

A NEW SPECIES OF RAFFLESIA AND NOTES ON OTHER SPECIES FROM TRUS MADI RANGE, SABAH (BORNEO)

KAMARUDIN MAT SALLEH* & A. LATIFF**

SUMMARY

A new species of *Rafflesia*, *R. tengku-adlinii* Mat Salleh & Latiff, is described herein, with illustration and remarks on its distribution. In addition, *R. keithii* Meijer is reported from another locality in the Trus Madi Range, Sabah, and its distribution is also discussed.

INTRODUCTION

Meijer (1984) in his precursory publication for a full-fledged revision of *Rafflesia* R. Br., produced a key to all 13 known species in Malesia. He stressed the need for more intensive collections and surveys to understand the distribution and taxonomy of the genus. The taxonomy of this interesting parasitic plant is indeed very important as it is not only a taxonomic exercise but also of great local and international interest and a major tourist's attraction because of its unique, beautiful, and gigantic flowers.

During several field trips to the Trus Madi Range, Sabah, as part of a wider survey on the floristic composition of this area, the senior author was aware of numerous sightings of *Rafflesia* as communicated by the locals. The *Rafflesia* flowers, known to them as 'yak-yak', were reported to occur occasionally near hunting trails in the deep forests, especially near rivers. Tracing the localities of these plants as reported by them is difficult and time-consuming as they could not easily be located either on the map or on the ground. Nevertheless, through personal communication with the local population, we have been able to locate some sites in the Trus Madi Range. There are at least two species of *Rafflesia* occurring in this Range, as the present collections at Herbarium Universiti Kebangsaan Malaysia Sabah (UKMS) show. Ironically, there has been no previous report of *Rafflesia* from this Range and the virgin forest of this area is disappearing very fast due to the extensive logging activities (Beaman & Jumaat, 1983).

During the first expedition to the summit of Trus Madi on June 24th to July 3rd 1986 via the western side (Sabah Times, 13 July 1986), the senior author discovered five young floral buds of *Rafflesia* along the track from the logging road around Kampung Tempulong towards Kampung Kaingaran. This site was then temporarily

* Biology Department, Universiti Kebangsaan Malaysia, Sabah Campus, Kota Kinabalu, Malaysia.

** Department of Botany, Universiti Kebangsaan Malaysia, 43600 UKM Bangi, Malaysia.

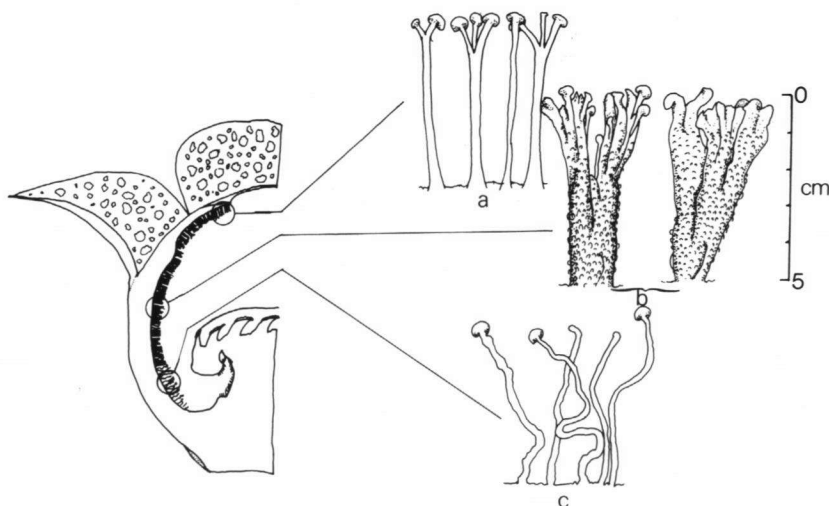


Fig. 1. Cross section of the perigone of *Rafflesia tengku-adlinii* Mat Salleh & Latiff showing variation of rameta. Note their distribution and morphology. — a. Furcate rameta; b. clavate rameta; c. simple rameta.

marked to be investigated on our return trip to the sites some four weeks later hoping that the buds would be blooming. Sadly though, the forest at the site had been cleared as it was within timber concession areas.

The first good specimen collected (*Suhaili & Abdullah s.n.*, UKMS) from Trus Madi was obtained in 1986 from the western side of the Range and was later identified as *R. keithii* Meijer. The second collection was obtained during our trip to the eastern side, after being alerted by the Headman of Kampung Sinoa, our local contact. This specimen possesses characters that do not agree with any of the species described earlier (Meijer, 1984). We hereby describe it as *R. tengku-adlinii*, a species new to science.

***Rafflesia tengku-adlinii* Mat Salleh & Latiff, *spec. nov.* — Fig. 1.**

Flores relative parvi 20,5–23,2 cm diametro; lobi perigonii diaphragmaeque verrucis inclusis aurantiaci apertura atrosanguinea excepta. Rameta mollia 3–5 mm longa interdum clavata ramosa apicibus tumidis sed basin versus minutissima non ramosa. Flores masculi antheris 20. — *Holotypus*: K. Mat Salleh, S. Akin & Ghazally Ismail KMS 2180 (UKMS), Borneo, Sabah, Trus Madi Range, eastern slope near Hulu Sg. Sinsuron at 610 m alt., 20 Dec. 1987, growing on the trailing stem of *Tetrastigma lanceolarium* (Roxb.) Planch. (Vitaceae).

Mature floral buds c. 13 cm in diameter. *Mature flowers* relatively small, 20.5–23.2 cm in diameter. Perigone lobes 7–10 cm long, 12–16 cm wide, diaphragm pentangular, 12.5 cm wide, weakly lobed, 5 cm wide, sexangular opening. *Perigone* lobes and diaphragm orange throughout, including randomly distributed roundish

warts, except an area near the opening, which is progressively dark reddish towards the opening. No white warts occur in any part of the flower. *Ramenta* distributed right up to the opening of the diaphragm, very soft and dense, slightly pustulate, sometimes clavate, 3–5 mm long, branched with somewhat swollen apices; density somewhat reduced towards the opening and the tube base, but those near the opening still branched (as compared to those near the base, which are thread-like and single). *Disk* c. 7 cm in diameter; flattened processi 25, of which 8 occur at the centre and the other 17 are distributed along the outer ring. *Male flower* with 20 anthers with dense bristles on the lower face of the disk's crest and cavities.

Distribution. Borneo: Sabah, Trus Madi Range, eastern slopes near Hulu Sungai Sinsuron at 610 m altitude.

Notes. This species is distinguished from other known species of *Rafflesia* by its smaller flowers (20.5–23.2 cm) and homogeneous orange coloured perigone lobes with roundish orange warts. The ramenta is quite variable throughout the diaphragm and perigone tube (fig. 1). In appearance it shows affinity to the *R. manillana*–*R. borneensis*–*R. patma* group, but differs from them in the ramenta length. It also shows affinity to *R. pricei* Meijer, but differs in bud and flower size, swollen ramenta apices, and wider diaphragm opening.

Meijer (1984) in his notes on *R. keithii* recollected the memory of one small decayed flower of a *Rafflesia* spotted c. 1965 in the forest north of Labuk River east of Telupid. Judging from the position of that locality, which is not too far from the present locality, it might have been the decayed flower of the present, new species.

This new species is named after Tengku D.Z. Adlin, the President of The Sabah Society, and Chairman of the Danum Valley Management Committee, acknowledging his contribution towards nature education and conservation of tropical rain forests in Sabah.

NOTES ON RAFFLESIA KEITHII FROM TRUS MADI RANGE

The specimen of *Rafflesia keithii* from Trus Madi agrees with the description of Meijer (1984) except for certain characters (table 1). Differences in the diameter of

Table 1. Comparison of *Rafflesia keithii* as described and the specimen recently collected from the Trus Madi Range.

| Character | According to Meijer (1984) | Trus Madi Range specimen |
|-------------------|-------------------------------|-----------------------------|
| Flower diameter | 80 cm | 50 cm |
| Perigone diameter | 10–12 cm | 15 cm |
| White warts | 6 rings | 5 rings |
| Ramenta | 5–6 mm | 7–8 mm |
| Disk diameter | 11 cm | 13.5 cm |
| Processi | 38–42 | 46 |

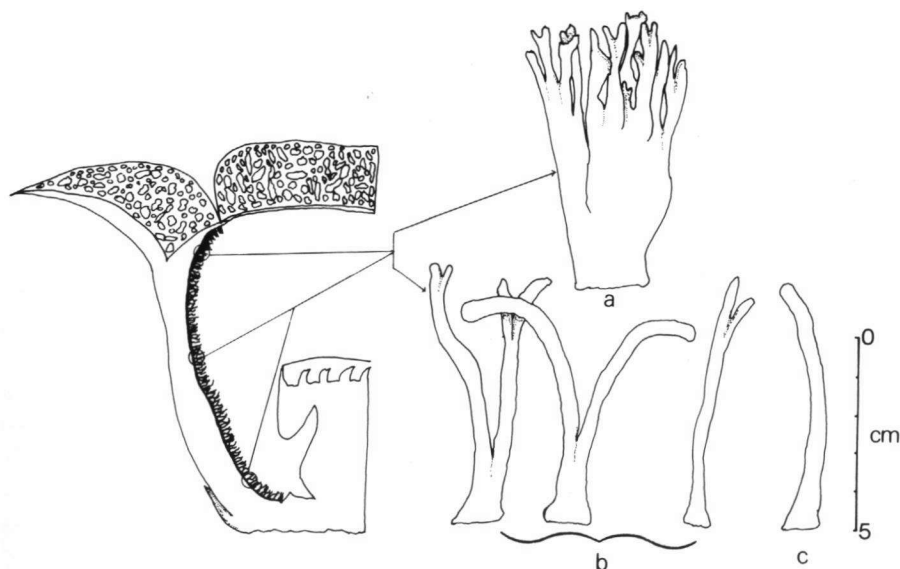


Fig. 2. Cross section of the perigone of *Rafflesia keithii* Meijer showing the variation of ramenta. Note the randomly distributed ramenta inside the perigone tube and also their apices. — a. Clavate ramenta; b. furcate ramenta; c. simple ramenta.

the flower, the number of rings of white warts, ramenta length, and disk diameter may be due to intraspecific variation. However, the number of processi which is 46 instead of 38–42 and the diameter of the perigone are significant. The colour of the warts is also different; white coloration as in the one found at Poring (as shown in the photograph in Corner, 1978) is inconspicuous. It is difficult to ascertain whether this is due to the age or to the real variation of the species, or whether this specimen belongs to another species. Detailed observation is obviously warranted. The ramenta variation is illustrated here (fig. 2).

***Rafflesia keithii* Meijer, Blumea 30 (1984) 211 – Fig. 2.**

Flower c. 50 cm in diameter, perigone lobes with numerous smaller warts interspersed with larger ones, c. 15 cm wide, orange coloured throughout. *Diaphragm* with large opening, exposing all processi and the disk, with 5 rings of small warts, each surrounded with a dark redbrown margin and the lower face without a white blot. Inside of *perigone tube* densely covered with 7–8 mm long ramenta, often fascicled near the diaphragm opening but less so downward towards the base, mostly branched but without swollen apices. *Disk* 13.5 cm in diameter; processi 46, flattened.

Specimen studied. *Suhaili & Abdullah s.n.*, Borneo, Sabah, western slope of Trus Madi at Kampung Tempulong, 14 Nov. 1986.

Note. Although Meijer (1984) reported 'kuku anga' as a vernacular name for this plant, this is erroneously dictated. According to Mr. Saidi Jonti, a Kadazan headman of Kampung Sinoa, 'kuku anga' is in fact the name for *Nepenthes*, and the actual name for *Rafflesia* is 'yak-yak'.

THE DISTRIBUTION OF RAFFLESIA IN TRUS MADI RANGE

The new localities of *Rafflesia* from the Trus Madi Range reported here are not only very significant in terms of new sites, but also show their distributional pattern along the eastern parts of the Crocker Range, Gunung Kinabalu area in the north and the Trus Madi Range in the east.

Rafflesia tengku-adlinii is the only species known to occur on the western slopes of the Trus Madi Range. *Rafflesia pricei* is known to be found along the eastern part of the Crocker Range. So far two localities were known (fig. 3). *Rafflesia keithii*, on the other hand, which was reported from along Tambunan-Keningau-Tenom slopes of the Crocker Range and Poring (Meijer, 1984), appears to be sympatrically distributed with *R. pricei* (l.c.). In fact *R. keithii* is now known to occur on the western slope of the Trus Madi Range as reported here. This represents the most eastern limit of the species distribution. However, Beaman and Jumaat (1983) have noted that

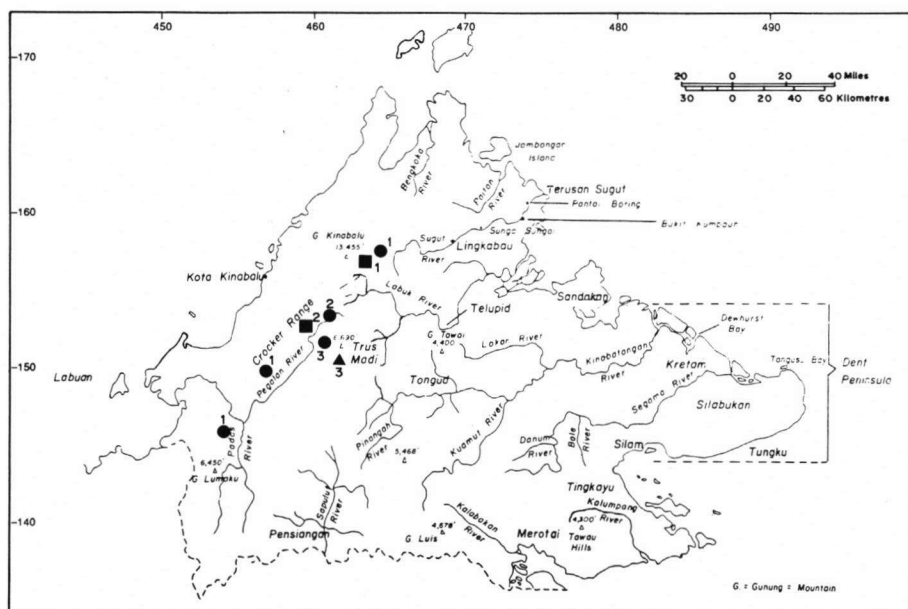


Fig. 3. Localities of some *Rafflesia* species in the Crocker and Trus Madi Ranges. — ● = *R. keithii* Meijer; ■ = *R. pricei* Meijer; ▲ = *R. tengku-adlinii* Mat Salleh & Latiff; 1 = according to Meijer (1984); 2 = according to Beaman & Jumaat (1983); 3 = this report.

Rafflesia has never been reported from the western side of the Crocker Range, although it is very common along the eastern parts. This report has modified this statement.

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