Lemna landoltii sp. nov. (Lemnaceae) from India

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ABSTRACT: *Lemna landoltii*, a new species from West Bengal, India, is described and illustrated.

KEY WORDS: Aquatic plants, Bethuadahari Wildlife Sanctuary, India, Lemnaceae, *Lemna landoltii*, new species.

INTRODUCTION

The Bethuadahari Wildlife Sanctuary (23°34'48.48"N 88°24'17.03"E) is situated adjacent to National Highway-34 near Bethuadahari town in Nadia District, West Bengal, and spread in an area of 67 ha. The sanctuary, which is a wild animal rescue centre and with more of planted trees such as *Polyalthia suberosa* (Roxb.)Thwaites, *Caesalpinia pulcherrima* (L.) Sw. and *Anthocephalus cadamba* (Roxb.)Miq., is interspersed with many large perennial ponds. The sanctuary was explored to build an inventory of the aquatic angiosperms during November, 2011. Material of a *Lemna* species collected from these ponds could not be identified with any known species of the genus and is described here as new. The genus has 13 species in the world and 6 in India which belong to 3 sections (Landolt, 1986). With the addition of this new species the number of species now in the world is 14 and 7 in India. Dried and pickled specimens have been preserved at CAL.

TAXONOMIC TREATMENT

Lemna landoltii Halder & Venu, ***sp. nov.***
蘭朵氏浮萍（新擬） Fig. 1

Type: India: West Bengal, Nadia Dist., Bethuadahari Wildlife Sanctuary, 24.11.2011, *Halder & K.L. Maity* 55503 (holo: CAL; iso: MH, BSD and BSI).

Lemna landoltii is allied to *L. perpusilla* Torr., but differs from it in the rhomboid-ovate fronds which are obscurely 3-nerved and with 8 papules, 4 of them above the node, 3 in the middle and one near the apex, fruits without wings and seeds 8–12-ribbed.

Plants growing luxuriously covering the whole pond. Fronds solitary, rarely 2 together, roughly rhomboid-ovate, 2–3 × 1.2–1.8 mm, entire, light green above, hyaline beneath; papules 8, distributed along midrib in 3 groups, 4 near above node with 3 of them small and one large, 3 much above node and all similar and one much larger and near apex; nerves 3, obscure, converging at node and extending above. Root one, 4.5–16 mm long; root-sheath winged, fringed at tip, brown; root-cap 0.4–1.4 mm long, obtuse and slightly bent at apex. Inflorescence in lateral pouches on one side with 2 male flowers and one female flower, covered by spathe. Male flowers 0.3–0.7 mm long, maturing one after the other; anthers divaricate, globose, 0.10–0.15 mm, hyaline, dehiscing by transverse slits; filament longitudinally ribbed, hyaline. Female flower usually in between male flowers, 0.4–0.5 mm long; ovary slightly elongated, 0.1–0.2 mm across, faintly ribbed, hyaline; ovule one, basal; style one, terminal; stigma cup-shaped. Utricle flask-shaped, 0.6–0.8 × 0.2–0.3 mm, attached on inner surface of spathe; seed ovoid-ellipsoid, 0.5–0.6 mm, vertically 8 – 12-ribbed.

Flowering and Fruiting: November.

Habitat: Stagnant brackish and humus-rich water bodies in plains. Occurs in association with *Spirogyra* sp. but not with any other species of *Lemna*. It is locally known as ‘pana’ as other popular duckweeds.

Etymology: The species is named in honor of Prof. Elias Landolt, Zurich Herbarium (ZT), who has contributed immensely to the Lemnaceae of the world.

Section *Alatae* in the genus *Lemna* already has 2 species, *L. aequinoctialis* and *L. perpusilla*. Since the new species *L. landoltii* has root-sheath and papules on the fronds, characters of section *Alatae*, it is placed in this section. In *L. aequinoctialis* the number of papules is 2, one above the node and the other near the apex while in *L. perpusilla* papules are 4, 2 or 3 above the node and one larger near the apex. *Lemna landoltii* has 8 papules. The new species produces flowering and fruiting simultaneously which is quite unusual in the known species of *Lemna*.

This species is also distinctive as it produces flowers and vegetative buds simultaneously in the same pouch, a phenomenon rarely seen in *L. gibba*. The

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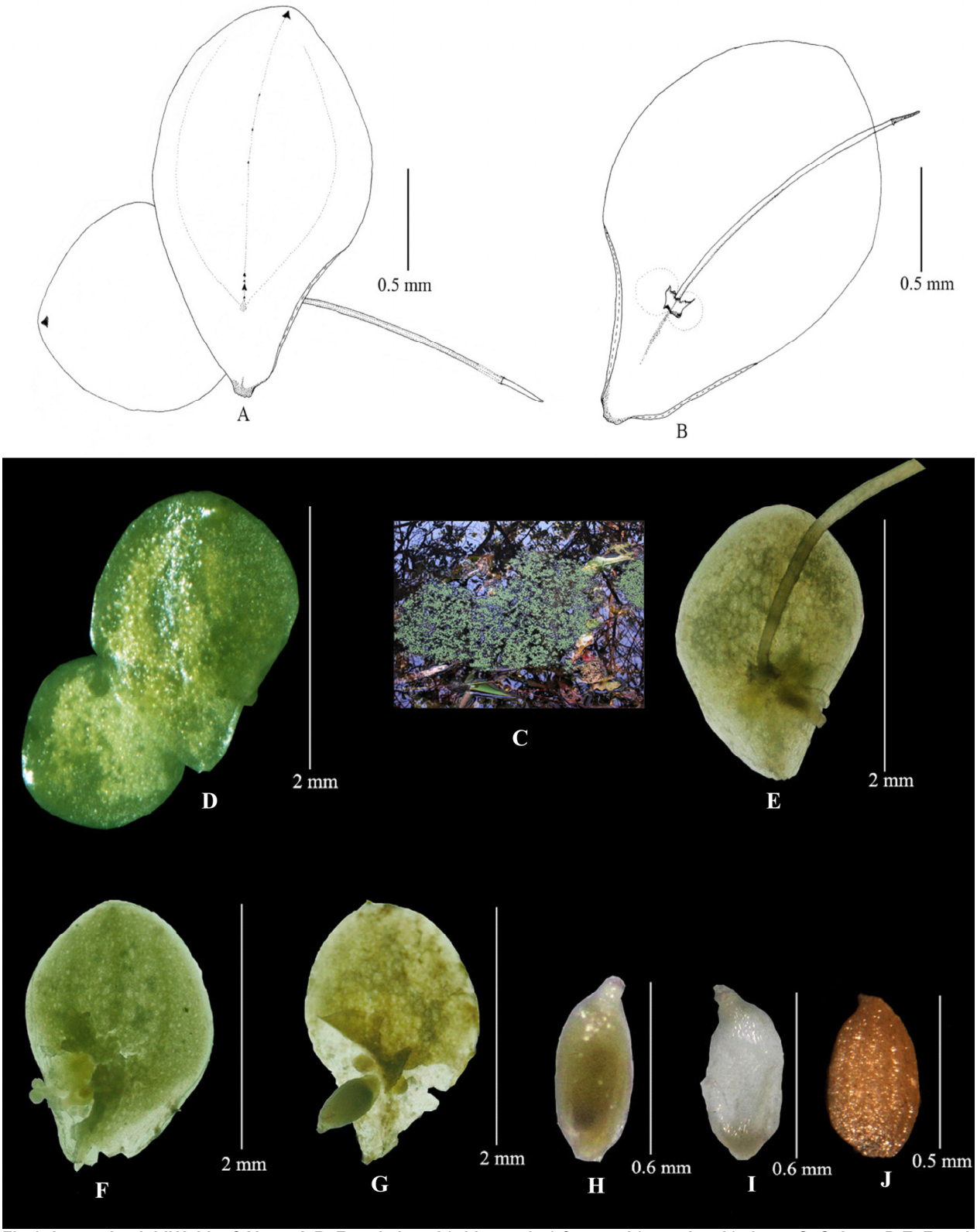


Fig.1. *Lemna landoltii* Halder & Venu. A-B: Frond, dorsal (with papules) & ventral (root-sheath) views; C: Colony; D-E: Frond, dorsal & ventral views; F: Frond in flower; G: Frond in fruit, with baby fronds on either side; H: Fruit; I: Pericarp; J: Seed (dissected & drawn/photographed from *Halder & K.L. Maity 55503*).

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Table 1: The differences between *Lemna landoltii* sp. nov. and the allied *L. perpusilla*

Character	***Lemna landoltii* sp. nov.**	***Lemna perpusilla* Torr.**
Frond	solitary, rarely 2, roughly rhomboid-ovate, 2–3 × 1.2–1.4 mm, obscurely 3-nerved; flowers and vegetative buds developing simultaneously.	3 or 4, ovate-obovate, 1–4 × 0.8–0.3 mm, prominently 3-nerved; flowers and vegetative buds not developing simultaneously.
Papules	8, near above the node, 3 small and 1 large (invariably the second one), 3 smaller, much above the node, 1 larger near the apex.	2 or 3 papules near above the node and 1 smaller near tip; papules absent much above the node.
Root-sheath	more squarish or slightly broader than long.	laterally winged, oblong, 2-3 times as long as wide.
Fruit-wing	absent	present, lateral, *ca*. 0.05 mm broad.
Seed	brown, irregularly 8–12-ribbed.	white, indistinctly 35–70-ribbed

differences between the new species and the allied *L. perpusilla* are shown in Table 1.

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LITERATURE CITED

Landolt, E. 1986. The Family of Lemnaceae–a monographic study. in Veroff. Geobot. Inst. ETH, Stiftung Rubel, Zurich. **1**: 1–566.

記一印度產浮萍科新種：蘭朵氏浮萍（*Lemna landoltii*）

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摘要：本文記載一產自印度西孟加拉州浮萍科植物的新種：蘭朵氏浮萍（*Lemna landoltii*），並提供物種描述及繪圖。

關鍵詞：水生植物、浮萍科、蘭朵氏浮萍（*Lemna landoltii*）、新種、Bethuadahari 野生生物禁獵區、印度。

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