Drabopsis Is United with Draba (Brassicaceae)

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ABSTRACT. Drabopsis nuda is transferred to Draba, and the two genera are united. The distinguishing characters separating these two genera and Arabidopsis are discussed.

Key words: Arabidopsis, Brassicaceae, Cruciferae, Draba, Drabopsis.

The systematic position of Drabopsis K. Koch has been the source of continuous controversy. The genus has long been considered to be monotypic. Naqshi and Javied (1984) added another species, D. brevisiliqua Naqshi & Javied, that was said to differ from the highly variable D. nuda (Belanger) Stapf by having shorter fruits (ca. 1.2 cm) and non-flexuous scapes. In our opinion, these differences are trivial and D. brevisiliqua is reduced to synonymy of D. nuda (see below).

Drabopsis nuda is distributed from western Xinjiang (China), central Asia, Kashmir, and Afghanistan westward into Iran, Iraq, Turkey, Caucasus, and Crete (Gustavsson, 1977). The nomenclature of the species has been dealt with by Léonard (1977), and the species should be recognized as D. nuda, instead of the later-published D. verna K. Koch, as was done by Cullen (1965), Hedge (1968), Jafri (1973), and Gustavsson (1977).

Drabopsis nuda does not fit appropriately in any genus. It was originally described as Arabis L., and it resembles Arabis auriculata Lamarrack in having linear, somewhat latiseptate fruits, stout fruiting pedicels nearly as thick as fruit, and accumbent cotyledons. However, the species cannot be accommodated in Arabis because it has yellow flowers and leafless scapes. The presence in D. nuda of acuminate instead of incumbent cotyledons and leafless instead of leafy stems strongly supports its exclusion from Sisymbrium L., where it was placed by Boissier (1867).

Busch (1909) and Bornmüller (1911) transferred Drabopsis verna and D. nuda to Arabidopsis (DC.) Heynhold, respectively. No reasons were given to support such transfer, and Jafri (1973) recommended that the two genera be united, though he maintained both. The lack in Drabopsis nuda of any cauline leaves and the presence of stout fruiting pedicels nearly as thick as the fruit, yellow flowers, and stalked, almost exclusively stellate trichomes clearly do not support its placement in Arabidopsis. All species of Arabidopsis have cauline leaves, fruiting pedicels narrower than fruits, white to lavender flowers, and a mixture of simple and forked trichomes. Furthermore, molecular data (O’Kane & Al-Shehbaz, in prep.) demonstrate that Arabidopsis and Drabopsis are unrelated. Al-Shehbaz et al. (1999) excluded the species from Arabidopsis but maintained it in Drabopsis.

The recognition of Drabopsis as a monotypic genus does not solve its affinity and relationship. In every aspect of its scapose habit, leafless scapes, annual duration, flower color, acuminate cotyledons, and trichome morphology, Drabopsis nuda is more at home in Draba. In fact, Boissier (1867) was the first to point out the resemblance of the species to Draba L. (as Erophila DC.). The only morphological oddity brought about by the placement of Drabopsis nuda in Draba is the relative length/width ratio of the fruit. No other species in Draba has fruits as many as 45 times longer than broad, though this extreme length/width ratio of the fruits in Drabopsis nuda is the maximum, and according to Zhou et al. (2001), the species has fruits (10–17–33–45) × 0.8–1 mm. Other species of Draba with linear fruits as long as 30 times the width are found in the Himalayan and central Asian D. aucheri Boissier and the Tibetan D. nylamensis Al-Shehbaz (Al-Shehbaz, 2002).

Schulz (1936) placed Drabopsis in the tribe Arabideae and Draba in the tribe Drabeae. His tribal assignment of the two genera is not supported by morphological or molecular data, and it has been shown that the closest relatives of Draba s.l. are

Eurasian Arabis and Aubrieta Adanson (Koch & Al-Shehbaz, 2002).

Molecular studies (Koch & Al-Shehbaz, unpublished) clearly show that Drabopsis nuda is close to the annual species of Draba (e.g., D. nemorosa L., D. muralis L., D. verna L.). Phylogenetic analysis using DNA sequence variation of the internal transcribed spacers ITS-1 and ITS-2 of nuclear ribosomal DNA demonstrated that Draba (including Er-ophila) forms a monophyletic assemblage. The vast majority of perennial species of Draba are combined to one large group, and all annual taxa, including Drabopsis nuda, are positioned basal to them.


*Draba nuda* is easily distinguished from all of the other annual, yellow-flowered species of *Draba* by having leafless scapes, stout fruiting pedicels nearly as thick as the fruit, slightly flexuous rachis, and slightly compressed, slender, linear fruits (1–) 1.7–3.3(–4.5) cm × 0.8–1.2(–1.6) mm.

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Literature Cited