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Two new species in *Castanopsis* (Fagaceae) from Vietnam and their leaf cuticular features

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Abstract

Two new species, *Castanopsis grandicicatricata* N. H. Xia & D. H. Vuong and *C. multiporcata* N. H. Xia & D. H. Vuong in Vietnam, are described and illustrated. *C. grandicicatricata* is similar to *C. javanica*, but differs in the thickly papery leaf texture, cupules 6–7 cm in diameter and scar covering 2/3 of nut. *C. multiporcata* mostly resembles *C. buruana*, but differs in leaf blade 5–8 cm long, papery firmness leaf texture, abaxially glabrescent, secondary veins 6–10 pairs, petioles 0.3–0.7 cm long, cupules 2–2.5 cm diameter and concave scar. The leaf cuticular morphology of the two new species and a key to distinguish them from other species of *Castanopsis* are provided. The systematic placement of the two new species in *Castanopsis* is discussed.

Key words: morphology, taxonomy, Thanh Chuong, Xuan Son

Introduction

Castanopsis (D. Don 1825: 56) Spach (1841: 142, 185) comprises ca. 134 species distributed exclusively in tropical and suptropical Asia and Malesia (Govaerts and Frodin 1998). Indo-China (with ca. 82 species, 38 endemic) and Malesia (with ca. 40 species, 29 endemic) are the species diversity center of the genus also with richest endemic species (Soepadmo 1972, Liu and Zhou 2006). Camus (1929) is the first botanist comprehensively studied the taxonomy of *Castanopsis*. In her monography, 112 species were recorded, of which 102 species were grouped in 3 sections which are: *Eucastanopsis* A. de Candolle in Hance (1863: 182), *Pseudopasania* A. Camus (1929: 271), and *Callaeocarpus* A. de Candolle in Hance (1863: 182), and the rest species were not placed in any sections due to lack the diagnostic features. Barnett (1944) divided *Castanopsis* species into 11 groups and 119 species were recorded in his report. Following, more taxonomic works on genus *Castanopsis* were published, but mostly restricted to limited geographic regions, e.g. in Malaysia (Soepadmo 1968, 1972), China (Cheng and Duan 1988, Huang *et al*. 1998, 1999).

In Vietnam, *Castanopsis* is represented by 52 species that are usually dominant trees in the subtropical evergreen forests and montane moist evergreen broad-leaved forests below 2300 m (Pham 1993, Nguyen 2003). In generally, the flora of Vietnam is similar to the flora of adjacent areas (Thailand, China & Laos). Numerous similar plant taxa were observed in these areas (Averyanov *et al.* 2003), as well as genus *Castanopsis* that 23 species recorded in Vietnam also can be found in China (Huang *et al*. 1999), and 14 species were shared with Thailand (Phengklai 2008). The diversity of *Castanopsis* species in SW China and Indo-China region is quite high (Liu and Zhou 2006). For decades, the floristic studies in this region is insufficient, new species of *Castanopsis* are continuously reported in the recent years, for example, *C. pseudohystrix* Phengklai (2004: 115), *C. thaiensis* Phengklai (2004: 117), *C. jinpingensis* J. Q. Li & Li Chen (2010: 303), *C. malipoensis* C. C. Huang ex J. Q. Li & Li Chen (2010: 301), and *C. glabrifolia* J. Q. Li & Li Chen (2011: 317). Herein, two new species *C. grandicicatricata* N. H. Xia & D. H. Vuong and *C. multiporcata* N. H. Xia & D. H. Vuong are described and illustrated from Vietnam.

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8b. Cupules stipitate, 0.4–0.7 cm long ..... **15.**

9a. Branches glabrous, leaf abaxially glabrescent ..... **10.**
9b. Branches, leaf abaxially hairy ..... **11.**
10a. Petioles 1–2.5 cm long; cupule wall 2–3 mm thick; scar covering 1/3 of nut ..... ***C. kawakamii*** **Hayata (1911: 300)**
10b. Petioles 0.5–0.7 cm long; cupule wall ca. 1 mm thick; scar covering only basal part of nut ..... ***C. symmetricupulata*** **Luong (1965: 105)**

11a. Leaf blade 15–25 cm long. ..... **12.**
11b. Leaf blade 4–10 cm long. ..... **13.**

12a. Secondary veins 12–16 pairs; cupule wall ca. 2 mm thick; scar covering 1/3 of nut ..... ***C. mekongensis***
12b. Secondary veins 16–20 pairs; cupule wall ca. 1 mm thick; scar covering only basal part of nut ..... ***C. phuthoensis*** **Luong (1965: 102)**

13a. Nuts hairy; infructescences 4–8 cm long. ..... **14.**
13b. Nuts glabrous; infructescences ca. 15 cm long ..... ***C. hystrix*** **Hooker f. & Thomson ex A. de Candolle in Hance (1863: 182)**

14a. Secondary veins 12–16 pairs; cupules 5–6 cm in diameter ..... ***C. concinna*** **(Champion ex Bentham 1854: 115) A. de Candolle in Hance (1863: 182)**
14b. Secondary veins 6–8 pairs; cupules 3–4 cm in diameter ..... ***C. ninhhoensis*** **Hickel & A. Camus (1926: 400)**

15a. Cupules 2.5–5 cm in diameter; scar covering 1/4–1/3 of nut ..... ***C. javanica***
15b. Cupules 6–7 cm in diameter; scar covering 2/3 of nut ..... ***C. grandicicatricata***

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