Distichochlamys benenica (Zingiberaceae), a new species from Vietnam

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ABSTRACT. *Distichochlamys benenica* (Zingiberaceae) from north Vietnam is described. Colour plates are provided and the key to *Distichochlamys* species is updated.

Keywords. *Distichochlamys*, Vietnam, Ben En National Park

Introduction

The small ginger genus *Distichochlamys* M.F.Newman is endemic to Vietnam. The type species of the genus, *D. citrea* M.F.Newman, was based on collections from central Vietnam, Bach Ma National Park (Newman 1995). Since then, another two species, *D. orlowii* K. Larsen & M.F.Newman (Larsen & Newman 2001) from central Vietnam, Gia Lai Province, and *D. rubrostriata* W.J.Kress & Rehse (Rehse & Kress 2003) from northern Vietnam, Cuc Phuong National Park, have been described. Morphologically, *Distichochlamys* resembles *Scaphochlamys* Baker but differs by the distichous arrangement of the bracts and tubular bracteoles (vs. spiral bracts and open bracteoles in *Scaphochlamys*). Larsen & Newman (2001) suggested that placing *Distichochlamys* in synonymy under *Scaphochlamys* could not be ruled out yet as early molecular analyses did not seem to be conclusive (Searle & Henderson 2000; Ngambriabsakul 2001). In the more recent studies of Kress et al. (2002) and Ngamriabsakul et al. (2004), the two genera appear to be distinct sister-clades. The geographic disjunction of over 1000 km between *Distichochlamys* and *Scaphochlamys*, which is confined to Malaysia and S. Thailand, provides additional support for retaining them as separate genera.

During recent exploration of northern Vietnam, we encountered a new *Distichochlamys* species, which is described and illustrated below. The key to the species of *Distichochlamys* given by earlier authors (Larsen & Newman 2001; Rehse & Kress 2003) is modified to include the latest addition.

Distichochlamys benenica Q.B.Nguyen & Škorničk., **sp. nov.** (Fig. 1 & 2)
Distichochlami rubrostriatae similis, robustior ad 60 cm alta (contra ad 30 cm), staminodiis lateralibus luteis (contra luteis maculis duabus linearibus atrorubris), labello in parte dimidia basali macula rubella (contra clare lutea) differt. TYPE:

Vietnam, Thanh Hoa Province, Nhu Thanh District, Ben En National Park, altitude c. 120–150 m, mixed evergreen forest, limestone, 5 April 2011, *Nguyen Q.B. VNM-B0001352* (holo VNMN; iso E, HN, P, SING).

Terrestrial rhizomatous herb to 60 cm tall. ***Rhizome*** sympodially branching, c. 7–13 mm in diam., light brown externally, cream white to ochraceous internally with prominent citrol smell, sheathing bracts not seen (decaying very soon and leaving only scars on mature rhizomes), ***root tubers*** fusiform, 3–8 cm long, 7–10 mm in diam., light brown externally, cream white to ochraceous internally. ***Leafy shoots*** with a single leaf, tightly arranged forming clumps. ***Sheathing bracts*** 1–3, inner one to 6 × c. 2 cm wide, outer ones gradually smaller, papery and decaying fast by the time of flowering, glabrous. ***Leaf sheaths*** 3–5 cm, deep purple, glabrous. ***Ligule*** bilobed, c. 3 mm long, papery, glabrous, soon decaying. ***Petiole*** 8–25 cm long, canaliculate, dark red-purple, glabrous. ***Lamina*** oval to obovate, unequal, 15–28 × 10–14.5 cm, plicate, green above, lighter green with purple shading at the apex beneath, apex subacute to nearly rounded, base rounded to slightly cordate. ***Inflorescence*** to 15 cm, partly hidden in leaf sheath. ***Peduncle*** 3–6 cm, c. 4 mm in diam., glabrous, with 2–3 sterile bracts, the outer ones papery, to 6 cm long, decaying fast, the inner ones red purple, c. 3–5 cm long, glabrous, 2 cm broad, apex acuminate. ***Spike*** 6–10 cm long, consisting of 8–13 bracts. ***Bracts*** ovate with acute apex; with more or less pink-red tinge, 1.8–3.2 × 1–2.2 cm, glabrous, enclosing cincinnus of 2–3 flowers. ***Bracteoles*** 13–23 mm long, 8–20 mm in circumference, tubular in basal 2–6 mm, with one keel, translucent white with pink tinge at apex, sparsely shortly hairy. ***Calyx*** 15–19 mm long, translucent white with slight pink tinge, glabrous but sparsely hairy at apex (margins of teeth), 3 teeth, unilateral slit 8–10 mm. ***Floral tube*** 18–21 mm, pinkish at base, light yellow towards apex, glabrous externally. ***Dorsal corolla lobe*** ovate, 16–23 × 6–7 mm, semi-translucent yellow with red tinge at apex, glabrous, apex mucronate, mucro 2.5 mm, shortly hairy. ***Lateral corolla lobes*** ovate, 16–20 × 6–8 mm, semi-translucent yellow with red tinge at apex, apex slightly concave, glabrous. ***Labellum*** broadly spathulate, bilobed at apex, 21–23 mm long, 18–21 mm broad at apex, c. 5 mm broad at base, lobes more or less rounded, split c. 7–8 mm, yellow with red-orange central patch, with short glandular hair. ***Lateral staminodes*** obovate, 20–24 × 7–10 mm, yellow, covered with glandular hairs. ***Stamen*** 7 mm long, ***filament*** 2.5–3 mm long, pinkish at base, light yellow towards apex, glabrous, ***anther*** 5 mm long, anther thecae dehiscing along their entire length, connective tissue deep yellow, covered with glandular hairs, anther crest c. 1 mm long. ***Epigynous glands*** two, 4–6mm, cream white sometimes with slight pink tinge at base, ochraceous towards apex, sometimes connate. ***Ovary*** trilocular with axile placentation, 2–3 mm long, 2 mm in diam., cream white with slight pink tinge at apex, densely hairy. ***Style*** white, glabrous, ***stigma*** white, apex ciliate, quadrangular with transverse ciliate ostiole. ***Fruits*** unknown.

Habitat and phenology. This species occurs in evergreen broad-leaved mixed forest, on limestone, at elevations about 100–200 m. It flowers in March to April.

Fig. 1. *Distichochlamys benenica* Q.B.Nguyen & Škorničk.: **A & B.** Habit. **C.** Close-up of flowers. Photos: Q.B.Nguyen (A); Jana Leong-Škorničková (B, C).

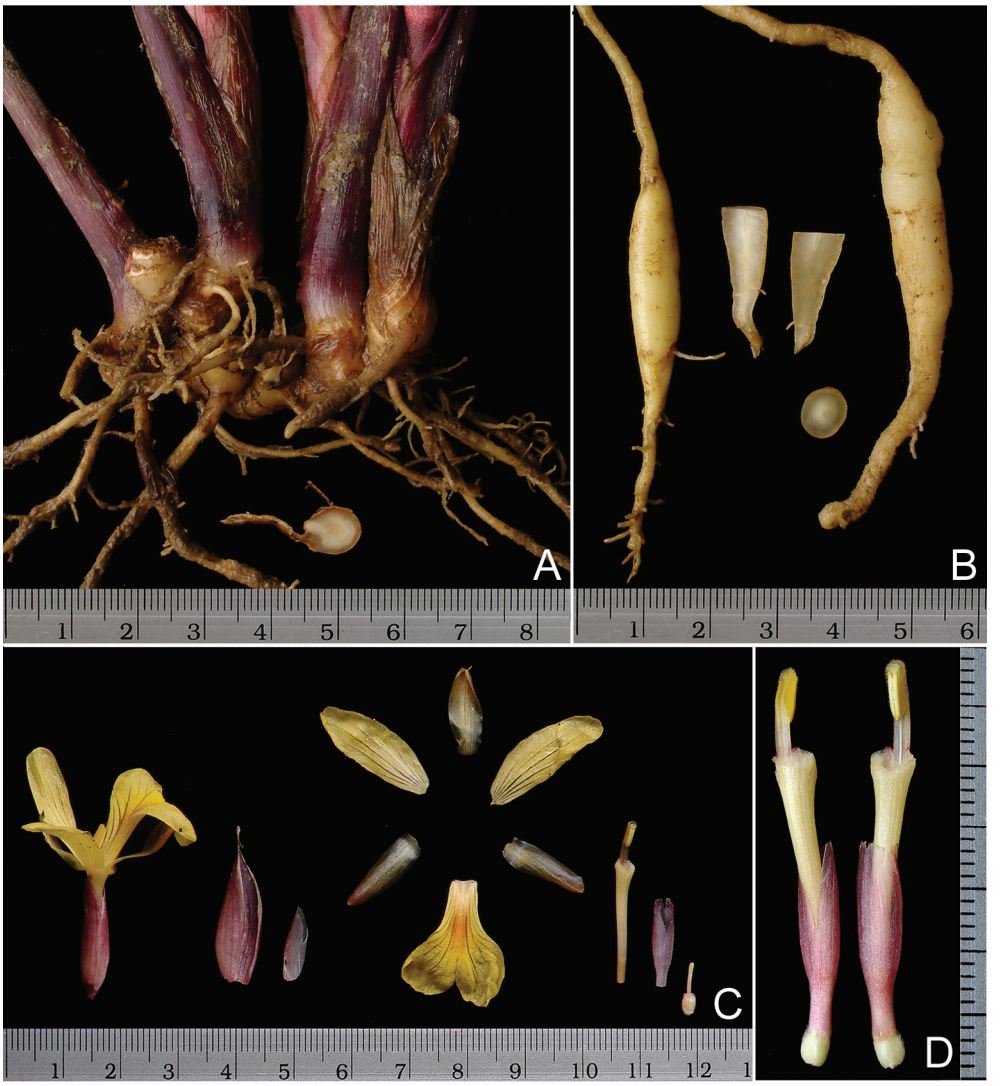

Fig. 2. *Distichochlamys benenica* Q.B. Nguyen & Škorničk.: **A.** Rhizome. **B.** Root tubers. **C.** Flower in bract (far left) and floral dissection (from left to right): bract, bracteole, corolla lobes, staminodes and labellum, floral tube with stamen, calyx, ovary with epigynous glands. **D.** Detail of ovary, calyx, floral tube and stamen. Photos: Jana Leong-Škorničková.

Distribution and IUCN assessment. We have examined all *Distichochlamys* specimens available at AAU, E, HN, SING and VNMN, but discrimination of *Distichochlamys* species from dried material, if not accompanied by spirit collection, is challenging. From all data available it appears that all *Distichochlamys* species, including the newly described *D. benenica*, are rather restricted in their distribution and therefore susceptible to any habitat changes.

Distichochlamys benenica is so far known only from the type locality in Ben En National Park, which has about 85 km^2 of primary vegetation in a total area of about 166 km^2. The primary habitat outside the park has been destroyed. We estimate that the area of occupancy of this species within Ben En National Park is less than 20 km^2 and therefore propose to treat this species provisionally under category Vulnerable (VU): D2.

Etymology. The specific epithet is derived from the type locality, Ben En National Park.

Key to *Distichochlamys* species

1a. Inflorescence bracts spreading, loosely imbricate; labellum deeply cleft to c. half its length ..... *D. citrea*
b. Inflorescence bracts appressed to floral axis, densely imbricate; labellum divided with cleft extending less than half its length 2

2a. Lateral staminodes yellow with two red linear patches at the base .... *D. rubrostriata*
b. Lateral staminodes yellow..... 3

3a. Labellum with red patch at base and two round lobes at apex ..... *D. benenica*
b. Labellum yellow with purple veins, dark yellow medium band and two emarginate lobes ..... *D. orlowii*

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