



Taxonomic comments on the genus *Sibbaldiopsis* Rydb. (Rosaceae)

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ABSTRACT. Three species originally published as members of the genus *Potentilla*, later classified as *Sibbaldiopsis*, are here transferred in the genus *Sibbaldia*.

KEY WORDS. Rosaceae, *Sibbaldiopsis*, *Sibbaldia*, *Potentilla*, transfer.

The North American species *Potentilla tridentata* Aiton was classified by Wolf (1908) together with two Asian species [*P. miyabei* Makino and *P. cuneifolia* Bertol. (*P. ambigua* Cambess. in Jacquem.)] in a separate group (grex) called *Tridentatae*. Rydberg (1898, 1908), the monographer of North American members of *Potentilleae*, placed *P. tridentata* into the independent genus *Sibbaldiopsis* Rydb., paying special attention to the insertion of the style. However, this genus was accepted only by a small number of later authors.

Based on the anther structure, *P. tridentata* and the two above mentioned Asian species are not closely related to *Potentilla* s.str., but rather belong to a distinct evolutionary line of the tribe *Potentilleae*, allied with *Fragaria*, *Dasiphora*, *Comarum*, *Sibbaldia*, *Sibbaldianthe*, *Schistophyllidium* and *Drymocallis* (Soják 2008).

Eriksson et al. (1998, 2003) included *Sibbaldia procumbens* L. and *P. tridentata* in the analysis of the Rosoideae phylogeny using nuclear ITS and chloroplast trnL/F DNA markers. Both species were grouped together in all presented analyses and formed, together with other species from the subtribe *Fragariinae*, a well supported clade. Lundberg et al. (2009) carried out a phylogenetic analysis based on nuclear ETS, ITS and chloroplast trnL/F and trnS/G markers. Two marker sets yielded slightly different tree topologies, but the combined tree supported close relationships between *Sibbaldiopsis tridentata* and species from the *Sibbaldia procumbens* aggregate. The same clade comprised also of *Potentilla cuneata* and *P. miyabei*. *Potentilla cuneata* Wall. ex Lehm. 1831 is identical with *Sibbaldia cuneata* Edgew. 1846 and belongs to the genus *Sibbaldia* s.str., while *P. cuneata* in Lundberg et al. (2009) in fact concerns *Potentilla cuneifolia* Bertol, which is a

member of the *Tridentatae* group, i.e. *Sibbaldiopsis* (Soják 2008). Further on, *Potentilla miyabei* also falls into this group (Soják 2004). The cited authors have thus studied all three existing species of the genus *Sibbaldiopsis* using molecular methods, documenting their close relationship with the *Sibbaldia procumbens* aggregate.

The first author of this article carried out a preliminary phylogenetic analysis of the broader genus *Potentilla* and relatives (Dobeš et al. in prep.), including two members of *Sibbaldiopsis* [*S. tridentata* (Aiton) Rydb. and *S. cuneifolia* (Bertol.) Soják] and two species from *Sibbaldia procumbens* aggregate (*S. parviflora* Willd., *S. procumbens* L.), using four cpDNA markers. All four studied species formed one highly supported distinct clade and results were in agreement with Eriksson et al. (1998, 2003) as well as Lundberg et al. (2009), however, with a somewhat different relationship to the morphologically distinct genus *Sibbaldianthe* Juz. s.l. [incl. *Schistophyllidium* (Juz. ex Fed.) Ikonn.]. Hence, based on all four phylogenies, the justification of the separate genus *Sibbaldiopsis* is hardly defensible. This is why we transfer the following species into the genus *Sibbaldia*.

***Sibbaldia cuneifolia* (Bertol.) Paule & Soják, comb. nova**

bas. *Potentilla cuneifolia* Bertol., Misc. Bot. 24: 15. 1863.

***Sibbaldia miyabei* (Makino) Paule & Soják, comb. nova**

bas. *Potentilla miyabei* Makino, Bot. Mag. (Tokyo) 16:28. 1902.

***Sibbaldia tridentata* (Aiton) Paule & Soják, comb. nova**

bas. *Potentilla tridentata* Aiton, Hortus Kew., ed. 1, 2:216. 1789

REFERENCES

- Eriksson T., Donoghue M.J. & Hibbs M.S., 1998: Phylogenetic analysis of *Potentilla* using DNA sequences of nuclear ribosomal internal transcribed spacers (ITS), and implications for the classification of *Rosoideae* (*Rosaceae*). – *Plant Systematics and Evolution* 211: 155-179.
- Eriksson T., Hibbs M.S., Yoder A.D., Delwiche C.F. & Donoghue M.J., 2003: The phylogeny of *Rosoideae* (*Rosaceae*) based on sequences of the internal transcribed spacers (ITS) of nuclear ribosomal DNA and the trnL/F region of chloroplast DNA. – *International Journal of Plant Sciences* 164: 197-211.
- Lundberg M., Töpel M., Eriksen B., Nylander J.A.A. & Eriksson T., 2009: Allopolyploidy in *Fragariinae* (*Rosaceae*): Comparing four DNA sequence regions, with comments on classification. – *Molecular Phylogeny and Evolution* 51: 269-280.
- Rydberg P.A., 1898: A monograph of the North American *Potentilleae*. – *Memoirs from the Department of Botany of Columbia College* 2: 1-223.
- Soják J., 1989 [“1985”]: Generická problematika *Potentilla* s.l. – Die generische Problematik von *Potentilla* s.l. – *Časopis Národního Muzea, Řada Přírodovědná*, 154: 117-118. [In Czech and German.]
- Soják J., 2004: *Potentilla* L. (*Rosaceae*) and related genera in the former USSR (identification key, checklist and figures). Notes on *Potentilla* XVI. – *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 125: 253-340.
- Soják J., 2008. Notes on *Potentilla* XXI. A new division of the tribe *Potentilleae* (*Rosaceae*) and notes on generic delimitations. – *Botanische Jahrbücher für Systematik, Pflanzengeschichte und Pflanzengeographie* 127: 349-358.
- Wolf T., 1908: Monographie der Gattung *Potentilla*. – *Bibliotheca Botanica* 71: 1-715.