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Notes on *Potentilla* L. (Rosaceae) of Altai. 5. A new intersectional hybrid from Central Altai

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Key words: Altai Republic, nothospecies nova, *Potentilla* × *chemalense*.

Summary. A new nothospesies of *Potentilla*, *P.* × *chemalense*, from Central Altai is described and illustrated. It is an intersectional hybrid purportedly between *P. chrysantha* (*P.* sect. *Chrysanthae*) and *P. tanacetifolia* (*P.* sect. *Tanacetifoliae*). The plant was found in the Chemalsky district in the Katun river valley (middle reaches). *P.* × *chemalense* grows on steppe-like stony southern-exposed slopes with shrub thickets. The morphological characters of the new nothospecies *P.* × *chemalense* are compared with those of related species. *P.* × *chemalense* is distinguished from *P. chrysantha* by pinnate leaves and from *P. tanacetifolia by* smaller number of pairs of lateral leaflets. The presence in *P.* × *chemalense* petiole of terminal leaflet makes it closer to *P. tanacetifolia*.

Заметки о лапчатках (*Potentilla*, Rosaceae) Алтая. 5. Новый межсекционный гибрид из Центрального Алтая

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Ключевые слова: новый нотовид, Республика Алтай, *Potentilla* × *chemalense*.

Аннотация. Приводятся описание и иллюстрации нового для науки нотовида из рода *Potentilla*. Собранный на территории Центрального Алтая *P.* × *chemalense* представляет собой межсекционный гибрид *P. chrysantha* (*P.* sect. *Chrysanthae*) × *P. tanacetifolia* (*P.* sect. *Tanacetifoliae*). Растение обнаружено в Чемальском районе в долине реки Катунь (среднее течение). *Potentilla* × *chemalense* произрастает на остепненных каменистых склонах южных экспозиций среди зарослей кустарников. Сравниваются морфологические характеристики нового нотовида *P.* ×*chemalense* и родственных таксонов. Перистые листовые пластинки отличают *P.* × *chemalense* от *P. chrysantha*, а меньшее число пар боковых листочков – от *P. tanacetifolia*. Наличие у *P.* × *chemalense* черешка верхушечного листочка сближает ее с *P. tanacetifolia*.

Introduction

As a result of the field work in the territory of Central Altai, the scientists from South Siberian Botanical Garden discovered an interesting taxon from the genus *Potentilla* L. Its population, which numbers several tens of individuals, was found in one of the valleys of the Katun river basin. This species has been found so far in Chemalsky district of the Altai Republic only, and hence we named it *Potentilla* × *chemalense*. This hybrid is supposed to have originated through hybridization between *P. tanacetifolia* Willd. ex D. F. K. Schltdl. and *P. chrysantha* Trevir. Its description and affinity are provided below.

Taxonomic treatment

***Potentilla* × *chemalense* Kechaykin, nothosp. nov.**; *P. tanacetifolia* Willd. ex D. F. K. Schltdl. × *P. chrysantha* Trevir. (Fig. 1).

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Type: "Russia, Altai Republic, Chemalsky district, the Katun river valley, right bank, 6 km from the mouth up the Biyka river, stepped slopes and mixed forest. N51.1105°, E86.1218°, 750–820 m a. s. l. 19 VI 2016. Kechaykin A. A., Kopytina T. M." (ALTB; iso – ALTB, B, LE, MW).

Diagnosis

Planta perennis ad 75 cm alta, superne glandulis magnis copiosis obsita. Caules 2–4(5), adscendentes vel erecti, multiflori. Folia radicalia pinnata, 10–35 cm longa, longe-petiolata, 3–4-juga. Foliola lateralia sessilia, terminale petiolatum; omnia lanceolata, pinnatifido-serrata. Stipulae foliorum laciniatae. Inflorescentia subcorymbosa. Corolla laete lutea. Petala rotundata, emarginata, calyce sesqui longiora.

Description

Large perennial plants 30–75 cm tall. Basal leaves 10–35 cm long, lower and middle cauline leaves 4–15 cm long. Leaflets typically 2–5.5 cm long. Basal, lower and middle cauline leaves with 3–4 pairs of leaflets. Leaflets of the lower pair much smaller than the others, 1–1.5 cm long. Upper cauline leaves with 2 pairs of leaflets, ternate or simple. Leaflets saw-toothed with 4–8 teeth on both sides, and the terminal leaflet sometimes with 9–11 teeth. Leaflets of the lowest pair with 2–3 teeth on both sides incised into 2–3 lobes, often entire. Terminal leaflet of the leaf blade with a petiole 2–15 mm long. The distance between pairs of leaves typically 2–10 mm. Lowest pair often distant onto 2–3.5 cm from the rest of pairs (character mainly of basal and lower cauline leaves). Stipules of basal and lower cauline leaves 2–4 cm long, with lanceolate, elongate, acute-pointed entire auricles. Stipules of the middle and upper leaves (0.5–)0.7–2(–2.5) cm long with broad auricles deeply incised into 2–4 sharp teeth. Stems and petioles of leaves in the lower part of the plant covered with squarrose crisped hairs 2–3 mm long and small transparent stalked glandules. In addition to long curved hairs, stalks and petioles in the middle and upper parts covered with short crisped hairs. Leaflets pubescent with sparse short bristly hairs above, beneath covered with longer crisped hairs along veins. Stipules glabrous or covered with single short bristly hairs above. Upper part of plant abundantly covered with large stalked yellowish glands. Flowers numerous, 1.2–1.5 cm in diameter, aggregated in corymbose inflorescences. Petals rotund with a notch, bright yellow, 1.5 times the size of calyx. External lanceolate sepals (epicalyx) equal or 1.5 times longer than narrowly triangular inner ones (calyx). Stamens 20, arranged in three whorls. Anthers oval. Styles baculiform, 1.2–1.5 mm long, slightly enlarged at base, with an enlarged stigma. Mature nuts 1.7–2 mm long, with subtle longitudinal wrinkles.

Distribution. The plant was found in the southeastern part of West Siberia in the Katun river valley (middle reaches). According to "Flora of Altai" (Kamelin, 2005), locus classicus of *P.* × *chemalense* is restricted to the Altai-West *Sayan* mountain province and according to A. V. Kuminova (1960) it grows in Central Altai.

Ecology. *P.* × *chemalense* is a xerophyte that prefers steppe-like stony southern-exposed slopes with shrub thickets (Fig. 2B). The plant was found among the populations of *P. chrysantha* (Sect *Chrysanthae* (Lehm.) Juz.) and *P. tanacetifolia* (sect. *Tanacetifoliae* (Lehm.) Juz.). Therefore, these species can be assumed to be parental for *P.* × *chemalense*.

Etymology. The species is named according to the area of its distribution (Chemalsky district).

Affinity. *P.* × *chemalense* is close to only two taxa, *P.* × *nebulosa* Danihelka et Soják and *P.* × *jakovlevii* Kechaykin et Shmakov, both described from the Altai mountain country. *P.* × *nebulosa* was found in the Dzhazator river valley (Altai Republic, upper Katun river basin). According to the authors, it is a hybridogenic species originated through hybridization between *P. chrysantha* and *P. pensylvanica* L. (sect. *Multifidae* (Lehm.) A. Nelson) (Danihelka, Soják, 2012). *P.* × *jakovlevii*, a hybrid between *P. chrysantha* Trevir. and *P. longifolia* (sect. *Tanacetifoliae*) (Kechaykin, Shmakov, 2014), was first found in the mountains of the Narym mountain range on the territory of the Republic of Kazakhstan (East Kazakhstan region, the Maimyr river valley). Thus, *P. chrysantha* is one of the parental species of *P.* × *chemalense* and the two closely related hybrids mentioned above. Unlike *P.* × *nebulosa* and *P.* × *jakovlevii*, the terminal leaflet in *P.* × *chemalense* has a petiole that makes it closer to *P. tanacetifolia* (Fig. 2A). The major diagnostic features to distinguish *P.* × *chemalense* from the close taxa are given in Table.

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Table

Diagnostic characters of *Potentilla* × *chemalense* compared with its related taxa

Character	*P. chrysantha*	*P.* × *jakovlevii*	*P.* × *chemalense*	*P.* × *nebulosa*	*P. longifolia*	*P. tanacetifolia*	*P. pensylvanica*
Leaves (except for the upper part of stem)	digitate	pinnate, 2–3-paired	pinnate, 3–4-paired (rarely 2-paired)	pinnate, 2-paired (rarely 3-paired) or digitate	pinnate, 3–5(6)-paired	pinnate, 3–6(7)-paired	pinnate, 3–4(5)-paired
Terminal leaflet (except for the upper stem leaves)	sessile, distant from neighboring leaflets	sessile, connected with lateral leaflets of the upper pair	petiolulate	sessile, connected with lateral leaflets of the upper pair	sessile, connected with lateral leaflets of the upper pair	petiolulate	sessile, connected with lateral leaflets of the upper pair
Length of hairs on petioles (mm)	1.5–2	1.5–2	2–3	1.5–2	1–2	2–4	1–1.5
Stem leaves stipules	entire, extremely rarely with two teeth	entire, extremely rarely with two teeth	with 2–4 teeth	entire	entire, rarely topmost with 2-3 teeth	with 2–5 teeth	entire or with 2–3 teeth
Glandules	single from the middle and above	single from the middle and above	numerous from the middle and above	single on leaf petioles	numerous throughout the plant	numerous throughout the plant	numerous from the middle and above
Petals	broadly ovate or rotund, 5–7(8) mm long	rotund, 5–7 mm long	rotund, 5–7 mm long	unknown	shovel-shaped, usually up to 4 mm long	rotund, 5–6 mm long	ovate, 4–5(6) mm long

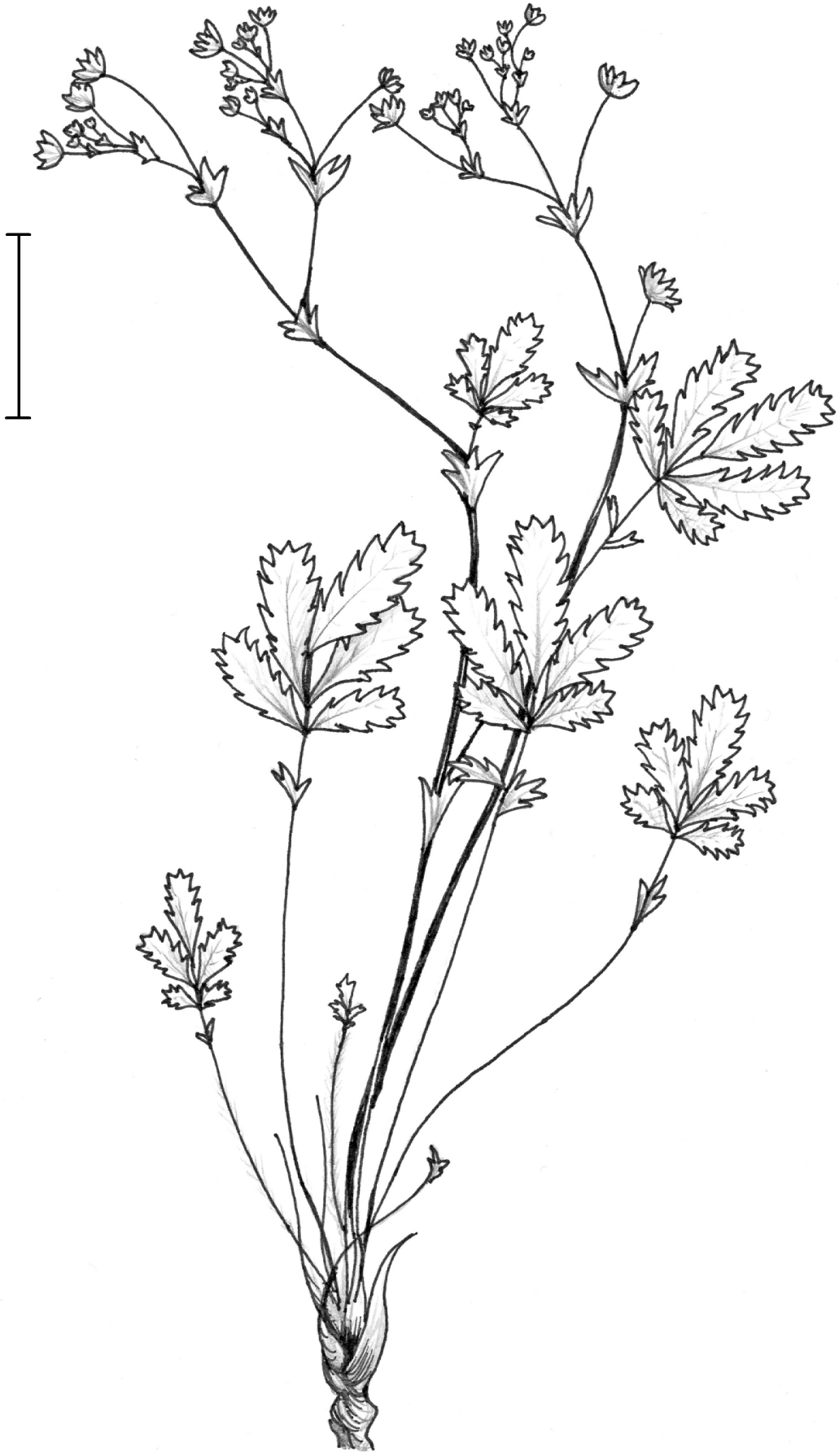

Fig. 1. *Potentilla* × *chemalense*, nothosp. nov. Scale bar: 4 cm. Drawn by V. Severina based on type material from Central Altai.

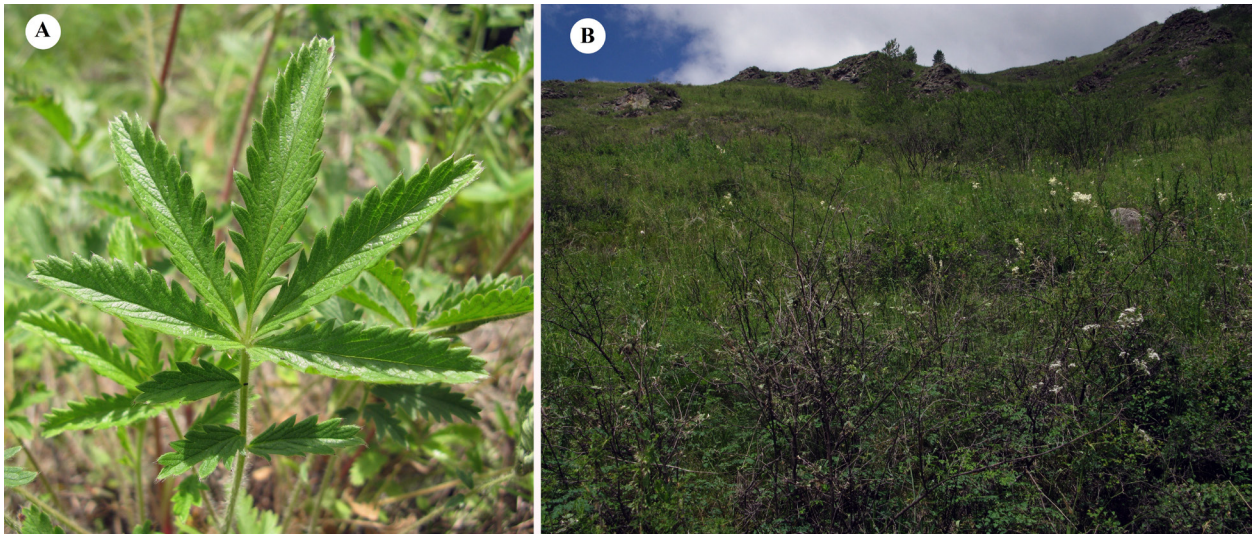

Fig. 2. *Potentilla* × *chemalense*: A – basal leaf with terminal leaflet on the petiolule; B – the habitat of *P.* × *chemalense* (type locality). Photographs by Alexey Kechaykin.

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