

## **JUBULA HUTCHINSIAE SUBSP. JAVANICA (HEPATICAE, JUBULACEAE): A GENUS AND SPECIES NEW FOR THAILAND**

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**Abstract.** *Jubula hutchinsiae* (Hook.) Dumort. subsp. *javanica* (Steph.) Verd. collected from the Khao Soi Dao wildlife sanctuary, Chanthaburi province, is a new genus and species record for Thailand. A brief description based on Thai material is provided, with illustrations.

**Key words:** liverwort, Chanthaburi province, Khao Soi Dao wildlife sanctuary, Asia, distribution

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### INTRODUCTION

*Jubula* Dumort. (Jubulaceae) is a tropical-holarctic genus of seven species including two subspecies and two varieties, growing as epiphytes restricted to humid or damp sites, often near flowing water (Guerke 1978; Gradstein *et al.* 2001; Frey & Stech 2009; Dey *et al.* 2011). None of them have been recorded from Thailand (Lai *et al.* 2008; Sukkharak & Chantanaorrapint 2014). In a study of the bryophytes of the Khao Soi Dao wildlife sanctuary (Sukkharak *et al.* submitted), the first record of a *Jubula* species for Thailand was made. *Jubula hutchinsiae* (Hook.) Dumort. subsp. *javanica* (Steph.) Verd. is described and illustrated based on the Thai material in this paper. The specimen is kept in the Department of Biology, Faculty of Science, Burapha University.

### RESULTS AND DISCUSSION

***Jubula* Dumort.**

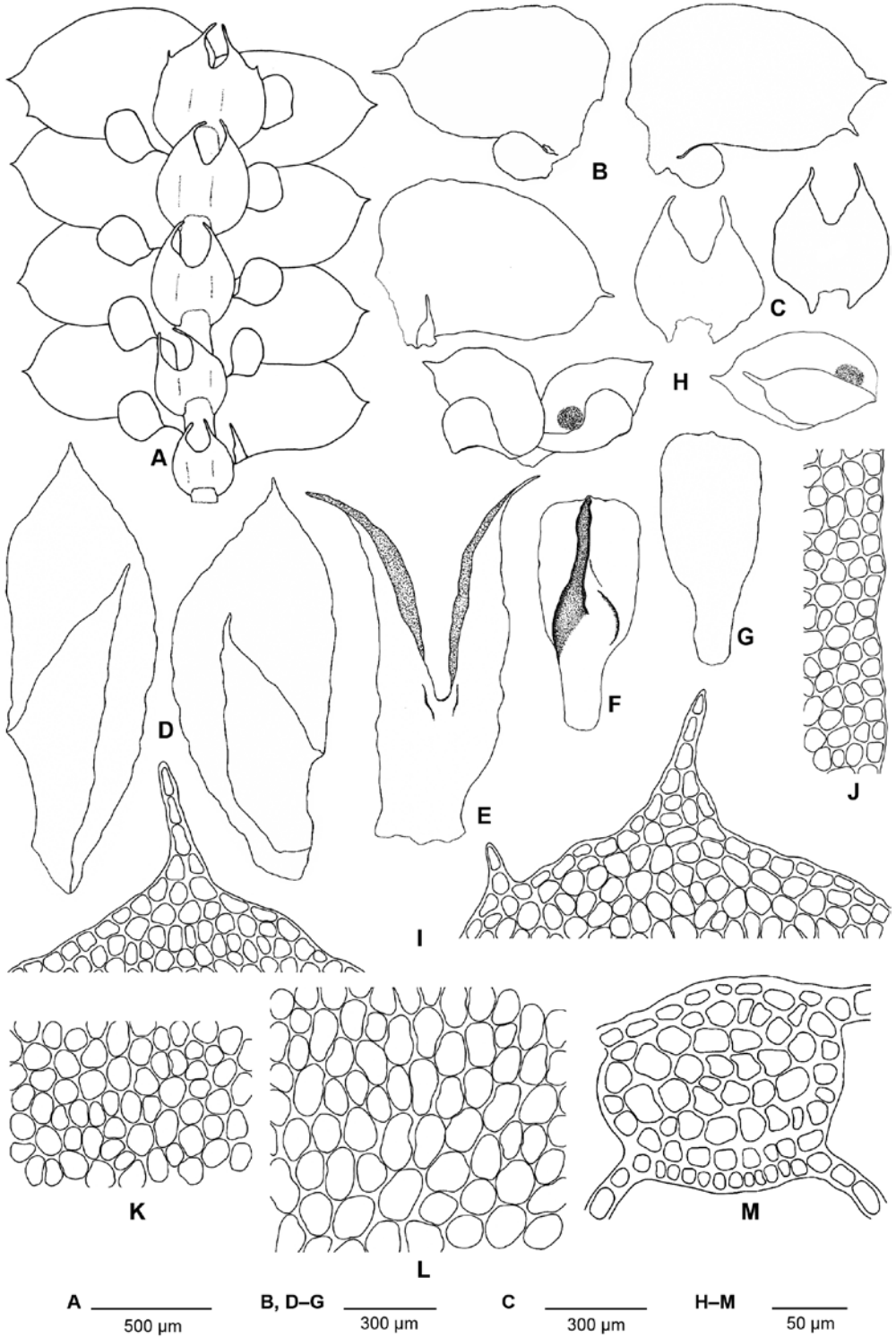
Comm. Bot.: 112. 1822. – TYPE: *Jungermannia hutchinsiae* Hook. [*Jubula hutchinsiae* (Hook.) Dumort.].

***Jubula hutchinsiae* (Hook.) Dumort.**  
subsp. *javanica* (Steph.) Verd.

Fig. 1

Ann. Cryptog. Exot. 1: 216. 1928. *Jubula javanica* Steph., Sp. Hepat. 4: 688. 1991.

*Plants* with irregularly pinnate branches, green, without reddish pigmentation, up to 1.3 cm long × 1.2–1.4 mm wide, branches *Frullania*-type. *Rhizoids* in tufts from underleaf bases. *Stems* in cross section subelliptic in shape, 148–160 × 179–190 μm thick, composed of 29–32 epidermal cells surrounding 35–40 medullary cells in 7–8 layers, epidermal cells thick-walled, medullary cells larger and thinner-walled than epidermal cells. *Leaves* incubous, attached to the axis along a J-shaped insertion line; lobe ovate, 0.7–0.9 × 0.3–0.5 mm, apex acuminate, margins entire; cells isodiametric, marginal cells 7–15 × 7–12 μm, median cells 15–20 × 10–18 μm, basal cells 22–38 × 17–25 μm, cells wall thin, trigones minute; oil bodies unknown; leaf lobule dimorphic, galeate or explanate, 170–185 × 60–70 μm; stylus filiform, 4–5 cells long. *Underleaves* distant to slightly contiguous, suborbicular, 0.3–0.4 × 0.3–0.4 mm, bilobed to 1/2× their length, lobe apices acuminate, sinus narrowly to widely acute, margins entire. *Gammas* not seen. *Autoicous*. *Androecia* intercalary on lateral branches, bracts and bracteoles in 4–6 pairs. *Gynoecia* terminal with 1–2 innovations; lobe lanceolate, 1.2–1.5 × 0.4–0.5 mm, apex apiculate, margin entire; lobules lanceolate, 2/3× lobe length, apex apiculate; bracteoles ovate, 1–1.2 × 0.3–0.4 mm, bilobed to 2/3× their length, lobe



apices acuminate, sinus narrow, margins entire, central region gibbous. *Perianths* exerted to 1/2, oblong, 1.7–2 × 0.7–1 mm, 3-keeled, margin entire; beak 30–38 µm, 2–3 cells long. *Sporophyte* not seen.

SPECIMEN EXAMINED: THAILAND, KHAO SOI DAO WILDLIFE SANCTUARY, on bark of tree, 8 April 2012, Sukkharak *et al.* 340 (herbarium of Department of Biology, Burapha University).

ECOLOGY. Growing on bark in moist area.

DISTRIBUTION. *Jubula hutchinsiae* subsp. *javanica* is known from Peninsular India (Pócs *et al.* 2007), China (Pätsch *et al.* 2010), Korea (Katagiri *et al.* 2010; Choi *et al.* 2013), Japan (Katagiri *et al.* 2010), Taiwan (Wang *et al.* 2011), Vietnam (Pätsch *et al.* 2010), Malaysia (Pätsch *et al.* 2010), Indonesia (Gradstein 2011), and from Thailand.

The specimen of the new record is distinguished by its entire leaf lobe, bract, and bracteole margins and apiculate leaf apex. The recent discovery of *Jubula hutchinsiae* subsp. *javanica* is the first genus and species record for Thailand. It is an additional occurrence of the species, closing the gap in its range. It bears witness that the bryoflora of Thailand remains poorly known and that exciting discoveries may still be made in this floristically rich part of the world.

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**Fig. 1.** *Jubula hutchinsiae* subsp. *javanica* (Steph.) Verd. A – portion of shoot, ventral view, B – leaves, ventral view, C – underleaves, D – female bracts, E – female bracteole, F – perianth, ventral view, G – perianth, dorsal view, H – male bracts, I – leaf apices, J – marginal cells of leaf lobe, K – median cells of leaf lobe, L – basal cells of leaf lobe, M – cross section of stem (all from Sukkharak *et al.* 340).