

## *Neckera noguchiana* (Neckeraceae, Bryopsida), a new species from Nepal

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*Neckera noguchiana* M.C. Ji & Enroth *sp. nova* (Neckeraceae) is described from Nepal and illustrated in line drawings. It somewhat resembles *N. denigricans* Enroth from Vietnam; the differences between the two and some other species with which *N. noguchiana* might be confused, including *N. pennata* Hedw., are discussed.

Key words: *Neckera*, new species, taxonomy

While examining *Neckera* material (H) from Asia for the Ph.D. project of the first author, he came across a specimen collected in 1972 in Nepal and identified by A. Noguchi as a variety of *N. himalayana*. However, the varietal name typed on the label was never published and for some reason Noguchi never reported the specimen in any publication.

We compared the Nepalese specimen with several Asian species of *Neckera* in H and concluded that it represents an hitherto undescribed species not very closely resembling *N. himalayana*. We are pleased to name this species in honor of Akira Noguchi (1907–1988).

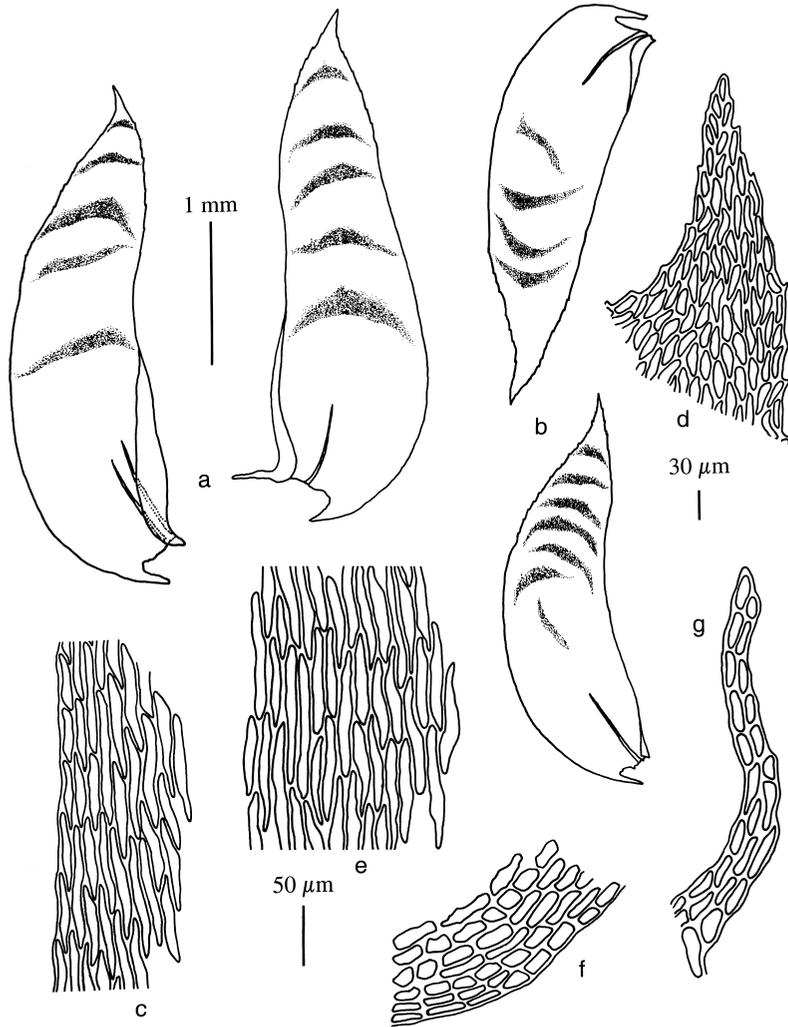
***Neckera noguchiana*** M.C. Ji & Enroth, *sp. nova* (Fig. 1)

*Habitu similis Neckeræ pennatae et N. bhutanensi, sed folia caulis ad 3.2(–3.5) mm longi,*

*bases foliorum longe decurrentia etc.; a N. denigrantis differt praecipue foliis longioribus et parietibus cellularum non porosis.*

HOLOTYPE: East Nepal. Between Dor and Chitre, 2500 m, on trunk, 7.VII.1972 *Iwatsuki* 2363 (H!, “The 5<sup>th</sup> Bot. Exped. to E. Himalaya by Univ. of Tokyo”).

Plants gregarious, robust, probably at least partly pendent, strongly glossy, green to yellowish, (sub) pinnately or irregularly branched, stolons creeping, bearing small, scaly leaves. Stems to ca. 11 cm long, ca. 6–7 mm wide with leaves, densely leaved, in cross-section (through basal parts) elliptic, with small, thick-walled epidermal cells surrounding 3–(4) layers of thick-walled cortical cells, which become larger inwards and grade to larger, thinner-walled medullary cells; central strand none. Rhizoids in tufts in leaf axils, unbranched or scarcely branched, brownish-orange, smooth. Stem leaves complanate-spreading, to 3.2(–3.5) × 0.9(–1.1) mm, nar-



**Fig. 1.** *Neckera noguchiana* (from holotype). — **a**: Stem leaves. — **b**: Branch leaves. — **c**: Margin at midleaf. — **d**: Stem leaf apex. — **e**: Median laminal cells. — **f**: Alar region. — **g**: Pseudoparaphyllium. Scale bars: 1 mm for a and b, 50  $\mu\text{m}$  for c and e–g, 30  $\mu\text{m}$  for d.

rowly ovate-lanceolate, strongly asymmetric, sometimes nearly cultriform above, deeply and regularly undulate, long-decurrent (decurrencies to ca. 330  $\mu\text{m}$  long); apex acute or acuminate; leaf margins plane or partly incurved on side below; weakly serrulate above midleaf. Costa weak, single, rarely double, length ranging from very short to nearly 1/2 of leaf length, mostly not over 1/3 of leaf length. Leaf cells smooth, relatively thin-walled, not distinctly porose, cell walls slightly incrassate only in corners and in 2–3 most basal rows; apical laminal cells oblong or rhomboidal, ca. 20–25  $\times$  6–7  $\mu\text{m}$ ; median laminal cells elongate-rhomboidal or sublinear, ca. 60–85  $\times$  6–7  $\mu\text{m}$ ; basal laminal cells similar to median laminal cells, shorter, ca. 35–50  $\times$  6–7

$\mu\text{m}$ ; alar cells few and indistinct, (sub)rectangular to quadrate, ca. 8–15  $\times$  5–10  $\mu\text{m}$ . Branch leaves similar to stem leaves but smaller, ca. 2.5(–2.8)  $\times$  0.8(–0.9) mm, with larger marginal teeth. Pseudoparaphyllia narrowly lanceolate, to ca. 250  $\mu\text{m}$  long. Perigonia, perichaetia and sporophytes unknown.

*Neckera denigrans*, described from Vietnam by Enroth (1996), is morphologically closest to *N. noguchiana*: both species have a similar leaf shape, long leaf decurrencies, and a mostly single, short and weak costa. However, *N. denigrans* has larger leaves, the stem leaves being up to 4.3 mm long and 1.5 mm wide; distinctly porose walls of the laminal cells; and scattered paraphyllia.

Another species of comparison is *N. himalayana* described from India (Sikkim) by Mitten (1859). It is distributed from Sri Lanka and India through the Himalayan region to Burma, Bhutan and Thailand (Noguchi 1971, Enroth 1996). *Neckera himalayana* differs from *N. noguchiana* in its almost symmetric leaves with obtuse apices, a much longer costa reaching to 4/5–5/6 of leaf length, shorter decurrencies, and smaller leaf cells with clearly thicker, porose walls.

*Neckera bhutanensis*, described by Noguchi (1971), has some superficial resemblance to *N. noguchiana*. However, the former has nearly non-decurrent leaves, much larger pseudoparaphyllia (as illustrated in the protologue), and the leaves are clearly smaller.

*Neckera noguchiana* should also be compared with the widely distributed *N. pennata*. These species share a suite of characters as regards the leaf undulations, serrulate leaf margins, costa, and leaf areolation. The main differences between these two species are in the size of laminal cells, and particularly in the length of decurrencies. In *N. pennata*, the median laminal cells are ca. (30–)40–55(–65) × (5–)7–10 μm (measures combined from Lawton 1971 and Ignatov & Ignatova 2003; our own observations on Asian specimens agree), whereas in *N. noguchiana* they measure ca. 60–85 × 6–7 μm. The leaf decurrencies in the latter reach ca. 330 μm in length, but in *N. pennata* they are much shorter. There is also a clear, albeit perhaps not fully consistent, difference in the leaf shape: the leaves of *N. noguchiana* are, on average, more strongly asymmetric and curved.

Four species of *Neckera* have been reported from Nepal: *N. noguchiana*, *N. crenulata*, *N. pennata* and *N. himalayana* (Noguchi *et al.* 1966, Noguchi & Iwatsuki 1972, Iwatsuki 1979). They can be identified by the following key:

1. Leaf apex acute; costa mostly ending below 1/3 of leaf length; walls of apical laminal cells not porose ..... 2
1. Leaf apex obtuse, often somewhat apiculate; costa reaching to 1/2 of leaf length or more; walls of apical laminal cells distinctly porose ..... 3
2. Leaf decurrencies to ca. 330 μm long; median laminal cells ca. 60–85 × 6–7 μm ..... *N. noguchiana*
2. Leaf decurrencies clearly shorter than above; median laminal cells ca. 40–55 × 7–10 μm ..... *N. pennata*
3. Stems and branches complanate; margins of leaf apices weakly crenulate; seta to ca. 2 cm long .. *N. himalayana*
3. Branches not complanate; margins of leaf apices distinctly serrate or denticulate; seta to ca. 1.2 cm long ..  
..... *N. crenulata*

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