Taiwania, 58(2): 124–127, 2013
DOI: 10.6165/tai.2013.58.124

NOTE

Plagiochila bantamensis (Reinw. *et al.*) Mont. of the Subgenus *Metaplagiochila* Inoue (Marchantiophyta: Plagiochilaceae) New to the Liverwort Flora of the Indian Mainland

P. K. Verma[1*], K. K. Rawat[2] and A. Yadav[1]

1. Rain Forest Research Institute, Deovan, Sotai Ali, Post Box # 136, Jorhat - 785 001 (Assam), India.
2. National Botanical Research Institute, Rana Pratap Marg, Lucknow - 226001, India. Email: drkkrawat@rediffmail.com
** Corresponding author. Email: pkverma_bryo@yahoo.co.in*

(Manuscript received 13 September 2012; accepted 22 November 2012)

ABSTRACT: The interesting sac-bearing species *P. bantamensis* is added here to the liverwort flora of the Indian mainland from Assam, a part of the Indo-Burmese biodiversity hotspot. It was earlier recorded in the Nicobar Islands for India. Incidentally, the subgenus *Metaplagiochila*, under which the species falls, is a new record for the Indian mainland as well. The species is described in detail, illustrated and its distribution is mapped.

KEY WORDS: Assam, Marchantiophyta, *Metaplagiochila*, *Plagiochila*, Plagiochilaceae.

INTRODUCTION

Plagiochila Dumort. is a highly plastic genus that exhibits countless morpho-taxonomic variations. The revision by So (2001a) has thrown some light on this fact and has enriched our knowledge on the morpho-taxonomy, diversity and distribution of this genus in Asia. In India, the genus is represented by 65 species (Dandotiya *et al*., 2011). Rawat and Srivastava (2007), who monographed the genus *Plagiochila* of Eastern Himalayas have reported 38 species from Eastern Himalayas, with *P. detecta* Grolle & M.L. So, *P. perserrata* Herzog and *P. defolians* Grolle & M.L. So as new records for the country and added one new species *P. meghalayensis* K. K. Rawat & S. C. Srivast. Further, they have excluded 12 other species, reportedly present in the region due to unavailability of authentic specimens. The subgenus *Metaplagiochila* Inoue, is represented in India by *P. bantamensis* and *P. kurzii*, both from the farthest Indian territory, the Nicobar Islands, and have never been recorded in the Indian mainland despite their occurrence in trans-Himalayan-Chinese region (So, 2001a, b; Rawat and Srivastava, 2007).

While exploring the Northeastern part of India, material of *P. bantamensis* of the subgenus *Metaplagiochila* was collected from Gibbon Wildlife Sanctuary in Assam between 26º46'55.86"N latitude and 26º44'35.26"N latitude and 94º20'38.57"E longitude and 94º23'38.21"E longitude, which constitutes the first record ever of the subgenus *Metaplagiochila* for the Indian mainland. Since knowledge on the taxonomy and distribution of the genus *Plagiochila* of Southeast Asia is far from adequate, we desist from commenting on the possible route of its dispersal, whether from China or via Malaya. Nevertheless, this discovery from Assam, a part of the Indo-Burma biodiversity hotspot, is suggestive that its dispersal, in all probability could have been from China since *P. defolians* Grolle & M.L. So, a Chinese endemic, has been reported earlier by Rawat and Srivastava (2007) from this region. The species is described in detail, illustrated and its distribution is mapped (Fig. 1). The specimens are housed at RFRI.

Plagiochila bantamensis (Reinw. *et al.*) Mont. in d'Orbigny, Voy. Amér. Mérid. 7, Bot. (2): 82. 1839; M.L. So, Aust. Syst. Bot. 14: 677-688. 2001 & Syst. Bot. Monogr. 60: 21. 2001. *Jungermannia bantamensis* Reinw. *et al.*, Nova Acta Phys.-Med. Acad. Caes. Leop.-Carol. Nat. Cur. 12: 235. 1825.-Type: Indonesia, Java, Bantam, *C.L. Blume s.n*. (STR). *Plagiochila nicobarensis* Reichardt, Verh. K. K. Zool.-Bot. Ges. Wien 16: 959. 1866.-Type: India, Nicobar Islands, 1870, *E. Jelinek* 58 (W). *Plagiochila didrichsenii* Steph., Bull. Herb. Boissier, sér 2, 4: 27. 1904. - Type: India, Nicobar Islands, *F. Didrichen s.n*. (G). Figs. 2 & 3

Plants dioecious, medium-sized, 25–40 mm long, 3–5 mm wide, rhizomatous. Stems 0.145–0.23 mm in diameter, elliptical in cross section; cortical cells 1- or 2-layered, 10–20 × 10–16 µm, thick-walled; medullary cells 13–23 × 13–16 µm, thin-walled; dorsal surface slightly exposed; ventral surface completely hidden by underleaf bases and paraphyllia; branches occasional, lateral-intercalary; rhizoids absent on ventral surface,

臺灣大學學術期刊資料庫

numerous on rhizome. Leaves closely imbricate, horizontally spreading, 1.8–2 × 1–1.2 mm, oblong-ovate, short-decurrent at base, with a ventral globular sac prominent in mature leaves, fold-like or absent in immature leaves, straight and slightly recurved at dorsal margin, 4–8 spinously toothed, straight to slightly arched at ventral margin, 19–25 ciliate-spinously toothed, truncate, with 4–6 irregular teeth at apex; spinous teeth 4–8 cells long and 2–5 cells wide at base with 2–4 uniseriate cells at apex and 32–58 × 8–13 µm terminal cells; ciliate teeth 6–8 cells long, 2–4 cells wide at base with 4–7 uniseriate cells at apex and 29–32 × 16–19 µm terminal cells; leaf median cells 19–36 × 16–29 µm; leaf basal cells 26–39 × 23–29 µm, thin-walled, nontrigonous; cuticle smooth. Underleaves large, 0.83–0.91 × 0.33–0.45 mm in size, variously shaped, deeply bilobed. Paraphyllia numerous, on ventral surface of stem, large, 1.16–1.45 × 0.25–0.37 mm in size, variously shaped. Male bracts to 65 pairs, terminal on main shoot, slightly inflated, almost entire or with a few small spinous teeth at margin. Female plants not seen.

Note: So (2001a) reported only 12–15 pairs of male bracts.

Specimen examined: **INDIA**: Assam-Jorhat (Gibbon Wildlife Sanctuary), at *ca.* 123 m altitude, Dec. 29, 2011, *P.K. Verma* 135/2011, 136/2011, 137/2011 (RFRI).

Distribution: China, Fiji, Japan, Papua New Guinea, the Philippines, Indonesia, Kampuchea, Malaysia, Melanesia, Samoa, Singapore, Sri Lanka, Sulewasi, Thailand, Vietnam (*vide* So, 2001 a, b) and India: Nicobar Islands and Assam.

Plagiochila bantamensis can be readily distinguished from the rest of the species by the presence of ventral globular sac on mature leaves. However, *P. kurzii* Steph., a closely allied sac-bearing species of the same subgenus, is distinguished from the former by the triangularly acuminate teeth at leaf margin and eciliate ventral sac.

ACKNOWLEDGEMENTS

We thank the Department of Environment and Forests, Assam and Director, Rain Forest Research Institute, Jorhat, for providing necessary facilities. PKV and KKR wish to thank Prof. S.C. Srivastava, their mentor, for his guidance and encouragement.

LITERATURE CITED

Dandotiya, D., H. Govindpyari, S. Suman and P. C. Uniyal. 2011. Checklist of the bryophytes of India. Arch. Bryol. **88**: 1–126

Rawat, K. K. and S. C. Srivastava. 2007. Genus *Plagiochila* in Eastern Himalayas (India). Bishen Singh Mahendra Pal Singh, Dehradun.

So, M. L. 2001a. *Plagiochila* (Hepaticae, Plagiochilaceae) in China. Syst. Bot. Monogr. **60**: 1–214.

So, M. L. 2001b. Studies on *Plagiochila* subgenus M*etaplagiochila* (Plagiochilaceae, Hepaticae). Aust. Syst. Bot. 14: 677-688.

So, M. L. and R. Grolle. 2000. Checklist of *Plagiochila* in Asia. J. Hattori Bot. Lab. **88**: 199–243.

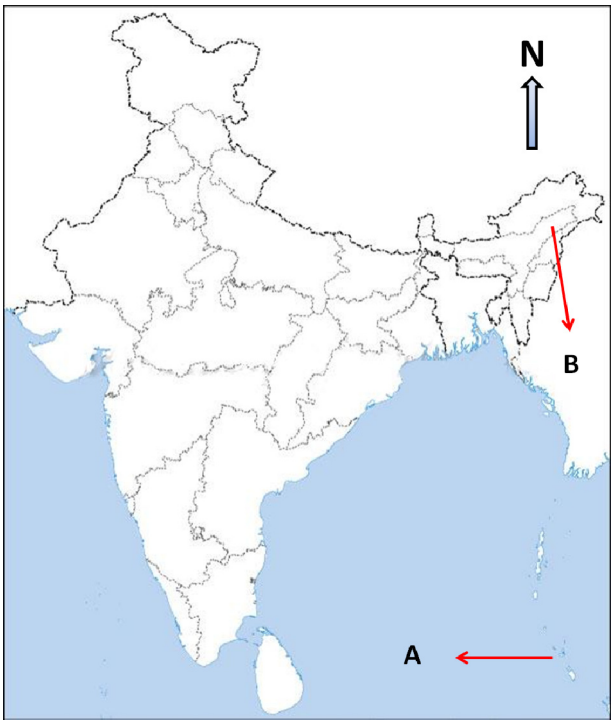


Fig.1. Map showing the distribution of *Plagiochila bantamensis* (Reinw. *et al.*) Mont. in India. A (Earlier locality). B (Present locality).

臺灣大學學術期刊資料庫

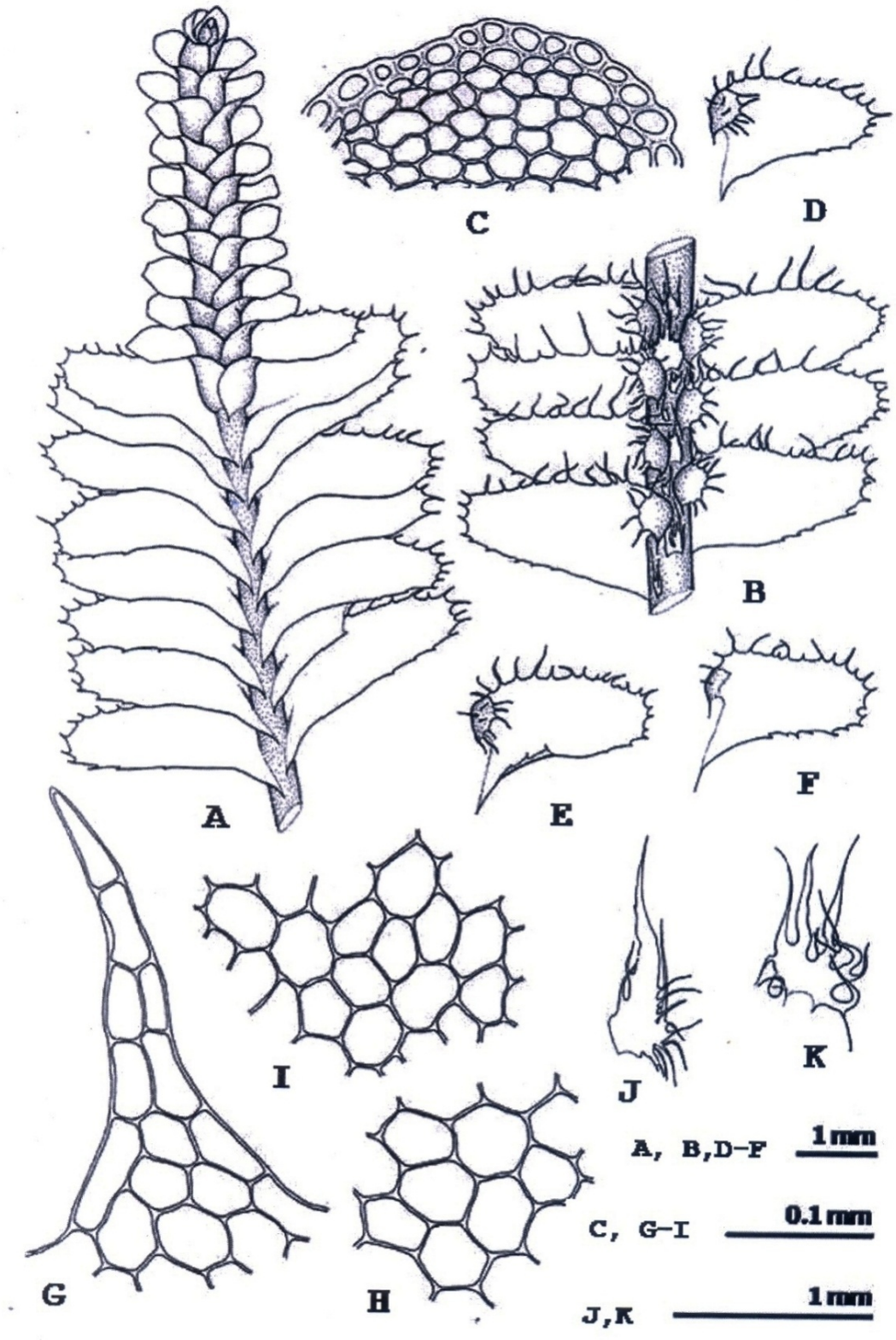


Fig. 2. ***Plagiochila bantamensis*** **(Reinw.** ***et al.*****) Mont. A: Plant portion with terminal androecia, dorsal view. B: Portion of plant, ventral view with water sacs, underleaves and paraphyllia. C: Portion of the cross section of stem. D–F: Leaves, ventral view with water sacs. G: Leaf apical cells. H: Leaf median cells. I: Leaf basal cells. J: Paraphyllia. K: Underleaf (Drawn from** ***135/2011 - RFRI)*****.**

臺灣大學學術期刊資料庫

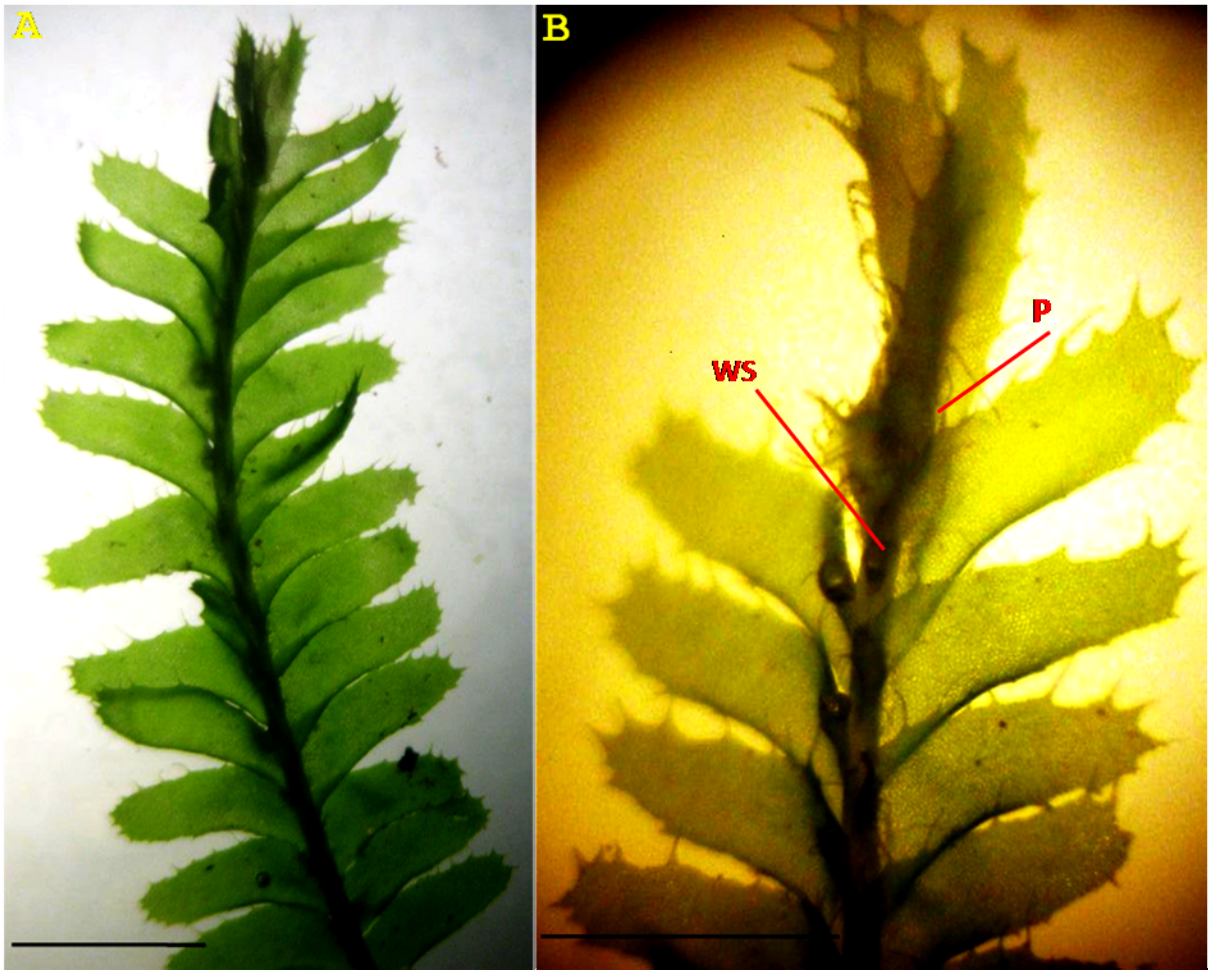


Fig. 3. *Plagiochila bantamensis* (Reinw. *et al.*) Mont. A: Plant, dorsal view. B: Plant, ventral view with water sacs (WS) and paraphyllia (P). (Photographed from *135/2011 – RFRI)*. Scale bars: A= 2.1 mm, B = 2.4 mm.

斑探羽蘚（地錢門：羽蘚科）—一種生長於印緬生物多樣性熱點的有趣羽蘚

P. K. Verma[(1*)], K. K. Rawat[(2)]and A. Yadav[(1)]

1. Rain Forest Research Institute, Deovan, Sotai Ali, Post Box # 136, Jorhat - 785 001 (Assam), India.
2. National Botanical Research Institute, Rana Pratap Marg, Lucknow - 226001, India. Email: drkkrawat@rediffmail.com
* 通信作者。*Email: pkverma_bryo@yahoo.co.in*

（收稿日期：2012年9月13日；接受日期：2012年11月22日）

摘要：斑探羽蘚是一種帶有特殊囊狀物的羽蘚屬植物，印度地區先前只在尼古巴群島見其蹤跡。本文首次在印度大陸之阿薩姆邦發現此種的分布，這也是變羽蘚亞屬在印度大陸的首次報導。

關鍵詞：阿薩姆邦、地錢門、變羽蘚亞屬、羽蘚屬、羽蘚科。

臺灣大學學術期刊資料庫