Nepenthes from Borneo, Singapore and Sumatra

by

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This paper comprises the result of an expedition to Indonesian Islands in search of *Nepenthes*. It records thirteen species and describes two of them as new taxa. All but one were collected during this research trip made by the author and G. Mikil (participant from Malaysia) to Borneo, Singapore, Java and Sumatra in March 1972.

The new taxa are *N. campanulata* and *N. rhombicaulis*. The author is grateful to Drs. C. X. Furtado and K. L. Chang for their kind assistance.

1. *Nepenthes alata* Blanco, Fl. Filip., ed. I, p. 805 (1837).

SUMATRA: West Sumatra, Bukittinggi, en route to Lake Manindjau, 1100 m alt., *Kurata & Mikil 4101, 4102, 4103.*

Distribution. Philippines, Malaya, Sumatra and Borneo.

The plants grow on the sand-stone cliff of a river. The two wings on the pitcher wall are not ciliated at the margins. The leaf is sessile and the stem is remarkably trigonous with the wider wings. By these characters the Sumatran plants vary from those of the Philippines.

2. *Nepenthes ampullaria* Jack, Comp. Bot. Mag., I, p. 271 (1835).

SINGAPORE: MacRitchie Reservoir, 50 m alt., *Kurata & Mikil 4030, 4031, 4032.* SUMATRA: North Sumatra, near the headwater of Asahan river, 800m. alt., *Kurata & Mikil 4309, 4310, 4311, 4312, 4313.*

Distribution. Malaya, Singapore, Borneo, Sumatra and New Guinea.

3. *Nepenthes bongso* Korth., Verh., Nat. Gesch. Bot. p. 19, t. 14 (1839).

SUMATRA: West Sumatra, Mt. Talang, 1540–1950 m alt., *Kurata & Mikil 4245, 4246, 4247, 4248, 4249, 4250, 4251, 4252.*

Distribution. Sumatra.

4. *Nepenthes campanulata* Kurata, **sp. nov.** (Pls. 1 & 2) — *Nepenthes campanulata* (nomen nudum) Kurata, The Heredity, Vol. 26, No. 10, p. 44 & 50 (1972).

Planta tenuis, breviter scandens. *Caulis* 20–35 cm altus, 3–4 mm crassus, cylindricus, glaber. *Folia* sessilia, 5–7 cm longa, 1.2–2 cm lata, spathulato-lanceolata, basi $\frac{3}{4}$–$\frac{4}{5}$-amplexicaulia, apice rotundata et leviter peltata, coriacea, utrinque glabra; nervi longitudinales utrinque 2–3, nervi transversales obscure, oblique ascendentes; cirrhus tenuis, 2.5–4 cm longus, cylindricus, glaber. *Ascidia* monomorphia, campanulata, 4.5–7 cm longa, parte inferiore cylindrica vel leviter ventricosa, 1–1.5 cm lata,

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parte superiore infundibuliformia, 3.5–5.5 cm lata, luteo-viridia, diffuse purpureo-maculata, herbacea, glabra, intus parte $\frac{1}{4}$ inferiore glandulosa, costis 2 prominentibus; os circulare, fere horizontale; peristomium fere 0, breviter denticulatum; operculum elliptico-oblongum, 1.2–1.5 cm longum, facie inferiore planum; calcar ca. 1 mm longum, filiforme. *Inflorescentia* ignota.

Stem slender, shortly climbing, 20–35 cm high, the part with adult leaves 3–4 mm thick, cylindrical, glabrous. *Leaves* scattered, coriaceous, sessile, spathulate-lanceolate, 5–7 cm long, 1.2–2 cm broad, the base $\frac{3}{4}$–$\frac{4}{5}$ amplexicaul, rounded and slightly peltate at the apex; longitudinal nerves 2–3 on both sides, pinnate nerves obliquely ascending; both surfaces glabrous; tendril slender, 2.5–4 cm long, cylindrical, glabrous. *Pitchers* herbaceous, campanulate, 4.5–7 cm high, 1–1.5 cm broad at the lower cylindrical or slightly ventricose part, 3.5–5.5 cm broad in the upper infundibuliform part, with 2 prominent ribs; mouth circular, almost horizontal; peristome almost none, the minute teeth fringing the mouth; inner surface of the pitcher glandular in the lower $\frac{1}{4}$ part; the pitcher yellow-green with purple-spots, glabrous; lid elliptic-oblong, 1.2–1.5 cm long, under surface plain; spur filiform, about 1 mm long. *Inflorescence* unknown.

Typus: *A. Kostermans 13764* (SING.); foot of Mt. Ilas Bungaan, East Borneo, 300 m. alt., Sept. 9, 1957.

This new species is closely related to *N. inermis* Danser of Sumatra by its slender habit and campanulate pitcher without conspicuous peristome. However present species differs clearly from the latter by the lamina with peltate portion near the apex, elliptic-oblong lid of a remarkably small size (its length always measures less than $\frac{1}{4}$ of the mouth-diameter) and existence of glandless but waxy zone which occupies greater part of the inner surface of the pitcher. The digestive glands on the inner surface of the pitcher are all round (not overarched) and are only distributed in the bottom part with a sparse density of 100–250 glands per square cm. Also, colour of dried specimen distinctly differs from that of *N. inermis*. Danser described the dried specimens of *N. inermis* as blackish in all parts (examined by the author), but those of present species are reddish brown all over. See addendum on p. 232.

Though this specimen collected by A. Kostermans is the only one and has no inflorescence, these characters mentioned above sufficiently support the author's conclusion that this species is a new one. *N. campanulata* is not a natural hybrid as there is not any known species having these characters which could claim to be its parental species.

Distribution of *N. campanulata* seems limited to a particular area presumably owing to its habitat which is noted as the sand and limestone walls at an altitude of 300 meters by the collector, whereas *N. inermis* was found only on high places (1800–2590 m. alt.) in the mountains in central Sumatra.

5. *Nepenthes carunculata* Dans., Bull. Jard. Bot. Buitenz. ser. III, Vol. IX, p. 277 (1928).

SUMATRA: West Sumatra, Mt. Talang, 1900–2000 m alt., *Kurata & Mikil 4218, 4219, 4220, 4221, 4222, 4223.*

Distribution. Sumatra.

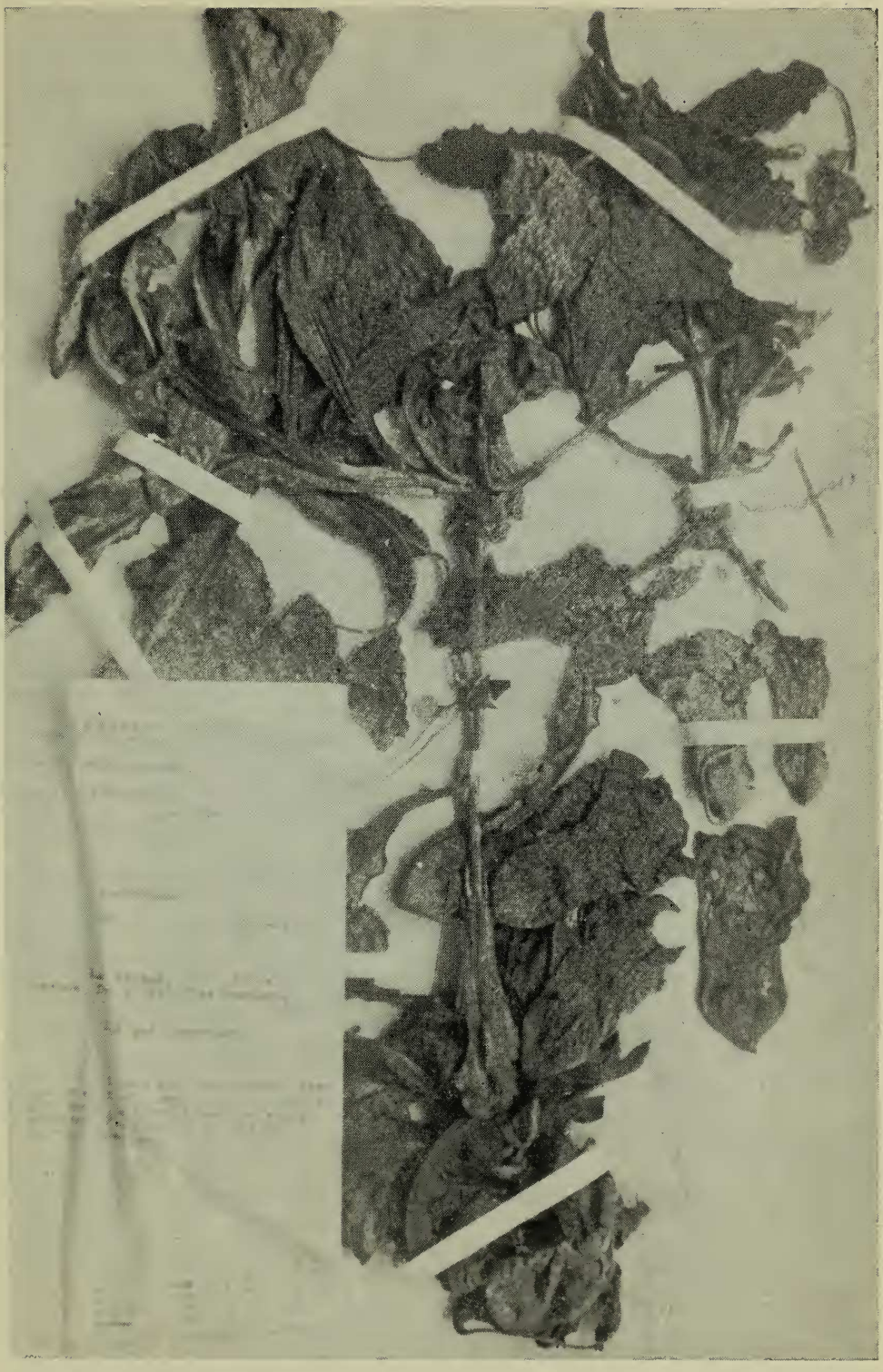

Plate 1. *Nepenthes campanulata* Kurata (x 0.5).

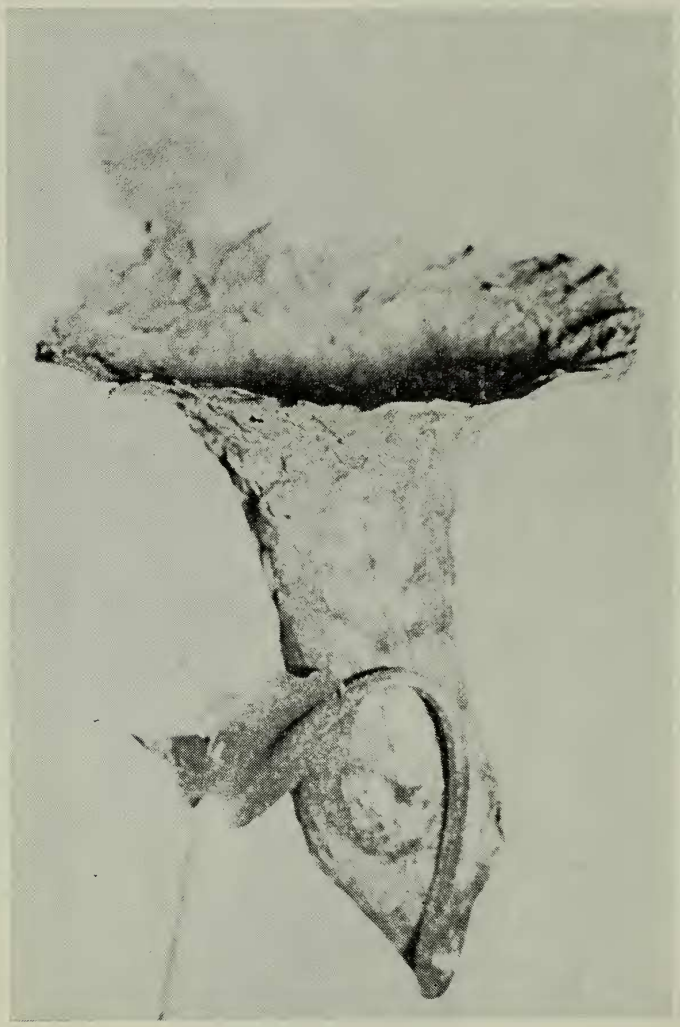

Plate 2. *Nepenthes campanulata:* a pitcher (x 1.5).

6. *Nepenthes dubia* Dans., Bull. Jard. Bot. Buitenz. ser. III, Vol. IX, p. 285 (1928).

SUMATRA: West Sumatra, Mt. Talang, 1500–2000 m alt., *Kurata & Mikil 4230, 4231–a, 4231–b, 4233, 4234, 4235, 4236.*

Distribution. Sumatra.

7. *Nepenthes gracilis* Korth., Verh., Nat. Gesch. Bot. p. 22, t. I & IV, ic. 1–38 (1839).

BORNEO: Sabah, Bukit Padang, near Kota Kinabalu, 300 m alt., *Kurata & Mikil 4020, 4021, 4023.* SINGAPORE: MacRitchie Reservoir, 50 m alt., *Kurata & Mikil 4050, 4051, 4052.*

Distribution. Borneo, Sumatra, Celebes, Malaya and Singapore.

8. *Nepenthes mirabilis* Druce, Fl. coch., II, p. 606 (1790).

SUMATRA: West Sumatra, Indarung, 10 km east from Padang, a swampy shrub, 250 m alt., *Kurata & Mikil 4256, 4257, 4258, 4259, 4260, 4261, 4262, 4263.*

Distribution. Southern China, Indochina, Malaya, Singapore, Java, Sumatra, Borneo, Philippines, Moluccas, New Guinea and Australia.

This species varies somewhat on each island. In the case of Sumatran plants the pitcher is very narrow and its peristome has a distinctly flattened surface.

9. *Nepenthes pectinata* Dans., Bull. Jard. Bot. Buitenz. ser. III, Vol. IX, p. 350 (1928).

SUMATRA: West Sumatra, Mt. Singgalang, 2400–2600 m alt., *Kurata & Mikil 4202, 4203, 4204, 4205, 4206;* Mt. Merapi, 2400 m alt., *Kurata & Mikil 4211, 4212, 4213, 4214, 4215, 4216.*

Distribution. Sumatra.

10. *Nepenthes rafflesiana* Jack, Comp. Bot. Mag., I, p. 270 (1835).

BORNEO: Sabah, Bukit Padang near Kota Kinabalu, 300 m alt., *Kurata & Mikil 4006, 4007, 4008, 4009, 4010, 4011, 4012.* SINGAPORE: MacRitchie Reservoir, 50 m alt., *Kurata & Mikil 4040, 4041.*

Distribution. Malaya, Singapore, Borneo and Sumatra.

11. *Nepenthes rhombicaulis* Kurata, **sp. nov.** (Fig. 1) — *Nepenthes rhombicaulis* (nomen nudum) Kurata, The Heredity, Vol. 26, No. 10, p. 44 (1972).

Planta robusta, alte scandens. *Caulis* 5–20 m altus, 5–10 mm crassus, quadratus vel rhomboides, glaber. *Folia* sessilia, 12–22 cm longa, 3–4 cm lata, lanceolata, herbacea, basi $\frac{1}{2}$–$\frac{2}{3}$ amplexicaulia, utrinque glabra, margine ferrugineo-pubescentia, supra lucido-viridia, subtus luteo-viridia, nervi longitudinales utrinque 2–3, nervi transversales obscure, oblique ascendentes; cirrhus tenuis, 10–13 cm longus, cylindricus, glaber, luteo-viridis. *Ascidia inferiora et rosularium* 6–12 cm longa, 2.5–3.5 cm lata, parte inferiore ventricosa, parte superiore cylindrica, rubro- vel pallido-viridia, diffuse purpureo-maculata, coriacea, sparse pubescentia, intus parte $\frac{2}{5}$ inferiore glandulosa, bialata, alis margine dentatis; os orbiculare obliquum; peristomium 3–5 mm latum, subcylindricum, rubrum, margine exteriore expansum, undulatum, margine interiore denticulatum; operculum elliptico-oblongum, 1.7–2.5

Fig. 1. *Nepenthes rhombicaulis* Kurata *A*. upper portion of a climbing stem (x 0.5); *B*. male inflorescence (x 0.5); *C*. female inflorescence (x 0.5); *D*. rosette leaves with pitchers (x 0.5); *E*. male flower (x 5); *F*. capsules (x 1).

cm latum, facie inferiore prope apicem appendiculatum; calcar ca. 5 mm longum, filiforme; *ascidia superiora* ignota. *Inflorescentia* 30–40 cm longa, racemosa, pedunculus 15–20 cm longus, glaber, pedicelli 10–15 mm longi, biflori; sepala 4, elliptica, 4 mm longa, 3 mm lata, extus minute tomentosa; columna staminae 4 mm longa, antherae 8, uniseriatae; capsula 20–25 mm longa, 5 mm lata, fusiformis, brunneo-nitida, leviter puberula, valvae lanceolatae.

Stem climbing up to 20 m high, the part with adult leaves 5–10 mm thick, quadrate or rhomboid, glabrous; often short shoots and rosettes at the base of older plants. *Leaves of the rosettes and short shoots* scattered, the lamina small, several cm long, lanceolate; *Leaves of the climbing stem* scattered, herbaceous, sessile, lanceolate, 12–22 cm long, 3–4 cm broad, the base $\frac{1}{2}$–$\frac{2}{3}$ amplexicaul; both surfaces glabrous, the margin ferrugineous pubescent; the upper surface lucid-green, the under surface yellow-green; longitudinal nerves 2–3 on both sides, pinnate nerves running obliquely ascending; tendril slender, 10–13 cm long, cylindrical, yellow-green, glabrous. *Pitchers of the rosettes and the short shoots* coriaceous, 6–12 cm high, 2.5–3.5 cm broad, ventricose in the lower part, cylindrical in the upper part, with 2 wings, the margins of the wings toothed; mouth oblique, circular; peristome subcylindrical, 3–5 mm broad, reddish, outer margin of the peristome expanded and undulated, interior margin toothed; inner surface of the pitcher glandular in the lower $\frac{2}{5}$ part; the pitcher red- or pale-green with purple-spots, sparsely pubescent; lid elliptic-oblong, 1.7–2.5 cm broad, with an appendage situated nearer to the apex on the under surface; spur filiform, about 5 mm long; *Pitchers of the climbing stem* unknown. *Inflorescence* a raceme, 30–40 cm long, the peduncle 15–20 cm long, glabrous; pedicels 10–15 mm long, 2-flowered, sepals 4, elliptical, 4 mm long, 3 mm broad, the outer surface minute tomentose; staminal column 4 mm long, the anthers 8, uniseriate; capsules fusiform, 20–25 mm long, 5 mm broad, bright-brown, slightly pubescent; valve lanceolate.

Typus: *S. Kurata 4300* [male] and *4301* [female] (Herb. Nippon Dental College, Tokyo); Mt. Pangulubao near Perapat, North Sumatra, 1700–1900 m alt., March 29, 1972.

This species has a peculiar stem with four sharp-angled ridges; two of them are connected with elongated mid-ribs of two leaves while the remaining two are connected with leaf margins. As a result of such characters the cross-section of the stem is either rhomboid or square depending on the level of the stem sectioned. The pitchers are soft and breakable and are found only on the rosette leaves and those of the short shoots. The pitchers do not seem to arise from the leaves of the climbing stem. The rosette leaves and those of the short shoots are sometimes coloured with purple-green and fringed with distinct reddish-brown hairs at the margins.

This plant is comparatively common in the subalpine forest of the western slope of Mt. Pangulubao and its distribution seems widely scattered on the mountains around Lake Toba.

12. *Nepenthes singalana* Becc., Malesia III, p. 4 & 12, t. III (1886).

SUMATRA: West Sumatra, Mt. Singgalang, 2400–2600 m alt., *Kurata & Mikil 4207, 4208, 4209, 4210;* Mt. Merapi, 2500 m alt., *Kurata & Mikil 4211–a, 4211–b.*

Distribution. Sumatra.

13. *Nepenthes tobaica* Dans., Bull. Jard. Bot. Buitenz ser. III, Vol. IX, p. 382 (1928).

SUMATRA: North Sumatra, near Perapat, Lake Toba, 1000 m alt., *Kurata & Mikil 4266, 4267, 4268, 4269, 4270, 4271, 4272;* Mt. Pangulubao, 1500–1700 m alt., *Kurata & Mikil 4273, 4274, 4275, 4276, 4277, 4278, 4279, 4280;* Mt. Sibajak, 1800 m alt., *Kurata & Mikil 4286, 4287, 4288, 4289, 4290, 4291, 4292, 4293.*

Distribution. Sumatra.

Addendum to Nepenthes campanulata

A special expedition was organised by Dr. A. J. G. H. Kostermans in 1957 to Mount Ilas Bungaan, an area in N. E. Kalimantan. Kostermans was informed by Dayaks that the rock was named such because it was completely overgrown with flowers (ilas = rock, bungaan = flowering). It took him 14 days to travel through unknown country to reach that rock. The steep 300-ft rockface was completely covered by a yellowish coloured Nepenthes here described as a new species.

Moreover, when climbing the rockface with cane-ropes, antique rock graves were found with well preserved wooden carved coffins, still containing skeletons of which some were headless.