

НОВЫЕ ТАКСОНЫ NEW TAXA

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POTENTILLA × *NEBULOSA* (ROSACEAE), A NEW INTERSECTIONAL NOTHOSPECIES FROM THE ALTAI MOUNTAINS

POTENTILLA × *NEBULOSA* (ROSACEAE) – НОВЫЙ ДЛЯ НАУКИ МЕЖСЕКЦИОННЫЙ ГИБРИД ЛАПЧАТКИ С АЛТАЯ

Summary. *Potentilla* × *nebulosa* nothosp. nova from the Dzhazator River valley in the Altai Mts. (Russian Federation) is described and illustrated. We suggest that it is a result of hybridization between *P. chrysantha* and *P. pensylvanica*.

Key words: Altai Republic, floristic records, hybridization, Dzhazator River valley, Russian Federation.

Аннотация. Описывается и изображается новый для науки гибрид *Potentilla* × *nebulosa* по растению, которое было собрано в долине р. Джазатор в Юго-Восточном Алтае (Республика Алтай, Россия). Предполагается, что он возник в результате скрещивания между *P. chrysantha* и *P. pensylvanica*.

Ключевые слова: флористические находки, долина Джазатора, гибридизация, Республика Алтай, Российская Федерация.

Introduction

In summer 2011, the first author explored the vegetation of the south-eastern Altai in the Altai Republic of the Russian Federation as a member of a research team from Masaryk University, Brno (Czech Republic), accompanied by scientists from the Altai State University, Barnaul. The research was focused on the Ukok mountain plateau and the adjacent valley of the Dzhazator (Džazator) River where the team described the vegetation and measured environmental factors in 71 vegetation plots in a cold steppe, a tundra, alluvial and alpine meadows, saline vegetation and a light taiga. During this work, about 890 herbarium specimens were collected for subsequent identification, including some critical genera such as *Potentilla*. This genus, whose members are widespread in mountain steppes and tundra communities, is represented in the

collections by 66 specimens. These were revised or identified by the second author.

The collections comprise 14 species of *Potentilla* (taxonomy and nomenclature follow Soják [2004], names used by Kurbatsky [1988] are given if different), including *P. acaulis* L., *P. agrimonoides* M. Bieb. (syn. *P. lydiae* Kurbatski), *P. altaica* Bunge, *P. bifurca* L., *P. ×chionea* Soják, *P. chrysantha* Trevir., *P. crebridens* Juz., *P. evestita* Th. Wolf, *P. gelida* C.A. Mey., *P. multifida* L., *P. nivea* L., *P. ornithopoda* Tausch, *P. pensylvanica* L. (syn. *P. nudicaulis* Willd. ex D.F.K. Schldl.), and *P. sericea* L. In a local flora compiled by Dyachenko (2000), 9 further species are reported from the Ukok plateau and the adjacent Dzhazator River valley. They are *P. approximata* Bunge, *P. inclinata* Vill. (syn. *P. canescens* Bess.), *P. conferta* Bunge, *P. crantzii* (Crantz) Fritsch, *P. desertorum* Bunge, *P. kryloviana* Th. Wolf, *P. rigidula* Th. Wolf,

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P. turczaninowiana Stschegl. (syn. *P. saposhnikovii* Kurbatski), and *P. tergemina* Soják. The occurrence of *P. crantzii* and *P. inclinata* requires confirmation, however. With 21 species recorded with certainty so far, *Potentilla* seems to be the second richest vascular plant genus (after *Carex*) of the Ukok plateau (Dyachenko 2000).

The collections include a plant somewhat resembling the widespread species *Potentilla pennsylvanica*. Its characters, however, clearly indicate its hybrid origin. This hybrid cannot be assigned to any previously described nothotaxon (Baikov, 2005; Kurbatsky, 1988; Li et al., 2003; Soják, 2004, 2007), and is therefore described here as new to science.

Potentilla* × *nebulosa Danihelka & Soják, nothosp. nova

Descriptio. *Caules* laterales, 15–35 cm alti, superne insigniter laxe ramosi. *Pili petiolorum* patentis, 1,5 mm longi (nonnulli item glandulis parvis, dispersis vel pilis brevibus, curvatis induti). *Folia* approximativim pinnata 2(3)-juga, jugis 1,5–4 mm remotis, nonnulla fere digitata (jugis 0.5–1 mm remotis). *Foliola* dentibus utrinque 7–11, ad $\frac{2}{5}$ usque $\frac{1}{2}$ versus costam attingentibus, subtus cana vel cano-viridula, inter nervos pilis brevibus, irregulariter flexuosis vel curvatis numerosis obtecta. *Pedicelli* longi, insigniter tenuis. *Episepala* sepalis breviora. *Petala* ignota. *Stylus* 1,4–1,5 mm longus, basi parum incrassatus et ± papillatus.

Holotype (preserved in the Herbarium of Masaryk University, Brno): “Russian Federation, Altai Republic, Altai Mts., distr. Kosh-Agach. Belyashi (Dzhazator): right side of the Dzhazator river valley ca 39.5 km E–ESE of the village. Steppe with *Potentilla acaulis* and *Spiraea hypericifolia* on a steep S-facing slope, slightly grazed. 49°38′59.7″ N, 87°57′59.8″ E. 2010 m a. s. l. Vegetation plot JD508. Leg. Jiří Danihelka 27 July 2011, BRNU 622680”.

Description. *Rootstock* simple or little-branched, densely covered with blackish or dark brown dead stipules. *Stems* lateral, 15–35 cm tall, ± erect, with ± one small leaf, from $\frac{2}{3}$ very loosely branched, 2–10-flowered, covered with flexuose, shorter, subappressed and also long, ± patent hairs. Adult *basal leaves* 6–15 cm long, pinnate, with 2(3) approximate pairs of leaflets, some leaves almost digitate (outer and inner leaflets 0.5–4 mm apart). *Stipular auricles* acute, ca. 4–6 ± 1.5–2 mm large. *Petioles* with 1.5–2 mm long, straight, patent hairs borne on minute tubercles; some petioles also with

dispersed minute glands or with short curved hairs. *Terminal (middle) leaflet* (2)4–4.5 cm long, oblong, at base cuneate, on both sides with 7–11 teeth, reaching up to $\frac{2}{5}$ – $\frac{1}{2}$ way to the midrib; uppermost lateral (inner) leaflets shortly or longly decurrent. *Leaflets* green, with straight, long, subpatent, moderately dense hairs above, beneath grey or grey-greenish, between veins with numerous not very long, conspicuously soft, patent, irregularly flexuose, hairs (without straight or crisped hairs). *Pedicels* long, very thin. *Episepals* 2.5–3 mm long, linear, shorter than sepals. *Sepals* 4–4.5 mm long. *Petals* unknown. *Anthers* 0.5–0.9 mm long. *Style* 1.4–1.5 mm long, at base slightly thickened and papillate. *Achenes* 1.6–1.8 mm long, with only slightly prominent, pale nervation.

Discussion and concluding remarks

Potentilla × *nebulosa* (Fig. 1) is a conspicuous plant. Its leaves are of a characteristic shape and have a distinctive indumentum. The leaves are intermediate between palmate and pinnate, and their leaflets (including young ones) are grey or grey-green on the underside, never white-tomentose. This character combination is typical for hybrids and hybrid species that have arisen from hybridization of a species with palmate leaves and leaflets with straight hairs (*Orthotrichae* group) and a species with pinnate leaves and leaflets white-tomentose beneath (*Eriotrichae* group) with crisped hairs. Several such taxa have been discovered in the mountains of south Siberia. They are a result of intersectional hybridization between *P.* sect. *Niveae* and *P.* sect. *Pennsylvanicae*. These taxa differ from *P.* × *nebulosa* in having the underside of at least some leaflets covered with a white or whitish tomentum composed of crisped hairs and leaflets usually with a smaller number of deeper indents.

In its leaf shape and indumentum, the newly discovered nothospecies is also approached by *Potentilla subpalmata*, which is derived from the parental combination *P. gelida* (sect. *Aureae*) × *P. pamirica* (sect. *Pennsylvanicae*). This rare, low plant has leaflets with 3–5 pairs of blunt teeth and only sparse straight, not patent hairs between veins on the underside of leaflets. At the base, the rootstock is mostly covered by two rows of dead stipules.

Certain taxa of the *Potentilla mollissima* complex can sometimes have somewhat similar leaves and leaflets, but they have longer styles with an unbroadened stigma that is morphologically undifferentiated from the apex of the style. This

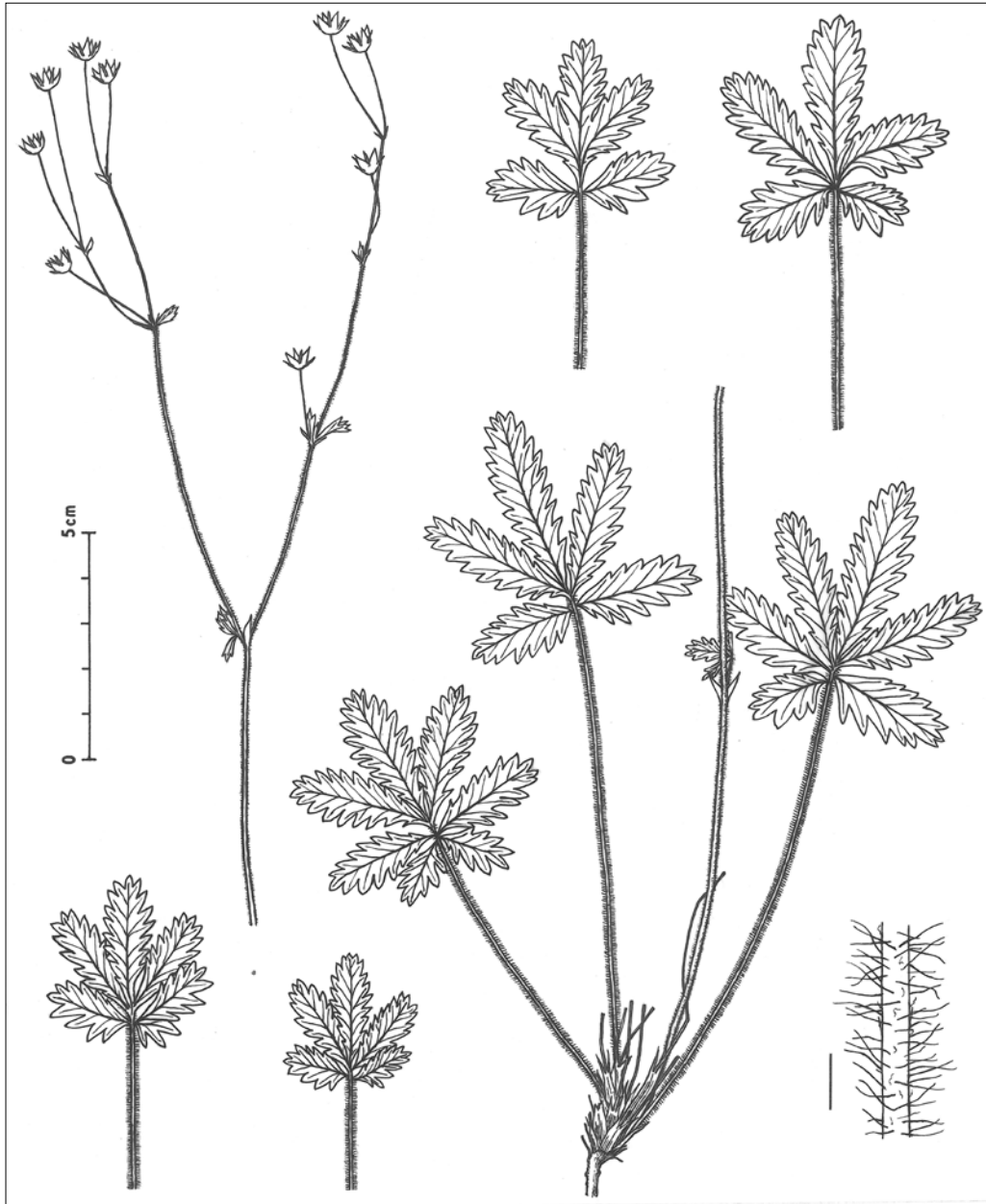


Fig. 1. *Potentilla* \times *nebulosa* (drawn after specimen BRNU 622680 by J. Soják). Right below: indumentum of the petiole, scale bar 1 mm.

is a taxonomically significant character which characterizes the section *Lipskyanae*.

Potentilla \times *nebulosa* has originated, in our opinion, through hybridization between *P. chrysantha* (sect. *Chrysanthae*) and *P. pensylvanica* (sect. *Pensylvanicae*). The participation of *P. chrysantha* in its origin is evidenced by its long, conspicuously thin pedicels and elongated leaflets with a large number of shallow teeth. The participation of *P. pensylvanica* is attested by the short petiolar indumentum and the indumentum on the leaflet underside, which lacks crisped hairs. In *P. xnebulosa*, the bottom side of leaflets has the same or similar indumentum as that of *P. pensylvanica*, i.e., with rather dense, irregularly

patent, slightly flexuous or bent hairs between veins. Numerous sessile glands on the surface between hairs (visible especially on less hairy leaflets) are not present in *P. xnebulosa*. The shape of leaflets in *P. xnebulosa* corresponds to the presumed parents.

The participation of *Potentilla conferta* in the origin of *P. xnebulosa* is ruled out mainly because of the short petiolar indumentum of the hybrid. The participation of *P. tergemina* is untenable due to the indumentum of the leaflet underside and also the shallowly toothed leaflets. We can summarize that *P. xnebulosa* resembles *P. chrysantha*, mainly in the dentation of its leaflets and in the character of its pedicels. *Potentilla pensylvanica* is close to the

new hybrid species especially in the indumentum of its leaflet underside. The petiolar indumentum of *P.* × *nebulosa* is either identical to that of *P. chrysantha* or it is intermediate between that of the two parental species.

Though the assumed parental species are quite common in the area, the newly described nothospecies is known to us only from the type collection. The mountain landscape of the Dzhazator River valley, where it was discovered, is covered by a mosaic of different types of steppes, a tundra steppe and shrubberies of *Betula rotundifolia*, while open *Larix sibirica* forests are found mainly on north-facing slopes. The new *Potentilla* was collected on a south-facing slope next to the vegetation plot JD508 set up to record steppe vegetation, which included (taxonomy and nomenclature follow Czerepanov [1995]) *Artemisia dracuncululus*, *Carex obtusata*, *Festuca valesiaca*, *Potentilla acaulis*, *Spiraea hypericifolia*, and *Stipa*

pennata. Two polycormons were confined to a strip of more mesophilous vegetation protected from direct insolation by scattered trees of *Larix sibirica*. *Potentilla pensylvanica* was also found there. The other assumed parent grew nearby in more mesophilous vegetation. We collected it, for instance, from a meadow steppe plot (JD509) situated about 200 m north of JD508. Based on the frequent co-occurrence of the parental species in the area, we believe that further research into the local flora will yield more records of this easily recognizable hybridogenous *Potentilla*.

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