



Nomenclatural clarifications for names in *Boschniakia*, *Kopsiopsis* and *Xylanche* (Orobanchaceae)

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Abstract

Phylogenetic evidence agrees with splitting *Boschniakia* C. A. Meyer *sensu lato* into three genera, *Boschniakia*, *Kopsiopsis* and *Xylanche*. In this study, we clarified some nomenclatural confusion concerning these three genera. The authorship of both *Boschniakia* and *B. glabra* is ascribed to C. A. Meyer, not C. A. Meyer ex Bongard or Bongard. *Kopsiopsis hookeri* (Walp.) Govaerts is the correct replacement name for the illegitimate name *Orobanche tuberosa* Hook. (1834), non Vell. (1829). Both *Xylanche* and *X. himalaica* were simultaneously validated in 1890.

Key words: *Boschniakia*, *Kopsiopsis*, nomenclature, *Xylanche*

Boschniakia C. A. Meyer *sensu lato* comprises four species. Whereas *B. rossica* (Cham. & Schltdl.) B.Fedtsch. is widely distributed throughout north temperate Asia and northwestern North America, *B. hookeri* Walp. and *B. strobilacea* A.Gray are endemic to western North America, and *B. himalaica* Hook.f. & Thomson is restricted to the Himalaya region and China. During his revision of the genus *Orobanche* L., Beck von Mannagetta (1890) transferred the two North American endemic species to *Orobanche* sect. *Kopsiopsis* Beck merging them into a single species *O. hookeri* (Walp.) Beck (\equiv *Orobanche tuberosa* Hook., non Vell. in 1829). Furthermore, Beck von Mannagetta (1890) proposed the new genus *Xylanche* Beck on the basis of *B. himalaica* in the identification key for Orobanchaceae (p. 58): “Placentae 3. Calyx cupuliformis truncatus. Laciniae labii inferi minutissimae” [sic]. In his full revision of Orobanchaceae, Beck von Mannagetta (1930) raised *O. sect. Kopsiopsis* to an independent genus *Kopsiopsis*, now accepting two species *K. tuberosa* (Hook.) Beck (\equiv *K. hookeri* (Walp.) Govaerts) and *K. strobilacea* (A.Gray) Beck. In the same revision, *Boschniakia* contained *B. glabra* C.A.Mey. ex Bongard and *B. handelii* Beck, whereas *Xylanche* included *X. himalaica* (Hook.f. & Thomson) Beck and *X. kawakamii* (Hayata) Beck. It is confusing that Beck von Mannagetta (1930) described the three-placenta species *B. handelii* Beck under the genus *Boschniakia* instead of *Xylanche*. Based on careful comparison of specimens, Smith (1933) provided a more detailed description of *X. himalaica* and demonstrated that both *B. handelii* and *X. kawakamii* are conspecific with *X. himalaica*.

Phylogenetic relationships of *Boschniakia sensu lato* have been addressed in molecular phylogenetic studies using nrITS (Wolfe *et al.* 2005), *PhyA* (Bennett & Mathews 2006) and *rps2* (Park *et al.* 2008). Unambiguously, all species fall into the non-photosynthetic clade (clade III of Bennett & Mathews 2006). Monophyly of *Boschniakia sensu lato* is, however, clearly rejected (see Park *et al.* 2008): both nrITS and *rps2* data suggest three distinct lineages, whereas *PhyA* data indicate the presence of two distinct lineages (*B. himalaica* was not included in this study). Only *B. hookeri* and *B. strobilacea* are congruently identified as monophyletic group. The phylogenetic heterogeneity of *Boschniakia sensu lato* agrees with the taxonomic treatment by Beck von Mannagetta (1930), who recognized three genera *Boschniakia*, *Kopsiopsis* and *Xylanche*. In this study, we clarify some nomenclatural confusion concerning these three genera and the correct names of their species.