

A NEW SPECIES OF *TRAPA* (TRAPACEAE) FROM KASHMIR

JAN J. WÓJCICKI

Abstract: *Trapa kashmirensis*, a new species from Wular Lake in Kashmir, is described and illustrated. It differs markedly by its fruit morphology from all other members of the genus, primarily by the characteristic long upper horns and strongly reflexed lower horns, the longest known in the genus.

Key words: *Trapa*, new species, description, fruit, morphology, Indian Subcontinent

Jan J. Wójcicki, Department of Vascular Plants Systematics, W. Szafer Institute of Botany, Polish Academy of Sciences, Lubicz 46, PL-31-512 Kraków, Poland; e-mail: wojcicki@ib-pan.krakow.pl

In the course of a revision of comparative herbarium material of the *Trapa* L. genus in the Natural History Museum in Stockholm (S) for a taxonomic project on the Tertiary *Trapa* of Europe an interesting morphotype of fruit collected in Wular Lake, Kashmir was found, and proved to be a new species. Additional material collected from the same locality was subsequently located in the fruit and seed collections of the Botanic Garden and Botanical Museum Berlin-Dahlem (B).

***Trapa kashmirensis* Wójcicki, sp. nov.** (Fig. 1)

Fructus quadricornis, ambitu obtriangularis, collo incluso 21–24 mm altus, 55–62 mm latus; collum 3–4 mm longum, 3–6 mm latum, corona nulla; linea media bene conspicua; cornua longissima, superiora divaricata vel horizontaliter divergentia, 25–28 mm longa, inferiora retroflexa, ca 30 mm longa, omnia longe spinosa; inter cornua superiora et inferiora tubercula magna adsunt; anulus basalis minutus, ca 1 mm longus; cicatrix minuta, ca 1 mm diametro.

Fruits of medium size, obtriangular in outline, with four very long spiny horns; fruit 21–24 mm high (including neck), width of fruit at upper horns 55–62 mm; fruit about 2.0–2.5 times as wide as high; fruit head pronounced, 10–13 mm long, its upper end located below the line joining the raised bases of the upper horns, bearing a well-developed neck usually gradually narrowing towards the base; neck 3–4 mm long and 3–6 mm

broad, slightly protruding beyond the line joining the bases of the upper horns, corona lacking; apical aperture with ring of upward-pointing hairs; surface of fruit head and neck finely ribbed; upper horns narrowly triangular in outline, 25–28 mm long, characteristically abruptly raised at base, gradually attenuate into straight elongate, thin, spine-like tips, ascending to horizontal (0°–40°), with a smooth surface except for retrorsely barbed spines (harpoons) at least 5 mm long; lower horns strongly retrorse, straight, up to 30 mm long, 8–10 mm wide near base, inserted below the center of fruit body, with pronounced cavity at the base; length of lower horn/length of fruit ratio 1.3–1.4; frame of fruit well developed; on the fruit frame between the bases of the upper and lower horns, solid tubercles up to 5 mm long and up to 5 mm wide are present, sometimes filling the frame between the upper and lower horns almost completely; lower part of fruit body narrowly obtriangular in outline, truncate at base, its surface, on one side only, covered with five protruding longitudinal ribs; fruit base with a small smooth ring, up to 1 mm high; basal scar small, up to 2 mm in diameter.

HOLOTYPE: Kashmir, Wular lake, 5200 ft, July 1909, *Keshavanand 1273* (S).

PARATYPES: Indien, Himalaya, Wular See bei Shrinagar, 03.1939, *S. Ch. Koul s.n.* (B, ex herb. Glück);

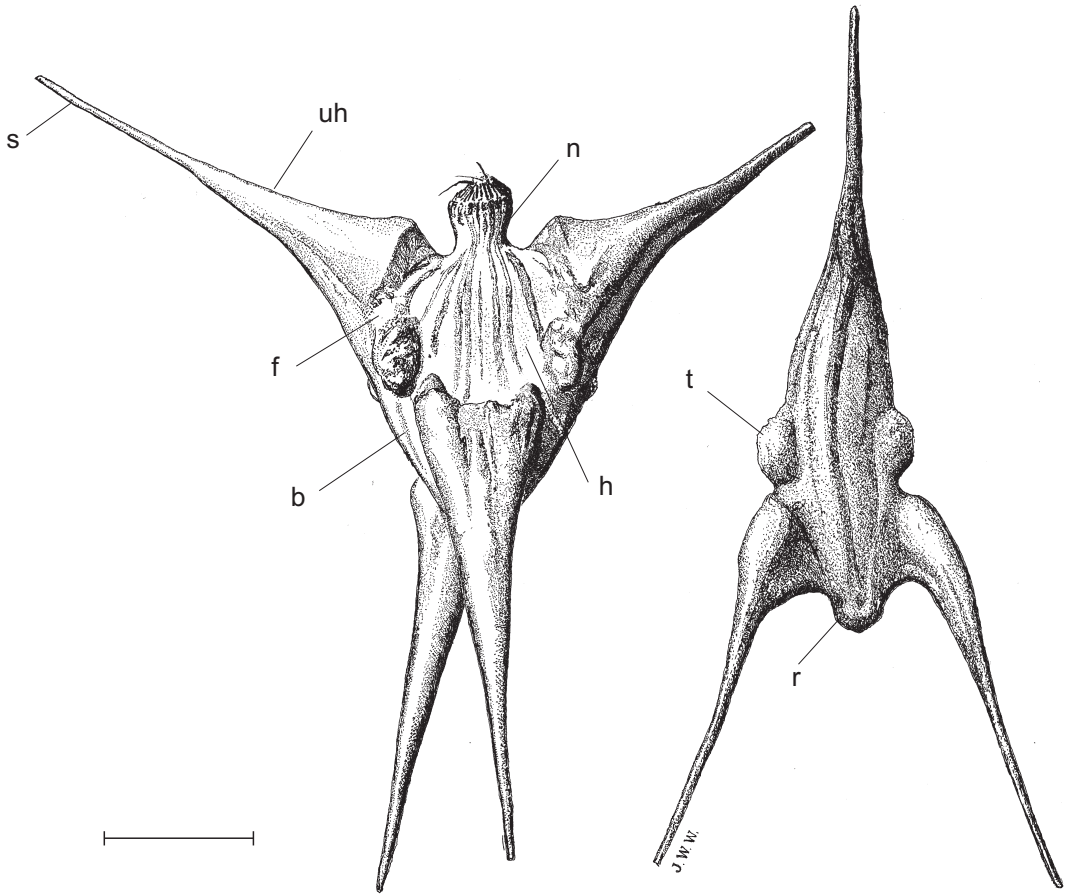


Fig. 1. Holotype of *Trapa kashmirensis* Wójcicki (*Keshavanand 1273, S*). Scale bar = 1 cm. b – body, f – frame, h – head, lh – lower horns, n – neck, r – ring, s – spine, t – tubercle, uh – upper horn.

Himalaya, aus Wular See, 03.1939, *S. Ch. Koul s.n.* (B, No. 9924 – fruit and seed collection).

ETYMOLOGY. The specific epithet refers to the region of the northwestern Indian Subcontinent where the known collections originated.

DISTRIBUTION. *Trapa kashmirensis* is known only from the type locality in Wular Lake, the largest natural freshwater lake of the Indian Subcontinent, located in the Jammu and Kashmir territories at alt. ca 1550 m.

Taxonomy of the genus *Trapa* is based primarily on fruit (endocarp) morphology. *T. kashmiren-*

sis, sp. nov., represents a new fruit morphotype that has never been reported previously, either extant or fossil (e.g., Nakano 1914; Flerov 1926; Vasiliev 1949, 1965, 1973; Puri 1951; Miki 1952; Szafer 1954; Janković 1958; van Cuong & Vidal 1973; Li & Chang 1977; Staszkiwicz & Wójcicki 1979, 1981; Gregor 1982; Daniel *et al.* 1983; Mai 1985; Xiong *et al.* 1985; Givulescu & Ticleanu 1986; Kadono 1987; Verdcourt 1998; Wójcicki *et al.* 1999).

Hugo Glück recognized this taxon as distinct, annotating the label attached to the *Koul* fruit collection in his herbarium (now at B) with an unpublished name '*Trapa indica* Glk. var. *quadricauda-*

ta Glk. f. *tuberculosa* Glk.', for his planned but never-published monograph of the genus.

The newly described species shows no close relationship with any taxon described to date. Its unique features include its very long, spiny upper horns, strongly retrorse lower horns which are the longest known in the genus, 1.3–1.4 times as long as the fruit body including the neck, and the large tubercles on the frame, between the bases of the upper and lower horns (Fig. 1).

In gross morphology, *T. kashmirensis* somewhat resembles *T. acicularis* V. N. Vassil. (= *T. natans* var. *africana* Brenan) known from Uganda, Africa (Brenan 1953; Vasilev 1965) by its relatively long, upward-pointing to almost horizontal upper horns and long retrorse lower horns. However, it differs from that species in a number of features, the most conspicuous being the shape of the upper and lower horns, which in *T. acicularis* are more slender, with thin and almost equal arms, the lower horns being shorter than the height of the fruit body including the neck, inserted at or above the center of the fruit body, as well as the dimensions of the neck (shorter in *T. acicularis*) and tubercles (much smaller in *T. acicularis*).

In the abundant material from Glück's herbarium housed in B, collected from Wular Lake and surrounding swamps, there are also fruits with two horns and the distinctive morphological characteristic of *T. bispinosa* Roxb. s.l., as well as many forms variously intermediate between *T. bispinosa* and *T. kashmirensis*, suggestive of a hybrid swarm. This material is the subject of ongoing studies, to be presented separately.

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