

## Synopsis of *Drymocallis* FOURR. ex RYDB. (Rosaceae – Potentilleae) in the Old World

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### Abstract

The genus *Drymocallis*, which differs from the genus *Potentilla* in having sub-basally inserted styles and anthers with a single horseshoe-shaped theca, comprises ten species in the Old World. One of them, *D. rupestris*, is treated herein as a complex of five subspecies. Taxonomical comments on each are included. New combinations are proposed for one species and three subspecies. The synonymy of each taxon is provided.

**Key words:** *Drymocallis*, Potentilleae, taxonomy.

### Introduction

The name *Drymocallis* was first published by FOURREAU (1868) without a description or any citation. RYDBERG (1898, 1908), who divided Linnaeus' genus *Potentilla* into narrow genera according the insertion height of styles, accepted FOURREAU's placement of the *P. rupestris* group (sect. *Closterostyles* or sect. *Rupestris* of *Potentilla*) as a distinct genus *Drymocallis*. He provided a circumscription and studied the American species belonging to this group. Most European authors did not follow him, however, HUTCHINSON (1964) being an exception.

*Drymocallis* has been considered separate from *Potentilla* based on sub-basal styles since the time of RYDBERG. One further difference was discovered in the nineteen-eighties. Anthers of *Potentilla* have two thecae separated by a connective apex; anthers of *Drymocallis* have a single horseshoe-shaped theca similar to *Fragaria* or *Sibbaldia* s.str. The division of tribe Potentilleae into two evolutionary lineages (SOJÁK 1989) and ascription of *Drymocallis* into the *Fragaria* lineage was corroborated by DNA studies (ERIKSSON, DONOGHUE & HIBBS 1998, ERIKSSON, HIBBS, YODER, DELWICHE & DONOGHUE 2003, DOBEŠ & PAULE 2010).

KURTTO & ERIKSSON (2003) transferred from *Potentilla* to *Drymocallis* taxa which had not been transferred yet, but they did not deal with the group in much detail. KURTTO et al. (2004) published an extensive list of literature references concerning European species of *Drymocallis* together with maps of their distribution, a valuable source of information indeed. The species concept of KURTTO is narrower than that of the present author.

The genus *Drymocallis* is distributed in North America (cf. ERTTER 2007) and in the Old World from NW Africa and Spain to Manchuria. According to the treatment adopted herein, *Drymocallis* has ten species in the Old World, which are distributed from

Morocco and western Europe to Belarus, the Crimea and the Caucasus, and in Asia in the south from Turkey to Tajikistan and in the north from the Altai to the Russian Far East and northern Manchuria. The published report of an isolated occurrence of *P. rupestris* in the Southern Urals is uncertain. The southern border of distribution of the genus runs through southern Iran (*D. poteriiifolia*); the northernmost occurrence lies in the Arctic in the Lena river basin (*D. saviczii*).

*Drymocallis rupestris* has the widest area of all Old-World species of the genus. Its variability is low in most of the area, but in southern Europe it forms a complex of several taxa, treated herein as subspecies. Three remarkable endemic species (*D. regisborisii*, *D. longisepala*, *D. epirotica*) occur, besides two subspecies of *D. rupestris* (*D. r.* subsp. *jailae* and *D. r.* subsp. *banatica*) in the eastern part of the Balkans. One species is endemic to Anatolia (*D. calycina*), where it grows besides two subspecies of *D. rupestris* (*D. r.* subsp. *rupestris*, *D. r.* subsp. *jailae*). One endemic species is confined to the Crimea (*D. geoides*). Three noteworthy species (*D. tianschanica*, *D. poteriiifolia* and *D. kulabensis*), mutually different from each other as well as from European species, occur in Iran and in former Soviet Central Asia (W Tien Shan and Pamiro-Alay). The geographically isolated *D. saviczii* (E Siberia and the Far East) is very close to the European *D. rupestris* subsp. *rupestris*.

Abbreviations of herbaria according to Index Herbariorum: <http://sweetgum.nybg.org/ih/>.

## Taxonomy

***Drymocallis calycina*** (BOISS. & BALANSA) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)

≡ *Potentilla calycina* BOISS. & BALANSA in BOISS., Diagn. Pl. Orient., ser. 2, 5: 94 (1856).

Type: [Turkey] Alla dagh ad radices Tauri Cilicici, 1855 Balansa [G!].

***Drymocallis epirotica*** (SOJÁK) SOJÁK, comb.n.

≡ *Potentilla longisepala* subsp. *epirotica* SOJÁK, Preslia 65: 127 (1993)

≡ *Drymocallis longisepala* subsp. *epirotica* (SOJÁK) KURTTO & STRID, Ann. Bot. Fennici 40: 138 (2003).

Type: [Greece] Epirus, Ioanninon, Metsovo, Mt. Milia, 1976 Hartvig, Baden & Christiansen 6170 [C!].

***Drymocallis geoides*** (M. BIEB.) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)

≡ *Potentilla geoides* M. BIEB., Fl. Taur.-Caucas. 1: 404. 1808.

Type: [Ukraine] Tauria, Salgir et Tschaturdag, M. Bieberstein [LE!].

***Drymocallis kulabensis*** (TH. WOLF) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)

≡ *Potentilla kulabensis* TH. WOLF, Asarhoje Bazaji Tocikiston Cildi [Trudy Tadzhihs. Bazy, Bot.] 2: 195 (1936).

Type: [Tajikistan] distr. Kulab (Kuljab) bei Arsantschi (Arzanči), 1910 Divnogorskaja 353 [LE!].

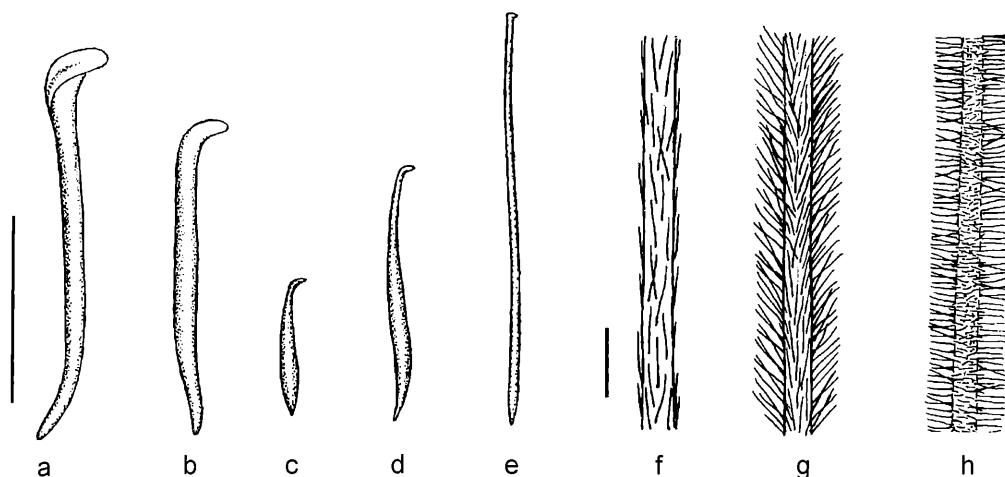


Fig. 1: Styles: a) *Drymocallis longisepala*; b) *D. epirotica*; c) *D. saviczii*; d) *D. rupestris*; e) *D. geoides*. Indumentum of petioles: f) *D. rupestris* subsp. *jailae*; g) *D. r.* subsp. *banatica*; h) *D. r.* subsp. *rupestris*. Bars = 1 mm.

***Drymocallis longisepala*** (STRID) KURTO & STRID, Ann. Bot. Fennici 40: 137 (2003)

≡ *Potentilla geoides* subsp. *longisepala* STRID, Mount. Fl. Greece 1: 408 (1986)

≡ *Potentilla longisepala* (STRID) SOJÁK, Preslia 65: 127 (1993).

Type: [Greece] Macedonia, Kozani/Grevena, Mt. Vourinos, 1970 Stamatiadou 9609 [ATH, C!].

The differences between *D. longisepala* and the allied taxon described as *P. longisepala* subsp. *epirotica* are significant and constant in plants from hitherto known localities. Both taxa differ from each other in the size of their achenes, length of their styles and the size of their stigmas. In my opinion, these taxa are two related species.

The achenes and stigmas of both of these Greek endemics are unparalleled within the genus. Achenes have prominent veins and a winged keel; thick styles bear unusually large stigmas (see SOJÁK 1993:124 for an illustration).

***Drymocallis poteriifolia*** (BOISS.) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)

≡ *Potentilla poteriifolia* BOISS., Diagn. Pl. Orient., ser. 1, 6 ("1845"): 50 (1846).

Type: [Persia] in alpe Kuh-Delu, 1842 Kotschy 492 [G!].

≡ *Potentilla schiraziana* KHATAMSAZ, Iran. J. Bot. 3: 93 (1987)

≡ *Drymocallis schiraziana* (KHATAMSAZ) ERTTER & ATTAR, Rostaniha 7 (Suppl. 2) ("2006"): 305. (2007).

Type: Persia, Fars, Shiraz, Dasht-e Arjan, road to Kazeron, 1975 Foroughi 17525 [TARI, n. v.].

***Drymocallis regis-borisii*** (STOJ.) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)

≡ *Potentilla regis-borisii* STOJ., Izv. Carsk. Prir. Inst. Sofija 3: 249 (1930)

- ≡ *Potentilla geoides* subsp. *regis-borisii* (STOJ.) STRID., Mount. Fl. Greece 1: 408 (1986)
- ≡ *Potentilla halacsyana* subsp. *regis-borisii* (STOJ.) SOJÁK, Preslia 65: 126 (1993).  
Type: [Bulgaria] ad riv. Struma prope Mečkul, distr. Gorna Dzumaja, 1930 Stojanov [SOM!].
- Drymocallis rupestris* (L.) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)**
- ≡ *Potentilla rupestris* L., Sp. Pl.: 496 (1753)
- ≡ *Fragaria rupestris* (L.) CRANTZ, Stirp. Austr. Fasc. 2: 10 (1763)
- ≡ *Argentina rupestris* (L.) LAM., Fl. Franç. 3: 120 (1779).  
Type: [Habitat ad latera montium Westrogothiae, Sibiriae, Germaniae] [LINN 655.8!].
- Drymocallis rupestris* subsp. *rupestris***
- = *Potentilla rupestris* var. *villosa* LECOCQ & LAMOTTE, Cat. Pl. Plateau Central: 154 (1847)
- ≡ *Potentilla rupestris* var. *subalpina* f. *villosa* (LECOCQ & LAMOTTE) TH. WOLF, Biblioth. Bot. 16 (71): 127 (1908)
- ≡ *Potentilla rupestris* var. *villosa* f. *pyrenaica* TUZSON, Növényt. Közlem. 7: 213 (1908)
- ≡ *Potentilla rupestris* var. *eriotricha* BORBÁS, Balaton Tudományos Tanulm. [Balaton Fl.]: 419 (1900).  
Type: [CLF?, n. v.].
- = *Potentilla beniczkyi* FRIV., Flora 19 (2): 437 (1836)
- ≡ *Potentilla rupestris* var. [?] *beniczkyi* (FRIV.) ASCH. & GRAEBN., Syn. Mitteleur. Fl. 6 (1): 696 (1904)
- ≡ *Potentilla rupestris* var. *beniczkyi* (FRIV.) TH. WOLF, Biblioth. Bot. 16 (71): 130 (1908)
- ≡ *Potentilla rupestris* var. *benitzkyi* (FRIV.) TUZSON, Növényt. Közlem. 7: 214 (1908)
- ≡ *Potentilla rupestris* var. *benitzkyi* f. *rumelica* TUZSON, Növényt. Közlem. 7: 214 (1908)
- ≡ *Potentilla roemeri* FRIV. ex DEGEN, Oesterr. Bot. Z. 41: 335 (1891), pro syn.  
Type: [Bulgaria] Rumelia, 1835 Frivaldszky [BP!].
- = *Potentilla macrocalyx* A. HUET, Ann. Sci. Nat., Bot., ser. 3, 19: 252 (1853).  
Type: Pyrenaei orient, ad pedes montis Canigon, Huet [G!].
- = *Potentilla foliosa* SOMMIER & LEVIER ex R. KELLER, Bot. Jahrb. Syst. 14: 500 (1892)
- ≡ *Potentilla rupestris* var. *foliosa* (SOMMIER & LEVIER ex R. KELLER) TH. WOLF, Biblioth. Bot. 16 (71): 129 (1908).  
Type: [Gruzia] Abchasia, Kliutsch [Klutsch] ad semitam ad jugum Kluchor, 1890 Sommier & Levier 426 [FI!].
- = *Potentilla rupestris* f. *orientalis* R. KELLER & SIEGFR. in R. KELLER, Bot. Jahrb. Syst. 14: 499 (1892)
- ≡ *Potentilla rupestris* var. *orientalis* (R. KELLER & SIEGFR. in R. KELLER) TH. WOLF, Biblioth. Bot. 16 (71): 132 (1908).  
Type: Armenia turcica, Pumuschkane, Istavros, Sintenis 1783 [FI!].

- = *Potentilla rupestris* var. *rubescens* ROUY & CAMUS, Fl. France 6: 175 (1900)  
 ≡ *Potentilla rubricaulis* JORD. ex ZIMMETER, Beitr. Gatt. Potent.: 11 (1889), non LEHM. (1830)  
 ≡ *Potentilla rupestris* var. *typica* f. *rubricaulis* (JORD.) TH. WOLF, Biblioth. Bot. 16 (71): 126 (1908).  
 Type: [LY, n. v.].
- = *Potentilla rubricaulis* var. *rubescens* subvar. *humilis* ROUY & CAMUS, Fl. France 6: 176 (1900)  
 ≡ *Potentilla rubricaulis* var. *typica* f. *humilis* (ROUY & CAMUS) Th. WOLF, Biblioth. Bot. 16 (71): 126 (1908).  
 Type: [LY, n. v.].
- = *Potentilla rupestris* var. *gracilis* [FRIV.] ASCH. & GRAEBN., Syn. Mitteleur. Fl. 6 (1): 696 (1904) [FRIVALDSZKY, Flora 19: Intelligenzblatt 21 (1836), nom. nud.].  
 Type: Rumelia, Frivaldszky [BP!].
- = *Potentilla rupestris* var. *subalpina* TH. WOLF, Biblioth. Bot. 16 (71): 126 (1908)  
 ≡ *Potentilla rupestris* f. *subalpina* (TH. WOLF) STOJ. & STEFAN., Fl. Bulgar., ed. 3, 579 (1948).  
 Type: Schweiz, Zermatt, 1898 Bötzkles [DR!].
- = *Potentilla rupestris* var. *subalpina* f. *asperula* TH. WOLF, Biblioth. Bot. 16 (71): 127 (1908)  
 ≡ *Potentilla rupestris* var. *benitzkyi* f. *asperula* (TH. WOLF) TUZSON, Növényt. Közlem. 7: 215 (1908).  
 Type: Bulgaria, Čatalkaje prope Sliven, 1893 Wagner [BP!, DR!].
- = *Potentilla rupestris* var. *strigosa* TH. WOLF, Biblioth. Bot. 16 (71): 133 (1908).  
 Type: Rumelia, Frivaldszky [DR!].
- = *Potentilla rupestris* var. *villosa* f. *suecica* TUZSON, Növényt. Közlem. 7: 213 (1908).  
 Type: Suecia, Trollmen pr. Kinne Kulle, Lagerheim [BP!].
- Drymocallis rupestris* subsp. *banatica*** (Th. Wolf) Soják, comb.n.  
 ≡ *Potentilla rupestris* var. *banatica* Th. Wolf, Biblioth. Bot. 16 (71): 128 (1908)  
 ≡ *Potentilla banatica* (Th. Wolf) Jáv., Magyar Fl.: 521 (1924)  
 ≡ *Potentilla rupestris* var. *beniczkyi* subvar. *grandiflora* f. *banatica* TUZSON, Növényt. Közlem. 7: 214 (1908).  
 Type: [Romania] Strașucz bei Mehadia, 1889 Fiek [DR!].
- = *Potentilla rupestris* var. *grandiflora* HEUFF., Verh. Zool.-Bot. Ges. Wien 8: 101 (1858)  
 ≡ *Potentilla rupestris* var. *benitzkyi* subvar. *grandiflora* (HEUFF.) TUZSON, Növényt. Közlem. 7: 214 (1908).  
 Type: [Banat] in rupibus montis Strasutz ad Mehadiam, Heuffel [BP!].

*Drymocallis rupestris* subsp. *banatica* stands with its characters between *D. r.* subsp. *jailae* and *D. r.* subsp. *rupestris*. Eglanular hairs on its pedicels are erecto-patent. It is a transitional taxon, which definitely cannot be included in the range of variability of *D. r.* subsp. *rupestris*. It could be regarded as part of the variability of *D. r.* subsp. *jailae* but the relatively well represented Balkan material rather supports the acceptance as a subspecies.

*Drymocallis rupestris* subsp. *banatica* occurs rarely in the Banat region (in the surroundings of Baile Herculane), and it grows together with *D. r.* subsp. *rupestris* in Bulgaria (Vitosha, Rila, Rodopi), from where it extends to Mt. Olympus in Greece (leg. 1874 Pichler [G!]).

***Drymocallis rupestris* subsp. *corsica*** (SOLEIROL ex LEHM.) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)

= *Potentilla corsica* SOLEIROL ex LEHM., Del. Sem. Hort. Hamburg. 1849: 7 (1849)

= *Potentilla rupestris* subsp. *corsica* (SOLEIROL ex LEHM.) ROUY & CAMUS, Fl. France 6: 176 (1900)

= *Drymocallis corsica* (SOLEIROL ex LEHM.) KURTTO in KURTTO & T. ERIKSSON, Ann. Bot. Fennici 40: 138 (2003).

Type: [mt. Insulae Corsicae] Soleirol [PR!].

= *Potentilla rupestris* var. *pygmaea* DUBY, Bot. Gall. 1: 172 (1828)

= *Potentilla rupestris* var. *minor* f. *pygmaea* (DUBY) TUZSON, Növényt. Közlem. 7: 216 (1908)

= *Potentilla pygmaea* JORDAN, Obs. Pl. Nouv. 7 (Fragm.): 25 (1850).

Type: in pascuis humidis montium Corsicae, Soleirol [BERN!].

= *Potentilla halacsyana* DEGEN, Oesterr. Bot. Z. 41: 334 (1891)

= *Potentilla rupestris* var. *halacsyana* (DEGEN) TH. WOLF, Biblioth. Bot. 16 (71): 130 (1908)

= *Potentilla geoides* subsp. *halacsyana* (DEGEN) STRID, Mount. Fl. Greece 1: 407 (1986)

= *Drymocallis halacsyana* (DEGEN) KURTTO & STRID in KURTTO & T. ERIKSSON, Ann. Bot. Fennici 40: 137 (2003).

Type: [Greece] Samothrake, Mt. Phengari, Hagia Sophia, 1890 Degen [BP!, WU!].

Specimens of *D. rupestris* from islands of the Mediterranean differ greatly in their habit from plants from other parts of the species' range. The sole taxonomically more significant difference, however, is in the size of stems and leaves. The taxonomic value of island populations of *D. rupestris* is therefore doubtful. Specimens from Corsica have (1.5–) 3–6 (–10) cm high stems and leaves 1.5–4.5 cm long. I have not seen such minute individuals from places in Central and Northern Europe, where stems of *D. rupestris* are usually (15–) 20–30 (–60) cm high. It appears, though, that in the south the species grows also on sunny outcrops in the mountains, unlike in more northern parts of Europe where it occurs mainly at forest margins, in clearings and in dry grasslands. It therefore cannot be ruled out that *D. r.* subsp. *corsica* represents a mere ecologically conditioned deviation of *D. r.* subsp. *rupestris*. This is supported by some collections from Bulgaria, where *D. r.* subsp. *rupestris* was from time to time collected also on rocks (e.g., vicinity of Sliven; leg. 1964 Šmarda [BRNU] and 1886 Škorpil [PR]). These specimens have only 5–8 (–10) cm high stems.

This question could be answered by experimental cultivation. It might suffice to sow achenes of plants from dry rocks and observe their offspring for one or two generations.

Plants from the Greek island of Samothrake are identical to plants from Corsica in most of their traits, only some specimens have pedicels with erecto-patent hairs and represent a kind of transition to *D. r.* subsp. *banatica*. Because the same micropopulation also

includes specimens with typically horizontal hairs on pedicels, I do not find it appropriate to consider it as a distinct subspecies. It would be desirable to verify the verbal information from Ö. Nilsson (KURTTO & ERIKSSON 2003) that this taxon retains its diagnostic character in cultivation.

***Drymocallis rupestris* subsp. *jailae*** (JUZ.) SOJÁK, comb.n.

≡ *Potentilla jailae* JUZ., Fl. SSSR 10: 609 (1941)

≡ *Potentilla rupestris* subsp. *jailae* (JUZ.) SOJÁK, Preslia 65: 126 (1993).

Type: [Ukraine] Tauria, Jaila prope m. Ai-Petri, 1896 Goldie [LE!].

= *Potentilla rupestris* var. *halacsyana* f. *idaea* TH. WOLF, Biblioth. Bot. 16 (71): 131 (1908).

Type: [Anatolia] Troja, M. Ida, in jugo, 1883 Sintenis 968 [DR!, PR!].

= *Potentilla rupestris* var. *minor* [BOISS., nom. nud.] f. *boissieri* TUZSON, Növényt. Közlem. 7: 216. (1908).

Type: Asia Minor, Mesogis, Lydia [G!].

*Drymocallis rupestris* has pedicels with horizontally patent hairs in the whole of Europe with the exceptions of the Crimea and the Balkan peninsula. Plants with subappressed eglandular hairs on pedicels occur only in the Crimea, western Anatolia, Serbia and Herzegovina; hairs slightly erecto-patent can occasionally be admixed. Such plants have been described as a distinct species, *P. jailae*, but I consider the rank of subspecies to be adequate.

The indumentum of petioles, rachides and stems of *D. r.* subsp. *jailae* is very similar to the indumentum of pedicels, but I recommend that the indumentum on pedicels be used for quick and reliable identification because observing hairs on other parts of the plant is often made difficult by numerous long-stalked glands.

The area of distribution of *D. r.* subsp. *jailae* consists of three separated parts, and the range of the related *D. r.* subsp. *banatica* is wedged into the 1,300 km wide hiatus between the Crimea and Serbia.

***Drymocallis rupestris* subsp. *mollis*** (PANČIĆ) SOJÁK, comb.n.

≡ *Potentilla mollis* PANČIĆ, Dodatak Fl. Knež. Srbije: 139 (1884), idem PANČIĆ ex ZIMMETER, Eur. Art. Potent.: 7 (1884)

≡ *Potentilla malacophylla* BORBÁS, Oesterr. Bot. Z. 36: 293 (1886), nom. inval.

≡ *Potentilla rupestris* var. *mollis* (PANČIĆ) ASCH. & GRAEBN., Syn. Mitteleur. Fl. 6 (1): 697. (1904)

≡ *Potentilla rupestris* var. *benitzkyi* subvar. *mollis* (PANČIĆ) TUZSON, Növényt. Közlem. 7: 215 (1908)

≡ *Drymocallis malacophylla* (BORBÁS) KURTTO, Ann. Bot. Fennici 40: 138 (2003)

≡ *Drymocallis mollis* (PANČIĆ) SOJÁK, Bot. Jahrb. Syst. 127: 357 (2008).

Type: [Serbia] Kremna i Zlatibor, Pančić [BEOU!].

*Drymocallis rupestris* subsp. *mollis* is conspicuous for its greyish leaflet underside, which is very densely hairy with eglandular hairs, as are the stems and petioles. Long-stalked glands are more or less absent. Apart from the difference in the indumentum, I have not found any other difference from *D. r.* subsp. *rupestris*. Differences reported by NIKETIĆ & DIKLIĆ (1990) could not be confirmed. For example, the styles of *D. r.* subsp.

*mollis* are purported to be twice as long than in *D. r.* subsp. *rupestris*, which is not true because in both taxa they are of the same length (0.9–1.4 mm) and thickened in the same way in the middle.

Specimens with petioles and stems extremely densely hairy having only eglandular hairs are not found in the rich herbarium material of *P. r.* subsp. *rupestris* in Central and Northern Europe preserved in Central-European institutions. Plants without glands have occasionally been collected in Bulgaria (e.g., Stara planina, vicinity of Sliven), but their petiolar indumentum is less dense and is not at all identical to the plants from serpentine habitats of Serbia. The difference is notable, seems to be constant, so the rank of a subspecies appears to be appropriate. A map illustrating the distribution of this taxon was published by NIKETIĆ & DIKLIĆ (1990) and KURTTO et al. (2004).

The name *Potentilla mollis* BORBÁS 1879, cited by KURTTO et al. (2004) does not exist. Although the name *P. reptans* b) *mollis* BORBÁS does exist, but this of course does not threaten PANČIĆ's name published in the species rank.

***Drymocallis saviczii*** (SCHISCHK. & KOM.) SOJÁK, Bot. Jahrb. Syst. 125: 290 (2004)  
= *Potentilla saviczii* Schischk. & Kom., Bot. Mater. Gerb. Glavn. Bot. Sada SSSR 6: 11 (1926).

Type: [Russia] Sichote-Alin', dolina r. Botči, 1924 Šiškin 231 [LE!].

= *Potentilla inquinans* TURCZ., Bull. Soc. Imp. Naturalistes Moscou 16 (4): 624 (1843), nom. nud., pro syn.

= *Drymocallis inquinans* (TURCZ.) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989).

Orig. mat.: [Russia] Schilka, 1833 Turczaninoff [LE!].

= *Potentilla okuboi* KITAG., Rep. Inst. Sci. Res. Manchoukuo 1: 258 (1937).

Type: Mandshuria, Hsing-an, Ta-hsien-an-ling, 1930 Ookubo [TI!].

*Drymocallis saviczii* is distributed in the eastern half of Siberia in the Russian Far East and adjacent parts of Manchuria. The eastern border of the distribution of the related species *D. rupestris* runs through northern Iran. I cannot explain why specimens from the Altai Mountains, which I have seen in Russian herbaria, belong to typical *D. rupestris* and not *D. saviczii*.

The characters discriminating between the two species are illustrated (besides Fig. 1 herein) in SOJÁK 2009: 215 (hypanthia with calyces) and SOJÁK 2007: 322 (styles).

***Drymocallis tianschanica*** (TH. WOLF) SOJÁK, Čas. Nár. Muz., Řada Přír., 154 ("1985"): 118 (1989)

= *Potentilla tianschanica* TH. WOLF, Biblioth. Bot. 16 (71): 140 (1908).

Type: Tian-schan, Pskem, S'emesas, 1902 B. Fedtschenko [LE!].

### Identification key

- |    |                                                                                                                     |   |
|----|---------------------------------------------------------------------------------------------------------------------|---|
| 1. | Flowers widely open, petals patent, pure white, significantly longer than sepals                                    |   |
| –  | Flowers campanulate, petals erect, dirty yellowish-white or yellow, shorter, as long or slightly longer than sepals | 7 |
| 2. | Sepals with long appressed thick hairs, styles 1–1.5 mm long                                                        | 3 |



- Sepals, at least in their lower half, covered with short patent thin hairs, styles 0.6–1 mm long ..... *D. saviczii*
3. Pedicels covered with horizontally patent eglandular hairs ..... 4  
 Pedicels with subappressed or obliquely-patent eglandular hairs ..... 6
4. Stems usually (15–) 20–30 (–60) cm high ..... 5  
 Stems (1.5–) 3–6 (–10) cm high ..... *D. rupestris* subsp. *corsica*
5. Eglandular hairs on pedicels and petioles moderately dense, sometimes sparse .....  
 ..... *D. rupestris* subsp. *rupestris*  
 Eglandular hairs on pedicels and petioles very dense ..... *D. rupestris* subsp. *mollis*
6. Eglandular hairs on pedicels obliquely-patent ..... *D. rupestris* subsp. *banatica*  
 – Eglandular hairs on pedicels subappressed, partly slightly obliquely-patent.....  
 ..... *D. rupestris* subsp. *jailae*
7. Sepals acute, usually entire ..... 8  
 – Sepals with truncate, dentate apex ..... 14
8. Terminal leaflet with 1–2 (–3) pairs of teeth, basal leaves often consisting of 5–7 pairs of leaflets ..... *D. poterifolia*  
 – Terminal leaflet with a higher number of teeth, basal leaves with 2–4 pairs of leaflets ..... 9
9. leaflets serrate, sepals gradually narrowed into an elongated tip ..... *D. kulabensis*  
 leaflets crenate, sepals abruptly narrowed at the apex, obtuse, sometimes even rounded ..... 10
10. Petals the same length as sepals or slightly longer (by 0.5–1.5 mm), yellow .... *D. geoides*  
 – Petals markedly shorter than sepals, dirty yellowish-white ..... 11
11. Achenes not dorsally winged, smooth (veins not prominent), stigmas up to 0.2 mm long ..... 12  
 – Achenes with a winged dorsal keel, veins prominent, stigmas 0.2–0.5 mm long ..... 13
12. Stems 20–50 cm high, 10–15-flowered, basal leaves with 2–3 pairs of leaflets .....  
 ..... *D. regis-borissii*  
 – Stems 1.5–8 cm high, 1–3(–5)-flowered, basal leaves with two pairs of leaflets .....  
 ..... *D. tianschanica*
13. Styles 1.8–2.2 mm long, stigmas 0.3–0.5 mm large, achenes 1.7–1.8 mm long, carpophore 7–9 mm high ..... *D. longisepala*  
 – Styles 1–1.8 mm long, stigmas 0.2–0.35 mm large, achenes 1.4–1.5 mm long, carpophore 3–6 mm high ..... *D. epirotica*
14. Petals in anthesis as long or slightly longer (0.5–1.5 mm) than sepals ..... *D. geoides*  
 – Petals visibly shorter than sepals ..... *D. calycina*

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Jahr/Year: 2010

Band/Volume: [112B](#)

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Artikel/Article: [Synopsis of \*Drymocallis\* Fourr. Ex Rydb. \(Rosacea-Potentilleae\) in the Old World. 319-328](#)