesian Rafflesiaceae, Meijer (1998) recorded 14 taxa of which seven occur in Indonesia, the rest are distributed in S. Thailand, the Malay Peninsula, N. Borneo (Brunei, Sabah, Sarawak) and The Philippines. Furthermore he united R. titan Jack and R. atjehensis Koord. to R. arnoldi R. Br. thus leaving the Sumatran species he recognized to five species namely R. arnoldi, R. arnoldi var. atjehensis (Koord.) Meijer, and R. micropylora Meijer which is distributed in Aceh, R.
arnoldi and R. gadutensis Meijer in West Sumatra, and R. hasseltii Suringar in Riau and Jambi. Rafflesia arnoldi was considered as widely distributed and to be quite variable in morphology between individual and in populations. Recently a new species Rafflesia bengkuluensis was published by Susatya, Arianto and Mat–Salleh (Susatya et al., 2005), and R. lawangensis Mat–Salleh et al. (2010) which indicated that undescribed, “new” species may still be out there.

Almost all species have processes on the disc except R. rochussenii which occurs on Mt. Salak and Mts. Gede–Pangrango, West Java (Backer & Bakhuizen van den Brink Jr., 1964; Anonim, 1990; Wiriadinata & Alam, 1990; Wiriadinata, 1993; Zuhud et al., 1998; Meijer, 1998). Rafflesia rochussenii var. subaculeata has 1–8 processes and Jafarsidik & Meijer (1985, “1983”) have suggested that this might be a hybrid between R. patma and R. rochussenii.

In the Recreation Natural Forest (TWA) Sicikeh–cikeh, North Sumatra, a small population of Rafflesia occurs which has no processes and after a long study we decided that it represents a new species.

**Rafflesia meijeri** Wiriadinata & Sari, spec. nov. Figs. 2–6.

*Rafflesia rochussenii* simulis disco sine processis, floribus minoribus 13–14 cm diam., ramentis filiformibus apice non inflatis differt. — Type: Indonesia, North Sumatra, TWA Sicikeh–cikeh, Dairi, N: 02° 39´ 826”; E: 98° 23´ 385”, 1320 m asl. 16 Sep. 2003, male fl., Rismita Sari RI 413 (BO–holotype).

*Mature bud ca. 9–10 cm in diam. Male flower ca. 13–14 cm across, ca. 5–6 cm high. Perigone lobes 5–6 x 3.7–4.5 cm, on the upper side coarsely reddish brick–coloured, lower side smooth. Perigone tube ca. 4.5–5 cm high, ca. 9–10 cm wide. Diaphragm ca. 8.5 cm diam., slightly 5–angular, 2.5 cm wide, reddish, ovate–oblong, with whitish orange warts, opening of diaphragm ca. 4.5 cm, wider than in *R. rochussenii*. Ramenta filiform, simple, without a swollen apex, dark red white coloured at the tip, 0.5–2.5 mm up to ca. 8 mm long near base of the perigone tube. Disk ca. 6–6.5 cm diam., rim raised, without processes. Anthers 20. Annulus exterior a curved rim, short, ca. 3 mm. Column ca. 1.5 cm high, ca. 3 cm in diam. at the neck, groove very wide, lamellae with very thin walls.

**Distribution.** Sumatra: endemic to North Sumatra, only known from a male population at the type locality. Type locality Recreation Nature Forest (TWA) Sicikeh–cikeh, North Sumatra, about 1.5 km from Laehole village.

**Habitat.** Secondary hilly forest with moderately steep slopes at 1320 m asl. *Rafflesia meijeri* was found in disturbed hilly primary forest associated with *Fagaceae, Lauraceae, Leguminosae, Rubiaceae, Zingiberaceae, etc.* Flowering: September at the beginning of the rainy season.
Fig. 3. Cross section of *Rafflesia meijeri*. After Rismita Sari RI 413 (drawn by Subari)

Fig. 4. Comparison of ramenta of *Rafflesia rochussenii* and *R. meijeri* (drawn by Subari)
Fig. 5. *R. meijeri* showing simple filiform ramenta (Photo: Harry Wiriadinata)

Fig. 6. *R. meijeri* showing close up simple ramenta (Photo: Harry Wiriadinata)
Notes. It is similar to *Rafflesia rochussenii* which also has no processes on its disk (Meijer, 1998) and occurs on the slopes of Mts. Gede Pangrango National Park and of Mt. Salak, West Java (Anonim, 1990). However, the new species can be easily distinguished by the smaller size of the flower, the pattern of the warts on the diaphragm and perianth lobes, the angular opening of the diaphragm, and the simple filiform ramenta.

Etymology. Named after Prof. Dr. Willem Meijer (1923–2003), in acknowledgement of his contribution toward the study and conservation of *Rafflesia*.

Specimen examined. SUMATRA. Taman Wisata Alam (TWA) Sicikeh–cikeh, Laehole village, Pansur Nauli, Parbuluan, Daeri, North Sumatra, hilly primary forest, 1320 m asl., male flower, 16 Sep. 2003, Rismita Sari RI 413 (BO).

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REFERENCES


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