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Revised typification of *Pulmonaria angustifolia* var. *australis*, the basionym of *P. australis* (Boraginaceae)

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Abstract

The paper presents an effective lectotypification of the name *Pulmonaria angustifolia* var. *australis*, the basionym of *P. australis*, correcting a typification attempt made by Wilhelm Sauer in 1975. Among lots of syntypes, representing No. 4480 of the *Herbarium normale* exsiccata series, the specimen from WU is designated here as a lectotype, while the rest, kept in B, E, GJO, LI, O, and P, as well as potentially present in other herbaria, are considered isolectotypes.

Keywords

Italy, lectotype, nomenclature, *Pulmonaria*, syntype, taxonomy

Introduction

Pulmonaria australis (Murr) W.Sauer (Boraginaceae Juss.) is a currently accepted species distributed in Italy, Switzerland, Austria, Slovenia, and Croatia (Euro+Med 2025; Hassler 2025; POWO 2025). It occurs in the Southern Alps (mainly), Western Alps, Eastern Alps, and the Dinarides (partly), occupying the montane and subalpine zones and occasionally dispersing to the alpine and colline belts (Sauer 1975; Aeschimann et al. 2004). This species is clearly differentiated from the closely related *P. angustifolia* L. by chromosome number ($2n$ = 20 vs. $2n$ = 14) (Sauer 1975). It also shows broadly lanceolate, 4–6 (7) times longer than broad, basal leaves; ovate-lanceolate cauline leaves with truncate-

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cordate base; an indumentum consisting of heterogeneous bristles (0.5–1.5 mm), mixed to very sparse glands; and the purple corolla, glabrescent to sparsely pubescent under the faucal trichomes ring. In contrast, *P. angustifolia* is characterized by narrowly lanceolate, 6–9 times longer than broad, basal leaves; linear to broadly lanceolate cauline leaves with cuneate base; an indumentum consisting of homogeneous bristles (ca. 0.6 mm), without glands; and the blue corolla, smooth under the faucal trichomes ring (Cecchi and Selvi 2015). Besides a clear taxonomic concept of *P. australis*, there are still issues concerning the interpretation of the nomenclatural type of its name, which is based on *Pulmonaria angustifolia* var. *australis* Murr. This paper aims to clarify these problems and lectotypify the latter name which is homotypic with *P. australis*.

Materials and methods

This study is based on the examination of relevant literature on the name *P. angustifolia* var. *australis*, the basionym of *Pulmonaria australis*. We examined the herbarium specimens suitable for typification kept in B, BRNU, E, GJO, IBF, LI, O, P, W, and WU (herbarium acronyms follow Thiers 2025), and primarily available through online resources, i.e., B (https://ww2.bgbm.org/herbarium/), E (https://data.rbge.org.uk/search/herbarium/), GJO and WU (https://jacq.org), LI (https://www.zobodat.at/belege.php), O (https://samlingsportal.nhm.uio.no/museum/nhm), P (https://www.mnhn.fr/en/vascular-plants-collection). The articles cited in the text, as well as the nomenclatural inquiries discussed here, follow the "International Code of Nomenclature for algae, fungi, and plants" (herein "ICN"; Turland et al. 2025).

Typification of the name

***Pulmonaria angustifolia* var. *australis* Murr, Herb. Norm. Sched. Cent. [Dörfler] 45: 138, No. 4480. 1903.**

≡ *Pulmonaria australis* (Murr) W.Sauer, Biblioth. Bot. 131: 56. 1975.

Type. Italy. "Tirolia australis. In collibus et montibus circa "Trient". 450 m s.m.", April 1901, *J. Murr s.n.* [Dörfler, Herbarium normale, No. 4480] (lectotype, designated here: WU [WU0131160!], Fig. 1 [the high-quality image of lectotype available at https://wu.jacq.org/WU0131160]; isolectotypes: B [B 10 0365437!], E [E01079923!], GJO [GJO0153940!], LI [08067401!], O [O-V2242318!], P [P00505742!, P00505743!, P00505744!, P00505745!]).

Nomenclatural notes. The name *Pulmonaria angustifolia* var. *australis*, the basionym of *P. australis*, first appeared on the printed labels (No. 4480) that accompanied the specimens of the exsiccata series *Herbarium normale* edited by



Figure 1. Lectotype of *Pulmonaria angustifolia* var. *australis* Murr (WU [WU0131160]).

Ignaz Dörfler (1866–1950). These labels were also independently distributed in the published fascicles (Dörfler 1903). When publishing a new variety name, its author Josef Murr (1864–1932) provided in the synonymy a reference to his previous work

(Murr 1899), where the respective taxon had been first mentioned and described under a misapplied name, *P. tuberosa* Schrank (a later isonym of *P. tuberosa* J.Schmidt ex Mart.), a name used for at least four other currently accepted *Pulmonaria* taxa (Fuchs-Eckert 1980; Cecchi and Selvi 2017; Euro+Med 2025). Additionally, Murr placed a short explanatory text on the mentioned labels. This text (translated from German) reports: "*In another place following Freyn's determination I attributed, however just with reserve, this southern race, differing in its often much broader and usually much soft haired leaves, as well as in purple, not blue, corolla, to P. tuberosa Schrank. Freyn later revoked his identification in a letter, considering the corolla's throat, which was hairless, at most somewhat papillose below the ring*". This text, presenting the important diagnostic features of a new variety proposed by Murr, can be regarded as a diagnosis according to Art. 38.2 of the ICN. Therefore, the name *P. angustifolia* var. *australis* was effectively and validly published by Murr in 1903 on the printed labels (No. 4480) of the above exsiccata series (Dörfler 1903), meeting the requirements of the Arts 30.8 and 38.1 of the ICN. All associated herbarium specimens containing these labels and collected by Murr in April 1901 in the vicinity of Trento (Italy), are syntypes (Art. 9.6). To the rest of the original material belongs also that one which can be associated with the misapplied name *P. tuberosa* in the earlier publication of Murr (1899), on which there is a reference in the protologue (Dörfler 1903).

Sauer (1975), when proposing the new combination *Pulmonaria australis*, cited its "holotypus", i.e. a specimen collected by Anton Val de Lièvre (1816–1885) at Mt Chegul near Trento (in German: Trient) in 1869: ITALY. "Tirol, Trient, Chegul", 19 May 1869, *A. Val de Lièvre s.n.* (IBF [123140!]). There is no holotype for *P. angustifolia* var. *australis*, and, therefore, it cannot be such for the combination *P. australis* based on the former (Art. 7.3 of the ICN). At the same time, the mention of the term "holotypus" and citation of the respective specimen by Sauer (1975) can be treated as the typification of both names (Art. 7.11), with the need to correct the misuse of the term for denoting a type according to Art. 9.10 of the ICN. Some authors (Cecchi and Selvi 2015, 2017) consider this as a lectotypification and treat the above specimen at IBF as the lectotype. This specimen does not belong to the above-mentioned syntypes, nor to the rest of the original material of *P. angustifolia* var. *australis*, as it can be identified from the earlier publication by Murr (1899). Especially, Murr (1899) did not cite any specimens collected by Val de Lièvre, nor the locality (Mt Chegul) where this specimen (IBF [123140]) was collected. There is also no evidence on the specimen that it was available to Murr and associated by him with *P. angustifolia* var. *australis* prior to, or at the time of, publication of the protologue (Dörfler 1903). Therefore, the designation of the nomenclatural type achieved by Sauer (1975) is, in fact, a neotypification, and the misused term "holotypus" must be corrected here to neotype. In any case, this typification cannot stand, because there are dozens of syntypes in many herbaria, which represent No. 4480 of *Herbarium normale* exsiccata series. Being the only ones cited in the protologue of *P. angustifolia* var. *australis* (Dörfler 1903), these syntype specimens have a preference in lectotype designation over the remaining original material (Murr 1899) according to Art. 9.12 of the ICN.

One of these specimens, [WU0131160], we designate here as the lectotype of this name. The other syntypes recently found at B, E, GJO, LI, O, and P (see above), as well as potentially present in other herbaria, are considered isolectotypes.

The provenance of the lectotype ("in collibus et montibus circa "Trient". 450 m s.m.") likely refers to Margone (Margon) southeast of Trento (i.e., above Ravina-Romagnano and below Mt Palon respectively), a locality already mentioned in Murr (1899). Murr sent herbarium vouchers from Margone to Josef Franz Freyn (1845–1903), asking him for determination (Murr 1899; translated from German): "*The Trento hill plant which I presented to building councilor Mr. Freyn in broad- and narrow-leaved forms from Margone (c. 400 m) [...].*" Therefore, Margone is likely the *locus classicus*. *Pulmonaria australis* occurs scattered near Trento (Prosser et al. 2019) and has been proven karyologically even from Margone (Sauer 1975).

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