

**NEPENTHES FLAVA,
A NEW SPECIES OF NEPENTHACEAE
FROM THE NORTHERN PART OF SUMATRA**

ANDREAS WISTUBA¹, JOACHIM NERZ² & ANDREAS FLEISCHMANN³

SUMMARY

Nepenthes flava Wistuba, Nerz & A. Fleischm. is described as a new species from northern Sumatra. It is described and illustrated, including a comparison with the supposed relatives *N. inermis* Danser, *N. ovata* Nerz & Wistuba and *N. jacquelineae* C. Clarke, Troy Davis & Tamin.

Key words: *Nepenthes*, Sumatra, carnivorous plants.

INTRODUCTION

In terms of the number of known *Nepenthes* species the flora of Sumatra is one of the richest in the world. In recent years several new species have been discovered and described, such as *Nepenthes adnata* Tamin & Hotta ex Schlauer, *N. angasanensis* R. Maulder, D. Schub., B. Salmon & B. Quinn, *N. aristolochioides* Jebb & Cheek, *N. diatas* Jebb & Cheek, *N. lavicola* Wistuba & Rischer, *N. longifolia* Nerz & Wistuba, *N. mikei* B. Salmon & R. Maulder, *N. tenuis* Nerz & Wistuba, *N. jacquelineae* and *N. xiphioides* B. Salmon & R. Maulder (Nerz & Wistuba, 1994; Jebb & Cheek, 1997; Clarke, 2001). The number of known Sumatran species is even higher than the number of Bornean species, thus Sumatra certainly can be called a hotspot of evolution of Nepenthaceae. It can be assumed that some members of *Nepenthes* may have evolved quite recently; many species like *N. singalana* Becc. and *N. bongso* Korth. are quite variable and are closely related to each other. Some of the species however have very distinct and unique characteristics, such as e.g. the rimless *N. inermis* or the recently discovered *N. jacquelineae* with its monstrous peristome (Clarke, 2001). A new species of *Nepenthes* that had been discovered on a mountain in northern Sumatra is now described from cultivated material.

Nepenthes flava Wistuba, Nerz & A. Fleischm., *spec. nov.* — Fig.1

Folia mediocria, lamina lanceolata-spatulata, nervis longitudinalibus 3, vagina caulis 1/2 amplexente. Ascidia rosularum ovate infundibuliformia, alis 2 fimbriatis; peristomio operculum versus acuminato 8–10 mm lato. Operculo anguste ovato; facie inferiore

- 1) Author for correspondence: andreas.wistuba@t-online.de; address: Mudauer Ring 227, 68259 Mannheim, Germany.
- 2) Arndtstraße 2, 71032 Böblingen, Germany.
- 3) LMU München, Department Biology I, Biodiversity Research, Systematic Botany and Mycology, Menzingerstrasse 67, 80638 Munich, Germany.

carinata. Ascidia superiora mediocria, parte inferiore tubulosa, supra infundibuliformes, ore expanso, peristomio operculum versus acuminato 5–15 mm lato, margine exteriore expanso et undulato. Inflorescentia racemosa, pedicellis 4–11 mm longis omnibus 1-floris. — Typus: *Wistuba cult. Wistuba 100201* (holo L; iso L), Northern Sumatra, 1800 m, material from a specimen in cultivation.

The plants grow as basal rosette only for a short time and start climbing early. Climbing plants reach several metres in height.

Stem almost round in cross section, c. 3 mm diam., green to dark red, internodes 2–14 cm long, glabrous, only young developing parts sparsely covered by red-brown basally branched hairs 0.2–0.5 mm long. *Leaves* oblong to narrowly obovate, 7–9 by 1.5–2.5 cm, yellowish green, with glabrous margins; lamina with three prominent longitudinal nerves and indistinct reticulate nerves. The leaf-base clasps 1/2 to 3/4 of the perimeter of the stem. *Tendrils* 18–24 cm long, with curl, widely curved near the pitcher; young developing pitchers and tendril tips densely covered by red-brown hairs 0.5–1 mm long. *Pitchers* dimorphic, yellow to yellowish green in colour, rarely reddish, never spotted, peristome cream to light yellow, rarely red, occasionally with a few red stripes. *Lower pitchers* ovate-infundibulate, 4–7 by 3–4 cm, with two fringed wings in the upper third of the pitcher, the wings 2–3 mm wide with filiform fringes c. 5 mm long; *peristome* cylindrical to slightly expanded, folded or crenellated on the outer edge, 8–10 mm wide and finely ribbed, the ribs 0.1–0.2 mm apart; pitcher mouth round, slightly elongated to the back without a neck, or at most with just a slightly developed one; *lid* 2.5–3.5 by 1.5–2 cm, narrowly ovate, elongated to linear with a glandular crest at the base of the lower surface; spur unbranched, filiform, 3–4 mm long; nectar glands circular, 0.3 mm diam., scattered over the lower surface of the lid, but concentrated around the midrib and glandular crest. *Upper pitchers* tubular in the lower part, infundibulate in the upper part; pitchers originate abruptly from the hanging end of the tendril; *peristome* flattened, partially expanded, 5–15 mm wide at both sides of the pitcher, outer margin distinctly crumpled, finely ribbed, the ribs 0.1–0.3 mm apart; *lid* elongated, ovate-cordate to linear, slightly truncate at the apex, 3–4 by 1.8–2.5 cm, bearing a slightly developed crest at the base; spur unbranched, filiform, 3–4 mm long; nectar glands circular, 0.3 mm diam., scattered over the lower surface of the lid, concentrated around the midrib and glandular crest. *Male inflorescence* 6–7 cm long, racemose, with 15–40 flowers; peduncle 3–4 cm long; pedicels 1-flowered, 4–6 mm long, usually with a basal bract of 2–3 mm length; tepals ovate, 2–3 by 1 mm, with nectar glands, tepal margins densely covered with short, curved red-brown hairs c. 0.2 mm long; androphore 3 mm long, anther head 1–1.5 mm diameter. All parts of the inflorescence yellow and covered by yellowish brown, short, branched hairs 0.5–1 mm long. *Female inflorescence* 6–7 cm long, racemose, with 15–25 flowers; peduncle 5–8 cm long; pedicels 1-flowered, 8–11 mm long, usually with a basal bract of 3–4 mm length; tepals ovate, 2–3 by 1 mm, with nectar glands, tepal margins densely covered with short, curved red-brown hairs c. 0.2 mm long; ovary 3–4 mm long, densely covered by red-brown hairs 0.5–1 mm long. All parts of the inflorescence yellow and covered by yellowish brown, short, branched hairs 0.5–1 mm long. Fruit and seed not seen.

Distribution — Northern Sumatra highlands (exact locality withheld for conservation purposes).

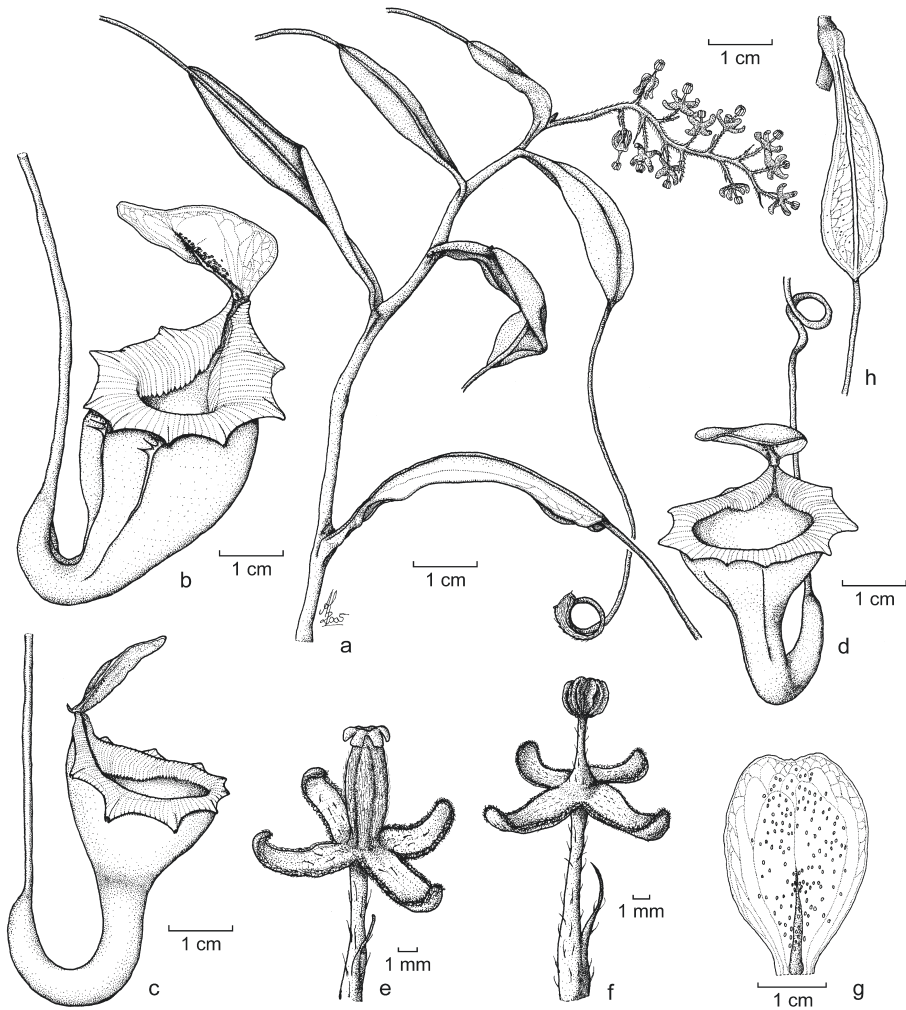


Fig. 1: *Nepenthes flava* Wistuba, Nerz & A. Fleischm. a. Habit of male plant; b. lower pitcher; c. upper pitcher, lateral view; d. upper pitcher, frontal view; e. female flower; f. male flower; g. underside of lid; h. leaf venation pattern (*Wistuba cult.*).

Ecology — Terrestrial in montane forests, between 1800–2200 m above sea level. In more open parts of the *Rhododendron–Leptospermum*-forest, where the trees and shrubs typically do not exceed 4–5 m in height. *Nepenthes flava* grows together with *N. mikei*, *N. ovata* Nerz & Wistuba, *N. rhombicaulis* Kurata and *N. spectabilis* Danser in this area.

Notes — 1. Hybrids: A few natural hybrids were observed, such as *N. flava* × *ovata* and *N. flava* × *rhombicaulis*. Most of the hybrids however were juvenile plants still in the rosette stage. No hybrids with *N. mikei* or *N. spectabilis* were observed.

Table 1. A comparison of *Nepenthes flava* with other northern Sumatran *Nepenthes* species.

	<i>N. flava</i>	<i>N. inermis</i>	<i>N. ovata</i>	<i>N. jacquelineae</i>
Rosette pitcher Pitcher shape and dimensions	Infundibulate, slightly constricted towards the mouth; up to 7 cm tall and 4 cm wide	Infundibulate, slightly constricted towards the mouth; up to 5 cm tall and 2 cm wide	Ovate; up to 25 cm tall and 9 cm wide	Infundibulate-ovate; up to 6 cm tall and 4 cm wide
Peristome shape and dimensions	Finely ribbed, crumpled on the outer margin; 8–10 mm wide	Flattened, very finely ribbed; 3–4 mm wide	Widening around the sides towards the back, up to 4 cm wide	Slightly ribbed, flattened and extremely expanded horizontally; up to 10 mm wide
Lid shape and dimensions	Narrowly ovate to elongated to linear, with glandular crest; up to 3.5 by 2 cm	Narrowly cuneate to ovate; up to 2 by 7 mm	Ovate with a large glandular appendage (up to 0.5 cm) at the base; up to 6 by 4 cm	Ovate, not cordate; up to 1 by 8 mm
Glands of pitcher lid	Glands 0.3 mm diam., scattered but concentrated near the midrib and the glandular crest	Inconspicuous	Small glands scattered, large glands concentrated near the midrib and on the appendage	Glands 0.5 mm diam. concentrated near midrib and apex; 1 mm diam. glands scattered
Upper pitcher Pitcher shape and dimensions	Lower part tubular, upper part infundibulate; up to 8 by 6 cm	Lower part tubular, upper part widely infundibulate to expanded; up to 8 by 5 cm	Lower part tubular to narrow infundibulate, upper part infundibulate to ovate; up to 20 by 5.5 cm	Lower part narrowly infundibulate, upper part widely infundibulate; up to 15 by 10 cm
Peristome shape and dimensions	Cylindrical, finely ribbed, distinctly crumpled on the outer margin; up to 15 mm wide	Almost absent	Broadly cylindrical, distinctly ribbed; up to 10 mm wide	Slightly ribbed, flattened and extremely expanded horizontally; up to 3.5 cm wide.
Lid shape and dimensions	Elongated ovate-cordate to linear, slightly truncate at the apical part, glandular crest at the base; up to 4 by 2.5 cm	Very narrowly cuneiform; up to 5 by 4 mm	Ovate; up to 6 by 4 cm	Narrowly ovate; up to 5 by 2 cm
Glands of pitcher lid	Glands 0.3 mm diam., scattered but concentrated near the midrib and the glandular crest	Inconspicuous	Small glands scattered, large glands concentrated near the midrib	Glands of 0.5 mm diam. concentrated near midrib and apex; 1.5 mm glands scattered

2. Concerning its affinity, *N. flava* is a very interesting species. It appears to be a link between common Sumatran species such as *N. ovata*, and two outstanding species – *N. inermis* and *N. jacquelineae*. *Nepenthes flava* shares many characteristics with *N. inermis*, such as infundibulate pitchers, the narrow lid, and the tendency to grow straight upwards with long internodes and short leaves in the juvenile state. The pitchers of seedlings of *N. flava* somewhat resemble those of *N. inermis*. *Nepenthes flava* also shows similarities to *N. jacquelineae*, such as its infundibulate lower and upper pitchers, a well-developed rim, and the narrow lid. *Nepenthes flava* might represent an intermediate between *N. ovata* of northern Sumatra and the unusual *N. inermis* of the western Sumatran mountains, and would confirm Danser's hypothesis in which he united common species familiar to him, i.e. *N. bongso*, *N. carunculata* Danser and *N. singalana*, with the distinctive species *N. inermis* and *N. dubia* Danser into the subgenus *Montanae* Danser (Danser, 1928). *Nepenthes ovata*, *N. jacquelineae* and others were not known at this time, but it seems likely he would have included them in subgenus *Montanae* as well.

3. Etymology: The specific epithet '*flava*' refers to the bright yellow colour of the upper pitchers and most of the lower pitchers. Climbing plants especially give the impression of a mainly yellow plant.

4. Table 1 gives an overview of the differences between *N. flava* and three related species of northern Sumatra.

Specimens examined:

Wistuba 100201 (L), female plant with flowers, N Sumatra, 1800 m: holotype. *Wistuba 100202* (L), male plant with flowers, N Sumatra, 1800 m. *Wistuba 100203* (L), rosetted plant, sterile, N Sumatra, 1800 m. *Wistuba 100204* (L), sterile, N Sumatra, 1800 m. *Wistuba 100205* (M), rosetted plant, sterile, N Sumatra, 1800 m.

REFERENCES

- Clarke, C. 2001. *Nepenthes of Sumatra and Peninsular Malaysia*. Natural History Publications (Borneo), Kota Kinabalu.
- Danser, B.H. 1928. The *Nepenthaceae* of the Netherlands Indies. *Bull. Jard. Bot. Buitenzorg* III, 9: 3–4.
- Jebb, M. & M. Cheek. 1997. A skeletal revision of *Nepenthes* (*Nepenthaceae*). *Blumea* 42: 1–106.
- Nerz, J. & A. Wistuba. 1994. Five new taxa of *Nepenthes* (*Nepenthaceae*) from North and West Sumatra. *Carniv. Pl. Newsl.* 23: 101–114.