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Typification of the name *Potentilla asturica* (Rosaceae)

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Abstract. *Potentilla asturica*, an Iberian endemic species included within sect. *Recta*, is typified.

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Introduction

Potentilla L. (Rosaceae) is a genus comprising about 400 species of herbaceous perennials from the Northern Hemisphere (Persoon *et al*., 2020). This taxonomically difficult genus includes diploid and polyploid species (Kurtto *et al.,* 2004), with ploidy levels of up to hexadecaploid (Kalkman, 2004). Polyploidization as well as interspecific hybridization have played an important role in the evolution of *Potentilla* (Potter *et al.,* 2007; Dobeš & Paule, 2010; Paule *et al.,* 2011). In the Iberian Peninsula and the Balearic Islands 30 species were reported, of which three were endemic (Guillén & Rico, 1998).

Potentilla asturica Rothm., a member of *Potentilla* L. sect. *Recta* (Th. Wolf) Juzepchuck, is a diploid endemic to mountain areas in northwestern Spain and northern Portugal (Guillén & Rico, 1998; Delgado & Rico, 2000; Rico *et al*., 2003; Pino Pérez *et al*., 2011). Although this taxon has sometimes been recognized at the subspecies level [*P. recta* subsp. *asturica* (Rothm.) M. Laínz; *P. hirta* subsp. *asturica* (Rothm.) Soják] it is currently accepted at the taxonomic rank which was initially described (Delgado & Rico, 2000; Rico *et al*., 2003; Kurtto, 2009; Pino Pérez *et al*., 2011). A thorough literature survey and subsequent analysis of herbarium data on the genus *Potentilla* in the Iberian Peninsula, led to the realization that the name *P. asturica* needs to be lectotypified because Rothmaler (1935) mentioned several syntypes in the protologue. The aim of this paper is the designation of a type for *P. asturica*, on the basis of consultation of Rothmaler's original material cited in the protologue.

Material and methods

The present study was carried out through analysis and examination of specimens kept at BC and digital images from JE, MA and MPU [herbaria acronyms follow Thiers (2020, continuously updated)] using the relevant literature (Rothmaler, 1935; Guillén & Rico, 1998). To select type specimen, the protologue was compared with the original material, and the most complete and informative specimen was selected according to the Art. 9.3 of the Shenzhen Code (Turland *et al*., 2018).

Results and discussion

Type designation

Rothmaler (1935), when described *Potentilla asturica*, mentioned five specimens in the protologue ["Hab.: Regno Legionense, in pascuis alpinis L. Peñas de Ferradillo pag. Villavieja pr. Ponferrada, 1000 m alt., fl. 22 julii 1933 legi (Iter Hisp., 524), l. Los Apóstoles pag. San Pedro de los Montes, pr. Ponferrada, 1500 m alt., 10 julii 1933 legi (Iter Hisp., 736), pag. Corporales, pr. Astorga (Asturica) versus montem Teleno, 1500 m alt., 4 aug 1933 legi (Iter Hisp., 576), pr. Corporales, 1200 m alt. Legi 29 julii 1933 (Iter Hisp., 737). Sierra Segundera supra Lago de Sanabria, 1050 m alt. leg. Cuatrecasas 1928, det. Lacaita sub *P. hirta* var. *rubens* (All) Rouy"] which constitute syntypes, following articles 9.3 and 40 of the ICN (Turland *et al*., 2018). After search in different herbaria we have found three syntypes of *P. asturica*, while specimens from Corporales (Iter Hispanicum 576 and 737) remain untraceable.

After consultation of several collections, original material was located at JE and BC, including several candidates for typification of *P. asturica*. Four specimens correspond to the current concept of the species (Guillén & Rico, 1998). In the JE herbarium, where part of the W. Rothmaler herbarium is deposited (Stafleu & Cowan,

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1983) three herbarium sheets of *P. asturica* exist, the first of which includes a label with information about location and date of collection:

"Prov. León, El Bierzo, Sonnige Matten am Füsse der Kalkfesen "los Apostoles" an der Guiana, 1500 m alt., 10 julii 1933, W. Rothmaler, Iter Hispanicum 1933 nº. 736, (JE00001600) [http://131.130.131.10/herbaria/jacq-viewer/viewer.html?rft_id=je_00001600&identifiers=je_00001600]

Two further sheets belonging to the original material of *P. asturica* are kept at JE, but they do not include indication of location or date of collection. However, these materials were apparently collected by W. Rothmaler (according to what appears on the printed label) and were numbered "Iter Hispanicum 524", which indicate that they were collected in Peñas de Ferradillo (JE00001598 and JE00001599, sub "*P. hirta* L. ssp. *P. gallaecica* Rothm. n. sp.") [http://131.130.131.10/herbaria/jacq-viewer/viewer.html?rft_id=je_00001598&identifiers=je_00001598 and http://131.130.131.10/herbaria/jacq-viewer/viewer.html?rft_id=je_00001599&identifiers=je_00001599].

None of these sheets kept at JE bear any annotation by W. Rothmaler about its type nature, nor they were labeled as *Potentilla asturica*. The specimen JE00001600 was identified as "*Potentilla angustifolia* Ser.", whereas the sheets JE00001598 and JE00001599 were labeled as "*Potentilla hirta* L. ssp. *P. gallaecica* Rothm. n. ssp." [characteristic handwriting by W. Rothmaler].

A good candidate for typification of *P. asturica* is the specimen BC19703, which was collected in Sierra Segundera (Zamora province) by J. Cuatrecasas in 18 July 1928. This sheet includes a revision label "*Potentilla asturicae* Rothm. Det. W. Rothm. 1934 III/15" [characteristic handwriting by W. Rothmaler].

The specimens JE00001598 and JE00001599 are not in optimal condition (some leaves are considerably damaged) and they are not complete (basal leaves, anthers and fruits are missing or hardly noticeable), whilst sheets JE00001600 and BC19703 are complete and well preserved, although the latter is found in better condition, with the most important diagnostic characters of the species well visible. As this specimen bears a label handwritten by W. Rothmaler with the name *Potentilla asturica* [as "*P. asturicae*"], it is evidently the best option for designation of a lectotype. This label provides strong evidence that the author used this specimen to describe the species. Rothmaler, at the time of the description of *P. asturica*, was established in Spain, and was professionally linked to the Botanical Institute of Barcelona (see Font Quer, 1962). Therefore, the specimen BC19703 is chosen and designated here as the lectotype of the name *P. asturica*:

Potentilla asturica Rothm. in Cavanillesia 7(6/9): 113 (1935)
≡*P. recta* subsp. *asturica* (Rothm.) M. Laínz in Bol. Inst. Estud. Asturianos, Supl. Ci. 10: 193 (1964)
≡*P. hirta* subsp. *asturica* (Rothm.) Soják in Preslia 65: 128 (1993)

Lectotype (**designated here**): [Spain] Sierra de Sanabria in Sierra Secundera (Zamora) supra Lago de Sanabria. 1050 m alt., 18 jul. 1928 legi Cuatrecasas (BC 19703!, sub "*P. hirta* L. var. *rubens* (All) deter. Lacaita") (Figure 1).

=*P. hirta* subvar. *brevidentata* Merino in Brotéria, Sér. Bot. 10: 189 (1912)
Lectotype (according to Pino Pérez *et al*., 2011): [Galicia] montes de Ramilo Orense (LOU 0539/2).

Taxonomic remarks

Potentilla asturica was previously subordinated as a subspecies within *P. recta* (Laínz, 1964) and *P. hirta* (Soják, 1993). In fact, the first scientific name to designate this plant was published at subvarietal level within *P. hirta* by Merino (1912), who described it from plants collected in Galicia, Orense province ["montes de Ramilo en el paraje llamado Choza"]. However, a multivariate morphometric study of the Iberian representatives of sect. *Recta* (Rico *et al.*, 2003) supported the recognition of *P. asturica* as a separate species, being more closely related to *P. hirta*, with which it shares the same chromosome number, $2n$=14 (Delgado & Rico, 2000) than to *P. recta*. As indicated by Rico *et al*. (2003), *P. asturica* is the less morphologically variable Iberian species included within sect. *Recta*. After our revision of herbarium material of the Iberian taxa included within sect. *Recta,* we agree with the taxonomic proposal of Guillén & Rico (1988) and Rico *et al*. (2003), and also with the appreciation of the scarce morphological variability of *P. asturica*. However, the study of the herbarium material has revealed a diagnostic character of this species shows some variability with respect to that established by Guillén & Rico (1998) and Rico *et al*. (2003). According to the aforementioned works, *P. asturica* has entire stipules, but we have observed a specimen of *P. asturica* with incised-toothed stipules in the middle cauline leaves. It is remarkable that the denticulation of the stipules is diagnostic character in sect. *Recta* and it was used in the dichotomous key of the species by Guillén & Rico (1998). Specifically, a specimen collected in Monte de la Regaliza, supra Leitariegos, 1750 m (BC86939) has the stipules incised of middle cauline leaf (this is appreciable in the longest stem in this sheet). This unusual character in *P. asturica* was found in a specimen of remarkable development for what is usual in this species, to the extent that Rothmaler identified this specimen as "*P. asturica* var. *robusta* n. var.", a name that, as far as we know, never has been published. Since no other studied specimen of *P. asturica* (not only in BC, but also in digital images of JE) has incised stipules, this apparently should rarely occur in this species.

Figure 1. Lectotype of *Potentilla asturica* Rothm. (BC 19703). Image courtesy of the herbarium BC, reproduced with permission.

Studied specimens of *Potentilla asturica*

Spain: Asturias: Monte de la Regaliza, supra Leitariegos, in graminosis humidis, 1750 m, 25 July 1935, *P. Font Quer & W. Rothmaler s.n.* (BC 86939, sub *P. asturica* var. *robusta*); Peña Ubiña, 2000 m asl, 10 Aug 1935, *P. Font Quer & W. Rothmaler s.n.* (BC 87017); León province: El Bierzo, Sonnige Matten am Füsse der Kalkfesen los Apostóles an der Guiana, 1500 m, 10 July 1933, *W. Rothmaler*, Iter Hispanicum 1933 nº. 736 (JE00001600, sub *P. angustifolia* Ser.); Peñas de Ferradillo [pag. Villavieja pr. Ponferrada, 1000 m asl, 22 July 1933], *W. Rothmaler*, Iter Hispanicum 524 (JE 00001598 and JE 00001599 sub *P. hirta* ssp. *P. gallaecica* Rothm.); Legion: La Guiana, c. Ponferrada, in pratis siccis, ad 1500 m asl, 1 Aug 1935, *P. Font Quer & W. Rothmaler s.n.* (BC 86463; MPU 164567); Orense, en la montaña de Ramilo cerca de Viana, 1904, *P. Merino s.n.* MA 55446, sub *P. hirta* L.); La Vega, sommet de la Sierra del Eje, s/ Lomalonga, 20 July 1967, *M. Laínz s.n.* (MPU 121796, sub *P. recta* subsp. *asturica*); Zamora province: Sierra de Sanabria in Sierra Secundera supra Lago de Sanabria, 1050 m asl, 18 July 1928, *J. Cuatrecasas s.n.* (BC 19703, sub *P. hirta* var. *rubens*); Ribadelago, near balneario de Bouzas, 19 June 1948, *M. Losa & P. Montserrat s.n.* (BC 114215).

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