

A NEW SPECIES OF *DISTICHOCHLAMYS* FROM VIETNAM AND SOME OBSERVATIONS ON GENERIC LIMITS IN *HEDYCHIEAE* (ZINGIBERACEAE)

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ABSTRACT

A new species, *Distichochlamys orlowii* K. Larsen & M. F. Newman is described and illustrated. Conflicting evidence as to the generic limits in the tribe Hedychieae is discussed.

Key words: Flora of Vietnam, new species of *Distichochlamys*, systematics, Zingiberaceae.

INTRODUCTION

In 1999 the first author received photographs of two Vietnamese plants from Mr. J. Bogner, Munich, who also kindly sent living material to the Biological Institute, University of Aarhus. Both flowered in the summer of 2000. One of these plants, collected at Bach ma Nature Reserve in Vietnam, is *Distichochlamys citrea* M. F. Newman (Fig. 1). Bach ma Nature Reserve is the type locality of this species. The other plant is a related but distinct species for which we propose the name *Distichochlamys orlowii* (Figs. 2–3) in honour of the collector, the zoologist Dr. N. Orlov of St Petersburg.

Distichochlamys orlowii K. Larsen & M. F. Newman sp. nov.

Type: Bogner 2435. Vietnam. Gia Lai Province, Ankhe District near Buoenloy village; along the banks of Buoenloy stream. Collected by Dr. N. Orlov, St. Petersburg (holotype AAU, isotype M).

Species nova a Distichochlamys citreae M. F. Newman affinis sed statura maiore, foliis latioribus bracteis confertim imbricatis, corollae lobis latioribus et labello non profunde diviso in duo lobos latos notabilis.

Description.—Acaulescent, rhizomatous herb. Rhizome creeping, 8–10 mm diam.; cataphylls 5–9 cm long, membranous, reddish, turning brown when dry. Leaves erect from the rhizome; leaf sheaths 4–7 cm long, with thin, membranous, reddish margins; apex auriculate; ligule wanting; petiole 15–20 cm long, 4 mm diam, green, canaliculate dorsally; lamina broadly elliptic, glabrous on both sides, venation parallel-pinnate with 12–18 primary lateral veins

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on each side of the midvein, prominent above, somewhat sunken below; veins of second and third order thinner; 15–27 by 8.5–13 cm. Inflorescence unilateral from the lower leaf sheath. Peduncle c. 1 cm; bracts large, distichous, densely imbricate, green with red margins, 30–40 by 8–10 mm, each subtending a cincinnus with 2–3 golden yellow flowers; bracteoles membranous, tubular, 25–30 by 8–10 mm. Ovary 3–4 mm; calyx tubular, c. 10 mm, apex 3-dentate; corolla tube c. 30 mm long, 3 mm broad at apex, corolla lobes c. 10 mm, dorsal one hooded with a pointed apex; the lateral ones with rounded apices; lateral staminodes yellow, elliptic, 12–13 by 4–5 mm; labellum yellow with purple veins and a dark yellow median band, oblanceolate, c. 15 by 10 mm, broadest at apex; apex bilobed for c. 5 mm, the lobes emarginate. Filament yellow, 3–4 mm; anther yellow c. 4 mm without an anther crest. Fruit and seeds unknown.

KEY TO THE SPECIES OF *DISTICHOCHLAMYS*

1. Bracts densely imbricate; labellum shallowly divided into two emarginate lobes
.....*D. orlowii*
1. Bracts loosely imbricate; labellum divided to c. half its length, lobes undivided
.....*D. citrea*

DISCUSSION

The genus *Distichochlamys* was described by NEWMAN (1995) as distinct from *Scaphochlamys* Baker based on the characters of the arrangement of the bracts, i.e. distichous versus spiral; the bracteoles, tubular versus open; the anthers, without spurs versus spurred, and the chromosome number, $2n = 26$ versus (26) 28 (see also HOLTUM, 1950 and LARSEN *ET AL.*, 1998). Since then our knowledge of the inflorescence structure in this group of Hedychieae has greatly increased. In *Boesenbergia* O. Ktze., a species with spirally arranged bracts has been found, although previously all known species have distichous bracts (COWLEY, 1998). In addition, a species of *Scaphochlamys* has been found in Peninsular Malaysia which has distichous bracts in the upper portion of the inflorescence (material of this probably undescribed species is in AAU). It is clear that some of the morphological characters used to delimit genera in the Hedychieae are not as distinct as has been assumed.

Two attempts have been made to address this question using molecular systematic techniques. SEARLE & HEDDERSON (2000) included *Distichochlamys citrea* and five species of *Scaphochlamys* in a cladistic analysis of ITS sequences. Their results indicate that *Distichochlamys* is the sister group to *Scaphochlamys* which means it would be possible to place *D. citrea* in synonymy under *Scaphochlamys*.

NGAMRIABSAKUL (2001) examined ITS and trnL-F sequences of *D. citrea* and two species of *Scaphochlamys*. Analysis of ITS data alone gave some support to the notion that *Distichochlamys* is the sister group of *Scaphochlamys*, but the trnL-F data and combined analysis of the two data sets indicated that *Distichochlamys* and *Scaphochlamys* together do not form a well-supported, monophyletic group. Further study of the related genera *Boesenbergia* and *Kaempferia* is required before firm conclusions can be reached.



Figure 1. *Distichoclamys citrea* photographed in Bach ma Nature Reserve.



Figures 2–3: *Distichoclamys orlowii* from type locality.
Photos by N. Orlow.

Neither morphological nor molecular systematic techniques have satisfactorily resolved the generic limits in the Hedychieae. Intermediate character states occur in recently discovered taxa which suggest that generic limits may need to be changed. In particular, it may be necessary to place *Distichochlamys* in synonymy under *Scaphochlamys*. However, until the relationships between these two genera and others in the Hedychieae are fully resolved, we do not propose to make changes.

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