

SHORT COMMUNICATIONS

New combinations in *Brassicaceae* (*Cruciferae*): *Draba serpens* is a *Hemilophia* and *D. williamsii* is a *Lepidostemon*

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Introduction

During a revisionary study on *Draba* L. for the Himalayas and Central Asia and work on the *Brassicaceae* account for the Flora of Nepal, both of which are in progress, it became evident that the generic placement of some species needed adjustment. The present study deals with two such species, *D. serpens* O.E. Schulz from Yunnan, China and *D. williamsii* H. Hara from Nepal. For reasons given below, the former species is transferred to *Hemilophia* Franch. and the latter to *Lepidostemon* Hook.f. & Thomson. The genera *Draba*, *Hemilophia* and *Lepidostemon* can be separated by the following key.

- 1a. Fruit valves with crests; ovules 2 or rarely 4, placentation apical; plants rhizomatous, with adventitious roots _____ **Hemilophia**
- 1b. Fruit valves without crests; ovules 6 or more, rarely 4, placentation parietal; plants neither rhizomatous nor with adventitious roots _____ 2
- 2a. Filaments of median stamens flattened and/or with appendages; anthers often reniform; fruits linear, terete, if flattened then valves strongly thickened at margin _____ **Lepidostemon**
- 2b. Filaments of median stamens neither flattened nor with appendages; anthers ovate, oblong, or linear; fruits variously shaped, if linear then flattened and valves not thickened at margin _____ **Draba**

Hemilophia

Hemilophia, previously known to consist of four species, two of which were described in 1999 (Al-Shehbaz, 1999; Al-Shehbaz *et al.*, 1999), is endemic to China (Sichuan and Yunnan). The species are slender, perennial, rhizomatous herbs with branched or rarely simple trichomes, adventitious roots, fully bracteate racemes, often appendaged median staminal filaments, reniform anthers, ovaries with 2 (rarely 4) apical ovules, conical and glabrous or cylindric and puberulent styles, and fruits with crested valves. With the addition of *H. serpens*, the five species can be separated by the following key.

- 1a. Cauline leaves sessile; sepals not ciliate; style conical, not minutely papillate 2
- 1b. Cauline leaves petiolate; sepals ciliate, if not then petals purple; style cylindric, minutely papillate _____ 3

- 2a. Stems with simple trichomes only; petals creamy white with dark green veins; median filaments strongly inflated basally into an oblong appendage 1.1–1.3mm long _____ **H. sessilifolia**
- 2b. Stems with appressed, subsessile, forked trichomes only; petals bright yellow with veins same colour as limb; median filaments without appendages at base _____ **H. serpens**
- 3a. Petals purplish; leaves hispid with setose, appressed trichomes; sepals not ciliate; stem trichomes not crisped _____ **H. franchetii**
- 3b. Petals pink, creamy white or yellowish; leaves glabrous or pilose with crisped, non-setose trichomes; sepals ciliate; stem trichomes crisped _____ 4
- 4a. Petals 2.5–3.5 × 1.5–2mm, pink; base of median staminal filaments slightly dilated, without appendage, 0.2–0.3mm wide; leaves glabrous or rarely sparsely pilose _____ **H. pulchella**
- 4b. Petals 5–7 × 3–5mm, creamy white to yellowish; base of median filaments conspicuously broadened, with appendage, 0.6–1.1mm wide; leaves pilose or rarely glabrescent _____ **H. rockii**

Hemilophia serpens (O.E. Schulz) Al-Shehbaz, **comb. nov.**

Basionym: *Draba serpens* O.E. Schulz in Handel-Mazzetti, Anz. Akad. Wiss. Wien, Math.-Naturwiss. Kl. 63: 96 (1926). Type: China, Yunnan, between Haba and Dugwantsun, Dschungdie (Chungtien), alpine region, 4250–4450m, 23 vi 1915, *Heinrich Handel-Mazzetti* 6961 (holo. B!; iso. E!, W!, WU!).

Hemilophia serpens, known only from the type collection, resembles the other four species of *Hemilophia* in the generic characters discussed above. It is more at home in *Hemilophia* than in *Draba* because it has conical styles, four apical ovules and slender, few-branched rhizomes. Almost all species of *Hemilophia* have this combination of characters; the only exception is the presence of cylindrical but minutely papillate styles in *H. franchetii* Al-Shehbaz, *H. pulchella* Franch. and *H. rockii* O.E. Schulz. None of the approximately 350 species of *Draba* has slender, few-branched rhizomes, nor is there any species with so few apical ovules and conical styles. The only exception to this rule is the frequent presence in the distinctive *D. hystrix* Hook.f. & Thomson, from Afghanistan and Pakistan, of only four ovules per ovary, but these are always parietal rather than apical. The type collection of *H. serpens* lacks mature fruits, but the immature ones show signs of the development of longitudinal crests just as in the other species of the genus. Zhou *et al.* (2001) tentatively recognized the species in *Draba*, but indicated that its generic placement was doubtful.

Lepidostemon

A recent account of *Lepidostemon* (Al-Shehbaz, 2000) recognizes five species, of which *L. everestianus* Al-Shehbaz and *L. rosularis* (K.C. Kuan & Z.X. An)

Al-Shehbaz are endemic to Tibet, *L. gouldii* Al-Shehbaz and *L. glaricola* (H. Hara) Al-Shehbaz are restricted to Bhutan and Nepal, and *L. pedunculatus* Hook.f. & Thomson is narrowly distributed in Sikkim (India) and adjacent Tibet. The genus is characterized by having medifixed or dendritic trichomes, divaricate, recurved fruiting pedicels, petal claws subequalling sepals, median staminal filaments often winged or appendaged, and reniform or rarely oblong anthers.

The sixth species, hereafter *Lepidostemon williamsii*, is excluded from *Draba* because it has incumbent cotyledons and terete, linear fruits. Accumbent cotyledons and latiseptate fruits are characteristic of almost all species of *Draba*. Though fruit shape is quite variable in *Draba*, linear fruits are never terete, while ovoid or globose fruits are always terete or subterete. *Lepidostemon williamsii* resembles *L. gouldii* in every aspect of leaf and fruit morphology, indumentum, flower size and colour, and reniform, blue anthers. It differs from *L. gouldii* by being a perennial instead of an annual and by having fully bracteate instead of ebracteate racemes, white instead of mostly lavender or purple flowers, and median staminal filaments without apical appendages.

The six species of *Lepidostemon*, including *L. williamsii*, can be separated by the following key.

- 1a. Raceme bracteate throughout _____ 2
- 1b. Raceme ebracteate _____ 3

- 2a. Leaf trichomes almost all simple; anthers oblong, 0.7–0.9mm long; cotyledons accumbent _____ **L. everestianus**
- 2b. Leaf trichomes often a mixture of dendritic, medifixed, forked, with fewer simple ones; anthers reniform, 0.3–0.5mm long; cotyledons incumbent _____ **L. williamsii**

- 3a. Perennials; filaments of median stamens slender, without appendages; trichomes all dendritic; cotyledons incumbent _____ **L. glaricola**
- 3b. Annuals; filaments of median stamens flattened, often with appendages; trichomes often a mixture of simple, forked, medifixed and dendritic; cotyledons accumbent _____ 4

- 4a. Fruit strongly flattened, not torulose, 2.5–3mm wide; valve margins thickened, with prominent marginal veins; median filaments toothless; seeds ovate _____ **L. rosularis**
- 4b. Fruit terete, torulose, c.1mm wide; valve margins not thickened, with obscure marginal veins; median filaments toothed; seeds oblong _____ 5

- 5a. Petals purple to lavender, rarely white; sepals, petals and stamens deciduous shortly after flowering; racemes elongated in fruit; fruiting pedicels recurved; leaf trichomes predominantly simple; fruit trichomes stalked, forked and dendritic _____ **L. gouldii**

- 5b. Petals yellow; sepals, petals and stamens persistent well into fruit maturity; racemes not elongated in fruit; fruiting pedicels straight; leaf trichomes dendritic and medifixed; fruit trichomes sessile, medifixed — **L. pedunculosus**

Lepidostemon williamsii (H. Hara) Al-Shehbaz, **comb. nov.**

Basionym: *Draba williamsii* H. Hara, *J. Jap. Bot.* 52: 353 (1977). Type: Nepal, Tukucha, Kali Gandaki, steep wet stony slopes, 10,500ft [3200m], 13 vi 1954, *Stainton, Sykes & Williams* 1092 (holo. BM!; iso. A!, E!, G!, UPS!).

One of the paratypes cited by Hara (1977), *Ludlow & Sherriff* 16839 (BM), is the closely related *L. gouldii*.

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