

Dendrocalamus Velutinus N.-H. Xia, V. T. Nguyen & V. D. Vu (Poaceae), a New Species from Vietnam

Authors: Nguyen, Van Tho, Le, Viet Lam, Vu, Van Dung, and Xia, Nian-He

Source: Candollea, 67(2) : 255-259

Published By: The Conservatory and Botanical Garden of the City of Geneva (CJBG)

URL: <https://doi.org/10.15553/c2012v672a6>

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Dendrocalamus velutinus N.-H. Xia, V. T. Nguyen & V. D. Vu (Poaceae), a new species from Vietnam

Van Tho Nguyen, Viet Lam Le, Van Dung Vu & Nian-He Xia

Abstract

NGUYEN, V. T., V. L. LE, V. D. VU & N.-H. XIA (2012). *Dendrocalamus velutinus* N.-H. Xia, V. T. Nguyen & V. D. Vu (Poaceae), a new species from Vietnam. *Candollea* 67: 255-259. In English, English and French abstracts.

A new species, *Dendrocalamus velutinus* N.-H. Xia, V. T. Nguyen & V. D. Vu (Poaceae) from Vietnam, is described, illustrated and discussed. It is similar to *Dendrocalamus calostachyus* (Kurz) Kurz in general appearance, but differs by many morphological characters.

Key-words

POACEAE – *Dendrocalamus* – Vietnam – Taxonomy

Résumé

NGUYEN, V. T., V. L. LE, V. D. VU & N.-H. XIA (2012). *Dendrocalamus velutinus* N.-H. Xia, V. T. Nguyen & V. D. Vu (Poaceae), une nouvelle espèce du Vietnam. *Candollea* 67: 255-259. En anglais, résumés anglais et français.

Une nouvelle espèce, *Dendrocalamus velutinus* N.-H. Xia, V. T. Nguyen & V. D. Vu (Poaceae) du Vietnam, est décrite, illustrée et discutée. Cette espèce est similaire à *Dendrocalamus calostachyus* (Kurz) Kurz dans son apparence générale, mais diffère au niveau de plusieurs caractères morphologiques.

Addresses of the authors: NHX: Key Laboratory of Plant Resources and Sustainable Utilization / Guangdong Provincial Key Laboratory of Digital Botanical Garden, South China Botanical Garden, the Chinese Academy of Sciences, Guangzhou, 510650, China. Email: nhxia@scbg.ac.cn

VTN: Cau Hai Silvicultural Research and Experimental Centre, Vietnamese Academy of Forest Sciences, Chan Mong commune, Doan Hung District, Phu Tho province, Vietnam.

VLL: Department of Science and Technology for Economic and Technical branches, Ministry of Science and Technology, 39 Tran Hung Dao Street, Hoan Kiem District, Hanoi City, Vietnam.

VDV: Vietnam Forestry Science and Technology Association, 114 Hoang Quoc Viet Road, Cau Giay district, Hanoi city, Vietnam.

Submitted on April 12, 2011. Accepted on July 24, 2012.

Edited by P. Bungener

Introduction

The fairly large genus *Dendrocalamus* Nees (52 spp.) (*Poaceae*) was established in 1834 based on *D. strictus* (Roxb.) Nees. MUNRO (1868) recognized nine species and one subspecies in the genus. GAMBLE (1896) recorded 15 species from India and divided *Dendrocalamus* into three sections. Currently, the genus is widely distributed in the tropical and subtropical regions of Asia with the diversity center in southern China, northern Vietnam, and Malaysia (OHRNBERGER, 1999). Twenty-seven species of *Dendrocalamus* were identified in China by LI & STAPLETON (2006). NGUYEN (2006) recognized 29 species in *Dendrocalamus* from Vietnam, but until now, only fourteen of them have been described.

During the expedition to Mount Bavi in 2004, one bamboo species with the local name of “Buong moc” drew our attention. This species is widely cultivated for its sweet bamboo shoot in Bavi mountain region, and Hoa Binh and Phu Tho provinces. The flower was first found by the third author in December 2010 and good flowering material was collected by the first author in January 2011 in Ba Vi Mountain. “Buong moc” is characterized by culm internodes densely covered with brown velvet and basal nodes with branches. After carefully examining the morphological characters, particularly inflorescence structures, and referring to the publications (MUNRO, 1868; GAMBLE, 1896; CAMUS, 1913; CAMUS & CAMUS, 1923; NGUYEN, 1989, 1990, 1991; DRANSFIED & WIDJAJA, 1995; LI & STAPLETON, 2006; NGUYEN, 2006: 139-155; YI & JUNYI, 2008; NGUYEN & al., 2011), we concluded that “Buong Moc” is an undescribed species.

Material and methods

This study is predominantly based on plant material newly collected from the northern provinces of Vietnam, Hoa Binh, Phu Tho province and Ha Noi city (Bavi mountain), and the specimens are stored at “Forest Science Institute of Vietnam” (FSIV), “Cau Hai Silvicultural Research and Experimental Centre of FSIV” (FSIV-CH), HN, CPNP, VNM, and HNU. Measurements of vegetative parts were undertaken in the field, and the reproductive parts were examined under a stereomicroscope (Olympus SZZ16) linked with a computer in IBSC.

Our observations were compared with type specimens in IBSC, SWFC, CANT, KUN, PE, CANT, HITBC, SYS, P, LE and pictures of the type specimens available in the websites of W, P, K, US, L, E, as well as with MUNRO (1868: 146-153), GAMBLE (1896), CAMUS (1913), CAMUS & CAMUS (1923), NGUYEN (1989, 1990, 1991), DRANSFIED & WIDJAJA (1995), NGUYEN (2006: 139-155), LI & STAPLETON (2006), YI & JUNYI (2008).

Results

Dendrocalamus velutinus N.-H. Xia, V. T. Nguyen & V. D. Vu, **spec. nova** (Fig. 1, 2).

Typus: VIETNAM. **Hanoi city:** Bavi district, Bavi national park, Bavi mountain, 198 m, 21°05'47"N 105°21'58"E, 26.I.2011, *Van Tho Nguyen NVT260* (holo-: FSIV; iso-: IBSC!, FSIV-CH!).

Species nova D. calostachyo affinis, sed vaginorum ligulis 8-10mm longis, fimbriatis, ligulis foliorum truncatis, intergrais, glabris, palea 7.4-9.8 mm longa, apice truncata aut obtusa, 2-nervibus inter et extra carinam, foliis majoribus differt.

Arborescent *bamboo*, rhizomes pachymorph, short-necked. Culms erect, 14-16 m tall, 10-15 cm in diameter, apex pendulous; internodes terete, 27-37 cm long, wall 3 cm thick, covered with tawny-coloured velvet, remaining with age, intranode with a 7-8 mm high ring of tawny-coloured velvet, infranode with a 4 mm high ring of tawny-coloured velvets. Branches several at each node, central dominant, branching from 1st-2nd node. Culm sheaths deciduous, (23-)42-56 cm long and (19-)33-54 cm wide, abaxially brown sericeous, margins deciduously white pilose; apex narrow, lightly concave; oral setae absent; auricles absent; ligule irregularly fimbriate, 8-10 mm long; blade erect, 3.8-7 × 9.5-12 cm, adaxially brown sericeous, abaxially glabrous, both sides with clearly longitudinal ribs, margins setose, apex gradually acute. Leaves of ultimate branch (7-)8-9(-11), sheaths glabrous; auricles absent; ligule truncate, c. 2 mm high, entire, glabrous; leaf blade broadly oblong-lanceolate, leaf size various, big ones 42-52.5 × 10-11 cm, small ones 27-34 × 3.1-6.2 cm, apex acute, base nearly rounded, abaxial glabrous, adaxial rough, pedicel 6-7 × c. 2 mm, secondary veins (10-)13-15(-18) each side of midrib. Inflorescence consisting of a large compound panicle with branchlets bearing spikelets, flowering branch pendulous, leafless, with 5-8(-15) clustered pseudospikelets at each node; pseudospikelet fusiform, purple green, apex slightly obtuse, 11-13 × 4.5-5.5 mm, sterile spikelet 7-8 × 2-3 mm; prophyll 1-keeled, scalene triangle, 5.6-5.7 × 3.8-4.1 mm, dorsal surface pubescent, margin ciliate, apex blunt; florets 4-5, all fertile, opening when mature; rachilla-internodes very short and not disarticulating. Glumes 1 or 2, 7.1-7.5 × 5.3-6.3 mm, puberulent, apex acute, margins ciliate, many-veined; lemma narrowly lanceolate, 11.2-12.6 × 5.8-7.7 mm, abaxially thinly puberulent, apex acute, margin pilose, many-veined; palea oblong-lanceolate, 7.4-9.8 × 3.4-3.9 mm, 2-keeled, abaxially pubescent, 5-veined between and 2-veined on either side of keels, apex obtuse or truncate, apex of uppermost palea usually acute, margins and keels pilose; lodicules absent. Anthers yellow, 6.6-6.9 mm long, exserted, apex acute, with few white hairs; filaments distinct, separate; stamen 6. Ovary ovoid, densely hairy; pistil 8.1-12.1 mm long. stigma 1, hairless.

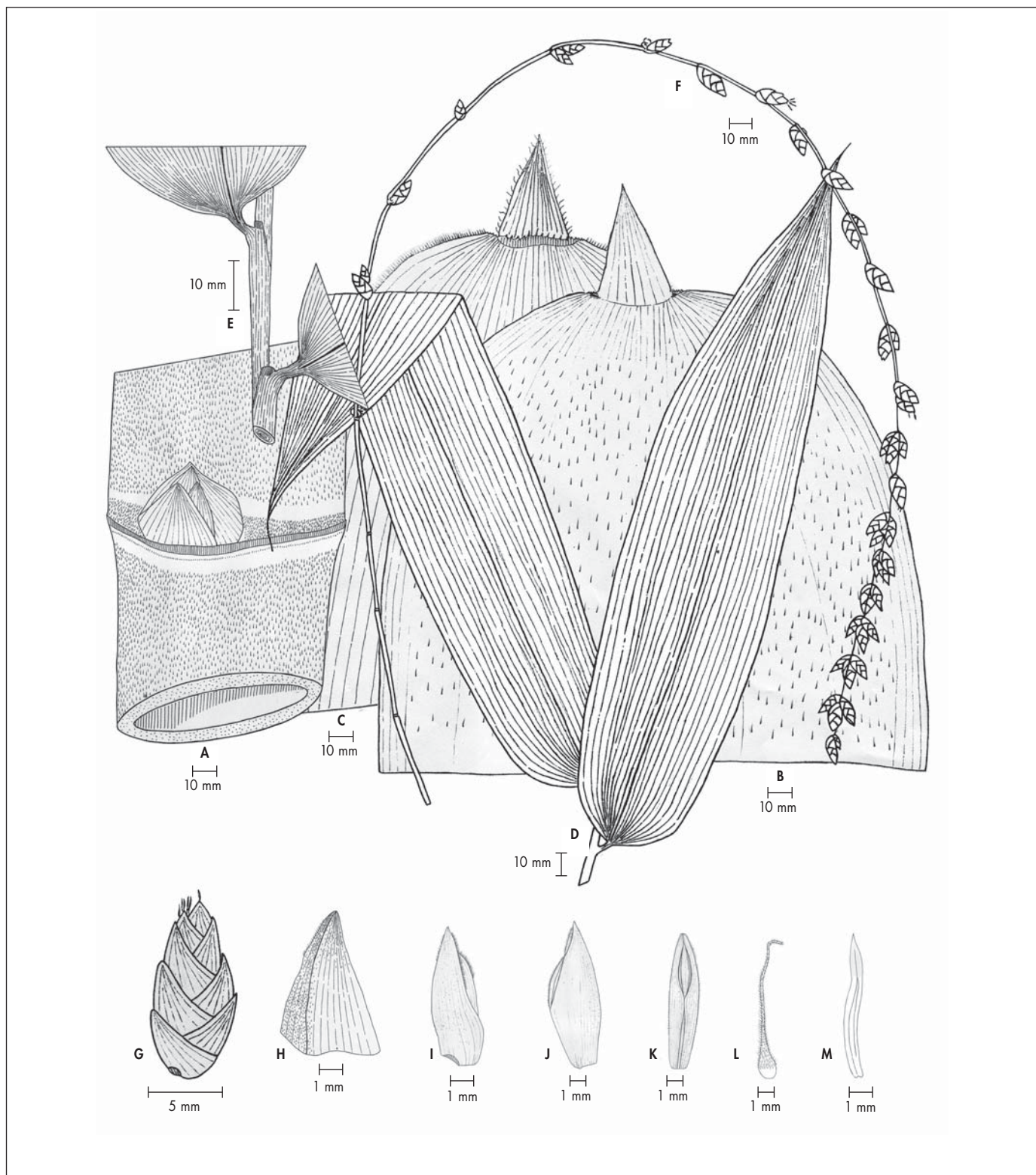


Fig 1. – *Dendrocalamus velutinus* N.-H. Xia, V. T. Nguyen & V. D. Vu. **A.** Culm and dormant bud; **B.** Culm sheath (abaxial view); **C.** Culm sheath (adaxial view); **D.** Leaf; **E.** Leaf ligule; **F.** Flowering branch; **G.** Pseudospikelet; **H.** Prophyll; **I.** Glume; **J.** Lemma; **K.** Palea; **L.** Pistil; **M.** Anther.

[**A-C:** V. T. Nguyen NVT224, FSIV; **D-M:** V. T. Nguyen NVT260, FSIV] [Drawn by V. T. Nguyen]



Fig 2. – *Dendrocalamus velutinus* N.-H. Xia, V. T. Nguyen & V. D. Vu. **A.** Habit; **B.** Culm sheath.
[Photos by V. T. Nguyen]

Vernacular name. – Buong moc.

Flowering period. – December to January, fruit unknown.

Notes. – *Dendrocalamus velutinus* bears a close resemblance to *D. calostachyus* (Kurz) Kurz in general appearance, but differs in its culm sheath ligule 8-10 mm long, irregularly fimbriate, leaf ligule c. 2 mm high, entire and truncate, palea 7.4-9.8 mm long 2-veined between keel and edge, apex obtuse or truncate, and larger leaves. The different characters are summarized in Table 1.

Distribution and habitat. – The species grows in secondary broadleaf forest between 100 and 600 m altitude on Bavi Mountain of Bavi National Park, Bavi District, Ha Noi city. It is also cultivated in Tan Lac, Luong Son, Ky Son Districts, Hoa Binh province and Cau Hai Bamboo Garden, Chan Mong commune, Doan Hung district, Phu Tho province.

Local uses and etymology. – This species is economically valuable to the local people. The sweet, delicious bamboo shoots are used for food. The culms are used for house construction and general household use, raw material for paper pulp and floorboard industries. The specific epithet refers to the indument character on the culm internodes.

Additional specimens examined. – **VIETNAM. Hanoi city:** Bavi district, Bavi national park, Bavi mountain, 198 m, 21°05'47"N 105°21'58"E, 19.IX.2010, *Van Tho Nguyen NVT224* (FSIV, IBSC, FSIV-CH). **Hoa Binh:** Luong Son, Lam Son, 67 m, 21°54.264'N 105°28.130'E, 1.IX.2010, *Van Tho Nguyen NVT156* (FSIV, IBSC, FSIV-CH); Tan Lac, Phong Phu, 70 m, 1.IX.2010, *Van Tho Nguyen NVT159* (FSIV, IBSC, FSIV-CH); Ky Son, Yen Quang, 109 m, 20°39.222'N 105°17.045'E, 21.IX.2010, *Van Tho Nguyen NVT245* (FSIV, IBSC, FSIV-CH). **Phu Tho:** Doan Hung, Cau Hai bamboo garden, 49 m, 20°31.683'N 105°11.817'E, 5.VIII.2010, *Van Tho Nguyen NVT026* (FSIV, IBSC, FSIV-CH).

Table 1. – Morphological comparison in characters between *Dendrocalamus velutinus* N.-H. Xia, V. T. Nguyen & V. D. Vu and *D. calostachyus* (Kurz) Kurz.

	<i>D. velutinus</i>	<i>D. calostachyus</i>
Culm internode	densely tawny-coloured velvets when young, remaining with age	densely appressed silvery hairs
Culm sheath ligule	8-10 mm, irregularly fimbriate	1-2 mm high, rounded, serrulate
Leaf ligule	truncate, c. 2 mm long, entire, glabrous	1-2 mm high, rounded, serrulate
Palea	7.4-9.8 × 3.4-3.9 mm, 5-veined between the keels, 2-veined on either side of keels, apex obtuse or truncate	6-7 mm long, 3-5-veined between and 1-veined on either side of keelsl, apex acuminate
Lemma [mm]	11.2-12.6	9-11
Leaf blade [cm]	big leaf 42-52.5 × 10-11, small leaf 27-34 × 3.1-6.2	23-30 × 2.5-6.5
Anther [mm]	6.6-6.9	c. 5.5

Acknowledgments

This work was supported by the National Natural Science Foundation of China (n° 30770155) and the Knowledge Innovation Program of the Chinese Academy of Sciences (no. KSCX2-YW-024). The first author is grateful to the Vietnamese Government, and the South China Botanical Garden, Chinese Academy of Science, the Forest Science Institute of Vietnam, the Cau Hai Silvicultural Research and Experimental Centre for providing research facilities and financial support. The authors thank Prof. Deng Yunfei (IBSC), Dr Maureen Murray, Victoria, Australia for critical reading of earlier versions of the manuscript.

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