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Reinstatement and lectotypification of *Bridelia fordii* (Phyllanthaceae)

YONGQUAN LI¹ & GANG YAO^{2,3,*}

¹Forestry Science and Technology Extension Station of Guangdong Province, Guangzhou 510173, China

²Key Laboratory for Plant Diversity and Biogeography of East Asia, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming 650201, China.

³Plant Germplasm and Genomics Center, Germplasm Bank of Wild Species, Kunming Institute of Botany, Chinese Academy of Sciences, Kunming, 650201, China

*Corresponding author: yaogang@mail.kib.ac.cn

Abstract

Bridelia fordii, originally described from China in 1894, often treated as a synonym of *B. retusa*. Upon examining the types and other related specimens, we conclude that the former is easily distinguishable from the latter and the former should be accepted as an independent species. Our previous molecular evidence also supports this conclusion. We further designate the lectotype of *B. fordii* in this study.

Key words: Bridelieae, China, Reinstatement, Taxonomy

Introduction

Bridelia Willdenow (1806: 978) belongs to tribe Bridelieae Müller Argoviensis (1864: 324), family Phyllanthaceae Martynov (1820: 369) (Hoffmann *et al.* 2006). It consists of about 60 species of trees, shrubs, or rarely scramblers that are disjunctly distributed in tropical Africa, Asia and Australia (van Welzen & Esser 2007, Li & Dressler 2008). *Bridelia* can be distinguished from its close relative, the genus *Cleistanthus* Hooker ex Planchon (in Hooker 1848: 779), primarily by its drupaceous fruit and features of leaf venation (Dressler 1996).

Seven species of *Bridelia* were recognized in *Flora of China* (Li & Dressler 2008), in which the name *B. fordii* Hemsley (in Forbes & Hemsley 1894: 419) was reduced to a synonym of *B. retusa* (Linnaeus) A. Jussieu (1824: 109). In our taxonomic revision of the Chinese Phyllanthaceae, we found that the two species can be easily distinguished from each other and *B. fordii* should be reinstated from a synonym. Results from our previous phylogenetic study of the genus *Bridelia* also support this conclusion (Li *et al.* 2009).

Taxonomic treatment

Bridelia fordii Hemsley (in Forbes & Hemsley 1894: 419). Type:—CHINA. Guangdong [“Kwangtung”]. *C. Ford* 254 (K-000254054!; lectotype, here designated; isolectotype: P-00118220!). Remaining syntypes:—CHINA. Guangdong. *C. Ford* 249 (K-000254055!; P-00118221!).

Trees, up to 15 m tall; dioecious; bark dust color; branches sage green. Leaf blade obovate, or sometimes oblong, 8–22 × 4–13 cm, papery, base obtuse, rounded or shallowly cordate, apex rounded or truncate, with a short acumen, or rarely emarginate; lateral veins 13–19 pairs, elevated abaxially, subparallel, reticulate veins prominent, anastomosing lateral veins; petiole ca. 1.2 cm long, slightly stout; stipule caduceous, but linear stipular traces persistent at lateral base of petiole; pedicel ca. 1 mm long. Inflorescences 3–9-spiked, grouped into panicles at apex of branches, 10–20 cm long; bracts ovate-triangular, 2.5–3 mm long. Male flowers small, yellow-green, sepals oblong, ca. 2 mm long, ca. 1 mm wide basally; petals obovate, ca. 1 mm long, membranous, 3–5-toothed apex; anthers broadly ovoid; rudimentary ovary terete, apex undivided; disk cup-shaped. Female flowers: sepals oblong, ca. 2 mm long, ca. 1 mm wide basally; petals

spatulate, ca. 1 mm long, membranous; gynoecium ca. 2 mm, ovary globose to ovoid, ca. 1 mm long, style 2, bifid; disk urceolate, enclosing and as long as ovary. Drupes ellipsoidal, 7–8 mm long, 4–6 mm in diameter, black, 2-celled.

Distribution and habitat:—This species is endemic to China, occurring in Guangdong, Guangxi, Guizhou, Hainan, Hong Kong, Hunan, and Yunnan provinces. It usually grows in sparsely forests, mixed forests, or valley, at the elevation of 100–1400 m.



FIGURE 1. A. Lectotype (upper: *C. Ford* 254, K) and syntype (lower: *C. Ford* 249, K) of *Bridelia fordii*; B. Lectotype of *B. retusa* (Paul Hermann s.n., BM).

Phenology:—Flowering from April to September, and fruiting from August to the next January.

Taxonomic notes:—*Bridelia fordii* resembles *B. retusa*, but differs from the latter by having glabrous leaves and petioles, lateral veins 13–19 pairs, inflorescences 3–9-spiked and grouped into panicles at apex of branchlets, sepals ovate triangular, ca. 2 mm long, pedicels densely hairy, and fruits ellipsoidal, 4–6 mm in diameter. In contrast, *B. retusa* has the leaves pubescent to pilose abaxially, lateral veins (14–)16–27 pairs, petiole pubescent, inflorescences grouped into axillary spikes, sepals narrowly triangular, ca. 1.2 mm long, pedicels sparsely hairy, and fruits sub-globose, 7–9 mm in diameter. Additionally, molecular phylogenetic study based on three DNA markers (nuclear ITS and plastid *matK*, *trnL-trnF*) showed that two accessions of the typical *B. retusa* were nested deeply within a clade consisting of most species from Africa, southeastern Asia and Australia, while the two accessions of *B. fordii* clustered outside this large clade (Li *et al.* 2009).

Key to distinguish *Bridelia fordii* from *B. retusa*

- 1a. Leaves glabrous; lateral veins 13–19 pairs; petiole glabrous; inflorescences 3–9-spiked and grouped into panicles at apex of branchlets; sepals ovate triangular, ca. 2 mm long, fruits ellipsoidal, 4–5 mm in diameter *B. fordii*
- 1b. Leaves pubescent to pilose abaxially; lateral veins (14–)16–27 pairs; petiole pubescent; inflorescences grouped into axillary spikes; sepals narrowly triangular, ca. 1.2 mm long; pedicels sparsely hairy; fruits sub-globose, 7–9 mm in diameter *B. retusa*

Additional specimens examined:—CHINA. Guangdong: Fengkai, in valley, open forests, 29 November 1980, *G. Q. Ding & L. Yu* 6835 (IBSC!); Fengkai, in the shrubs, 23 July 1984, *G. L. Shi* 14751 (IBSC!); Lechang, in the valley, open forests, 200 m, 12 November 1986, *Nanling Exp.* 3596 (IBSC!); Yangshan, 3 July 1956, *L. Deng* 1672 (KUN!);

Guangxi: Donglan, Maan mountain, 2 July 1939, *L. Q. Chen 92195* (IBK!); Liannan, in open forests, 1 August 1958, *P. X. Tan 58840* (IBK!); Longgang, in the valley, open forests, 20 October 1979, *Longgang Exp. 11409* (IBK!); Yangshuo, 8 July 1953, *Y. B. Xu 10556* (KUN!); Guizhou: in forests, 12 September 1936, *S. W. Deng 90847* (KUN!); Hainan: in forests, 24 September 1935, *X. P. Gao 55819* (IBK!); Hongkong: April 1927, *W. Y. Chun 5253* (IBK!); Hunan: Jiangyong, on road side, 11 July 1959, *P. X. Tan 63621* (IBK!); Yunnan: Malipo, Tung-ting, in mixed forests on rock, 20 November 1947, *G. M. Feng 13465* (KUN!); Xichou, 10 June 1964, *S. Z. Wang 896* (KUN!).

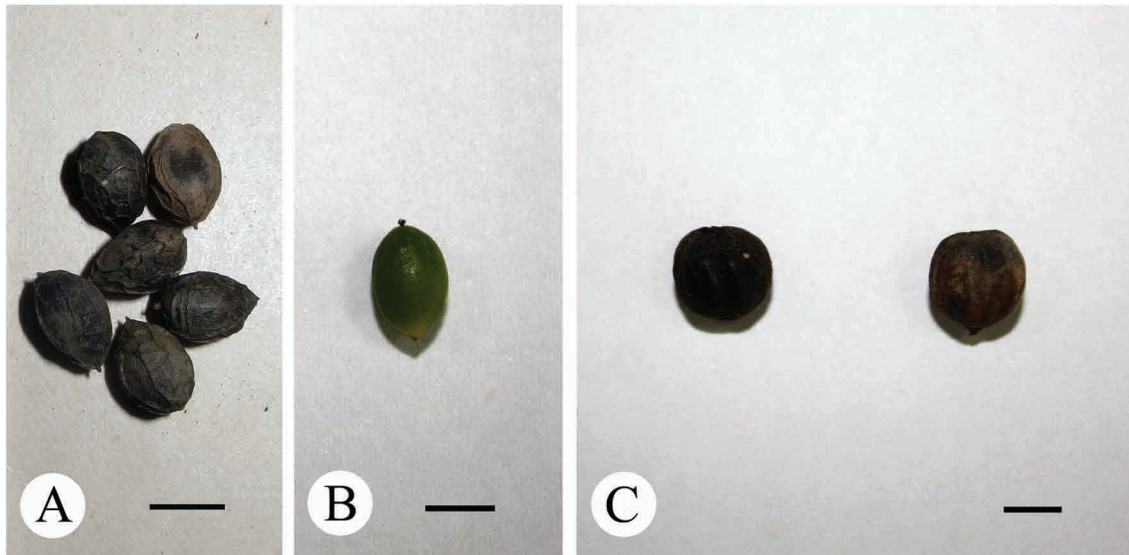


FIGURE 2. A & B. Fruits of *Bridelia fordii* (A: *S.S. Sin 5253*, IBSC; B: *Li lyq127*, IBSC); C. Fruits of *B. retusa* (*W.Q. Yin 60-1579*, KUN). Scar bars: 5 mm.

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