A JOURNAL ON TAXONOMIC BOTANY,
PLANT SOCIOLOGY AND ECOLOGY

REINWARDTIA

Editors
KUSWATA KARTAWINATA
MIEN A. RIFAI

Published by
HERBARIUM BOGORIENSE
LEMBAGA BIOLOGI NASIONAL — LIPI
BOGOR, INDONESIA

Reinwardtia Vol. 10, Part 2, 107 — 270 23 July 1985

IO ISSN 0034 — 365X

REIN WARDTIA
Published by Herbarium Bogoriense — LBN, Bogor
Vol. 10, Part 2, pp. 107 — 111 (1984)

THREE NEW NEPENTHES FROM SULAWESI TENGAH

J. R. TURNBULL & A. T. MIDDLETON
A.I.N., 575 Avenue Rd. Apt. 202, Toronto, Ontario Canada, MUV 2K2

ABSTRACT

Three new high mountain forest taxa of Nepenthaceae are described from Central Sulawesi. The new species are *Nepenthes glabratus, N. hamatus* and *N. infundibuliformis.* Existing material at Herbarium Bogoriense indicated that all three are widespread in Central Sulawesi.

ABSTRAK

Tiga jenis Nepenthaceae penghuni hutan pegunungan di Sulawesi Tengah dipertelakan. Jenis-jenis tadi adalah *Nepenthes glabratus, N. hamatus* dan *N, infundibuliformis.* Bahan-bahan yang ada di Herbarium Bogoriense menunjukkan bahwa ketiga jenis ini tersebar luas di Sulawesi Tengah.

This paper is a preliminary report of three new taxa of Nepenthaceae collected on a botanical survey undertaken by both authors in Sulawesi Tengah, Indonesia from 14 August to 11 November, 1983. The new taxa are: *Nepenthes glabratus, N. infundibuliformis* and *N. hamatus.*

A more formal report with photographs and an expanded diagnosis will be published as soon as we return to Canada. Type material will be deposited at the Herbarium Bogoriense and duplicate material will be distributed to other leading herbaria. All sheets collected by us, bearing the same collection number were obtained from the same plant unless indicated otherwise. Alphabetic characters appending the collection number designate individual sheets.

1. Nepenthes glabratus Turnbull & Middleton, *spec. nov.*

Liana caulis cylindricis vel triangularibus glabris, foliis adultis alternantibus coriaceis glabris sessilibus vel subpetiolatis linearibus obtusis basin versus non decurrentibus, nervis lateralibus inconspicuis, nervis longitudinalibus parallelis utrinque 1-2. Ascidia superiora glabra subtubulosa breviter incurvata, alae simpliciae vel costis duabus prominentibus. Os oblique rotundatus; peristomio cylindrico vel applanato, costis indistinctis; operculo orbiculato. Racemis unifructus.

Preprinted on 10 February 1984.

Stems climbing, cylindrical or triangular. Leaves of the climbing stem scattered, sessile to slightly petiolate; lamina linear, up to 12 cm long, 2 cm broad, obtuse at the apex, base clasping the stem for 1/2the width and not decurrent; pennate nerves inconspicuous, longitudinal nerves 1 or 2 on each side, originating from the base, running parallel to the margin in the outer 1/3 of the lamina; tendrils as long or longer than the lamina. Pitchers of the climbing stem abruptly originating from the tendril, shortly incurved, almost tubulose, with simple wings, or 2 prominent ribs over the whole length; mouth oblique and round; peristome cylindrical to flattened, 1 - 2.5 mm broad, the ridges indistinct; lid orbiculate and of the same size as the mouth opening. Fruit on a one-flowered raceme. Indumentum absent from all vegetative parts of the climbing stem. — TYPE: Sulawesi Tengah, Tri Tunggal Eboni Corp. Lumber Concession, 120°55'E 1°33'S, 1666 m, *Turnbull & Middleton 83113a*, fr., 31/8/83 (BO).

DISTRIBUTION: This species has a wide distribution in Sulawesi Tengah, with known populations as much as 200 air kilometers apart on 3 mountain chains.

ECOLOGY: At all of the sites observed, the plants were growing with *N. maxima* Nees in open high mountain forest; usually clmbing into low bushes or short trees to flower.

DERIVATION : This name was chosen due to the lack of any conspicuous indumentum on all vegetative parts of the adult plant. The wings of the upper pitchers are often retained without fringe.

In this species two forms of rosettes were observed in the field. The first, seen most often in young plants, has extremely linear leaves with long filiform tendrils ending in small globose pitchers (well represented in *Eyma, 3585a).* The second rosette type was found on mature plants. Rosettes were growing on ground stems which had become buried in moss. In these rosettes the leaf blade was greatly reduced or nearly absent; forming a rosette reminescent of those found on *N. ampullaria* Hook f. (Danser, 1928, pg. 266).

REPRESENTATIVE SPECIMENS EXAMINED: Sulawesi Tengah, Tri Tunggal Eboni Corp. Lumber Concession, 1666 m, *Turnbull & Middleton 8311Sb-g, 83114,* 31/8/83: G. Towako, 1625 m, *Turnbull & Middleton 83080-9S,* **16/8/83; G. Lumut north spur, *Eyma* 3585, *8585a,* 8/9/88** (BO): Boro-Poena, 1700-1800 m. *Eyma 1604.,* 10/8/37 (BO).

2. Nepenthes hamatus Turnbull & Middleton, *spec. nov.*

N. dentata Kurata ***(rwmen** tmdum) "Nepenthes* of Mount **Kinabalu"** pg. 11, 1976.

Liana caulis cylindricis vel triangularibus glabris, foliis alternantibus coriaceis glabris sessilibus ellipticis vel lanceolatis acutis vel obtusis basi conspicue obliquis cordatis subamplexicaulis, nervis lateralibus patentibun

nervis longitudinalibus parallelis utrinque 3-4 ad basin laminarum ortis. Ascidia superiora usque ad 20 cm longa, parte basalibus sensim attenuatis, parte basalibus 1/3 subovoidea apicem versus angustata tubulosa plerumque alae fimbriatae. Os conspicue obliquis ellipticis, operculum versus acutis; peristomio cylindrico vel applanato, 1-3 mm lato, hamato, hamatae ad basin 1-2 mm diametro, sensim attenuato, in ore incurvato, 4-6 mm distantio margine exterioribus insertis; operculo elliptico vel ovato plerumque appendiculis filiformibus obtectis, infructescentiis racemiformibus ebracteatis, pedicellis unifructus.

Stem climbing. Leaves of the climbing stem scattered, coriaceous, sessile; lamina elliptic to lanceolate, up to 15 cm long, 2 cm broad, base very oblique, almost amplexical and cordate, tip acute to obtuse; pennate nerves more or less transversely running towards the margin, longitudinal nerves 3-4 on a side originating at the base and running parallel in the outer 2/3 of the lamina; tendrils up to twice as long as the lamina, usually with a curl. Pitchers of the climbing stem up to 20 cm, gradually originating from the tendril, almost ovate in the lower 1/3narrowing, becoming tubular or gradually expanding towards the mouth with 2 fringed wings or 2 prominant ribs; mouth very oblique, elliptic, acute towards the lid; peristome cylindrical or flattened, 1-3 mm wide, with hooks spaced uniformly around the outer edge, 4-6 mm apart; hooks 1-2 mm wide at the base, gradually attenuate and curving into the mouth orifice with up to a 7 mm diameter arch; lid elliptic to ovate, rounded at the base, as long and wide as the mouth and usually with filiform appendages on the upper surface. Fruit on a raceme; pedicels 1-flowered without bract; tepals 1.5-2 mm long. Indumentum of variable hairs. TYPE: Sulawesi Tengah, G. Lumut west ridge, 121°39'E l°07'S, 1850-1900 m, *Turnbull & Middleton 83121a,* fr., 19/9/83 (BO).

DISTRIBUTION: This species has a very wide distribution in Sulawesi and has been found in several different mountain systems by a number of collectors.

ECOLOGY: *Nepenthes hamatus* was observed and collected by one or both of us at two locations. At both sites the plants were growing only at the top of very steep ridges and no other species of *Nepenthes* were observed in the immediate area. All specimens were rooted in the moss and climbing into those trees which overhung a steep cliff. The populations ended where the grade of the ridgeside became gradual enough to support forest growth.

DERIVATION: The name chosen refers to the well developed and unique hooked appendages attached to the peristome and vaulting into the mouth of the pitcher. We feel that the name dentata (teeth) does not adequately distinguish this species from many other *Nepenthes* taxa which also possess conspicuous teeth of one form or another.

In this species the development of the hooks is quite variable; large pitchers on adult climbing stems best show the feature. The seedlings or young plants with intermediate sized pitchers can be distinguished from *N. tentaculata* Hook. f. by the presence of a distinctly ridged peristome (the height of the ridges being greater than the distance between adjacent ridges). Individual pitchers on a single plant can exhibit wide variations in this feature. In *N. tentaculata* the peristome has minute or inconspicuous ridges only (Danser 1928, pg. 380).

REPRESENTATIVE SPECIMENS EXAMINED: Sulawesi Tengah, G. Lumut west ridge, 1850-1900 m, *Turnbull & Middleton 83121b-f, 8S122-32,* 19/9/83; G. Lumut north ridge, *Eyrna 3572, 3572bis, 357S,* 3/9/38 (BO); *3648,* 5/9/38 (BO). G. Sojol (G. Ogoomas), 2500 m, *Middleton 83166-78, 83185-97,* 27/10/83; Mt. Roroda Timbu summit, 2450 m, *Balgooy SS35,* 14/5/79 (BO); Tomongkobae Mts., *Eyma 39(19, 3969a, 3970,* 9/10/38 (BO); G. Poka Pindjang. 2000-2200 m, *Kjellberg 1492,* 28/5/29 (BO).

3. Nepenthes infundibuliforrais Turnbull & Middleton, *spec, nov.*

Liana caulis cylindricis, inovationibus extra-axillaribus saepe spiniformis 2 cm longis, foliis adultis alternantibus coriaceis petiolatis oblongis ad ellipticis obtusis vel acutis, basi obtusis, petioli anguste alatis, nervis inconspicuis. Ascidia superiora basi contracta incurvata usque ad 1⁄2 eylindrica, caetera infundibuliformibus, sub peristomio subcontracta, costis duabus prominentibus; os orbicularibus horizontalibus parte posterioribus exceptis; peristomio cylindrico vel subcompresso costata sub collum erectum, 1.5 cm longus abrupte expansa, usque ad 8 mm; operculo subspathulato, parte anguste superiora obtusis longis, carte Into basalibus abrupte orbicularis basi subcordatis; appendice basalibus glandulosis angulato-falcatis, appendice apicalibus glandulosis filiformibus. Racemis plerumque bifloratis in parte basalibus. Partibus iuvenilibus dense pilosis, pili variabilis, persistentibus in caulibus, parte inferioribus petiolis, floribusque.

Stems climbing, the part with adult leaves up to 8 mm thick, cylindrical and with extra-axillary buds often forming 2 cm long spikes 5 mm above the leaf axis. Leaves of the climbing stem coriaceous, scattered, petiolate; lamina oblong to elliptic, up 20 cm long, 7 cm broad, obtuse to acute at the apex, petiole narrowly winged clasping 1⁄2 of the stem, nervation indistinct; tendril about 2 times the length of the lamina. Pitchers of the climbing stem originating abruptly from the tendril with a wide curve and remaining a uniform diameter to 1/2 the height of the pitcher, gradually and uniformly expanding then rapidly but shortly contracted at the mouth; ribs prominent; mouth horizontal at the front and sides, 8 cm in diameter and circular; peristome rounded to slightly flattened with ribs 1/3-2/3 mm apart, 4 mm wide in front abruptly expanding to 8 mm at the short, perpendicular and 1.5 em high neck; lid elongate,

spathulate, slightly cordate at the wide base, obtuse to abruptly rounded at the apex, with an 8 mm long, hook shaped glandular crest at the base and a 12 mm long filiform glandular appendage at the tip. Fruit on a raceme, mostly 2 flowered in the lower part. Hairs variable, abundant on all young parts, persistant on the stem, lower surface of the petiole, and flower parts. — Type: Sulawesi Tengah, G. Lumut Kecil, 121°41'E 1°03'S, 1500 m, *Turnbull & Middleton 83148a*, fr., 20/9/83 (BO).

DISTRIBUTION: This species is widely distributed in the eastern arm of Sulawesi Tengah.

ECOLOGY: The plants we observed were growing on a narrow mossy ridge with *N. tentaculata.* All plants were growing rooted in the moss, and climbing stems extended into trees overhanging a cliff. Only climbing stems in well exposed areas were flowering and most of the leaves of these stems bore pitchers.

DERIVATION: This name was chosen because of the funnel shaped pitcher.

This species most closely resembles the extremely variable *N. maxima* (Danser 1928, pg. 325-7). The shape of the pitcher of the climbing stem however is sufficiently unique in both its exaggerated funnel shape and narrow elongated lid that we feel justified in the establishment of a separate species.

REPRESENTATIVE SPECIMENS EXAMINED: Sulawesi Tengah, G. Lumut Kecil, 1500 m, *Turnbull & Middleton 83148b-n, 83142-7,* 20/9/83: G. Loemoet (Lumut), *Eyma 3571,* 3/9/38 (BO); Tomongkobae Mts., *Eyma 3968,* 9/10/38 (BO).

ACKNOWLEDGEMENTS

We wish to thank LBN-LIPI for sponsorship of this project, the staff of the Herbarium Bogoriense for assistance, Dr. A. Kostermans for the latin translations and the Ambulatory Institute of Nepentheology for financial support.

LITERATURE CITED

1. DANSER, B. H. (1928). The *Nepenthes* of the Netherlands Indies. *In* Bull. Jard. Bot. Buitenz., serie III, Vol. IX, Livr. 3-4.
2. KURATA, S. (1976). Nepenthes *of mount Kinabalu.* Sabah National Parks Publ., Kota Kinabalu, Sabah, Malaysia.

CONTENTS

VOL. 10. NO. 2