Aquilegia vulgaris var. speluncarum Lacaita (Ranunculaceae): an enigmatic columbine from the Campanian Apennines, S Italy

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Aquilegia vulgaris var. *speluncarum* Lacaita *(Ranunculaceae):* an enigmatic columbine from the Campanian Apennines, S Italy

Abstract

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The name *Aquilegia vulgaris* var. *speluncarum,* for a little known rupicolous columbine described by Lacaita from the southern Apennines in 1911, is lectotypified and the taxon identified with *A. champagnatii,* a species described from Picentini massif in 1981. The relationship of the taxon and its diagnostic characters are briefly discussed. It is concluded that it is actually conspecific with *A. ottonis* and best recognized as a separate subspecies, for which the name *A. ottonis* subsp. *speluncarum* is validated.

Additional key words: *Aquilegia ottonis, Aquilegia champagnatii,* taxonomy, typification, Mediterranean region

Introduction

In his floristic work on "Principato Citra", an area that roughly corresponds to the present-day province of Salerno in Campania, southern Italy, Lacaita (1911) briefly described an *Aquilegia* found on the cool and shaded cliffs of Mt Accellica (Picentini massif). He regarded it as a new variety of *A. vulgaris* L., which he named var. *speluncarum,* after its habitat. The author observed: "Forma rimarchevole, che pei fiori grandi di colore sbiadito, per la maggiore glandulosità, e per la sottilissima consistenza delle foglie ricorda la *A. ottonis* Orph. ma ne differisce per le lacinie delle foglie più lunghe. Per mancanza di frutti la determinazione è incerta" ["A remarkable form, which, on account of its large and faded flowers, of its more abundant glandulosity and the very thin consistence of its leaves recalls *A. ottonis* Orph., but it differs from the latter on account of the longer leaf lobes. Because of the lack of fruits, the identification is uncertain"] (Lacaita 1911, translated). Besides, Lacaita hypothesised that this new variety was simply an ecotype, stating that he had collected "the identical form" from Mt S. Angelo of Castellammare (Lattari massif, peninsula of Sorrento, Campania, Italy). *A. vulgaris* var. *speluncarum* was later reported by Lacaita (1921) in his comprehensive "Catalogo delle piante vascolari dell'ex-Principato Citra" and then never again, neither by its discoverer nor by any later author, except Moggi (2002), who stated that the taxon remains an enigma and that Lacaita's name is a nomen nudum.

Some years ago, the discovery of a new *Aquilegia,* growing on damp calcareous cliffs of Mt Terminio (Picentini massif) at about 1450 m elevation, was reported by Moraldo & al. (1981). Subsequently, this new species, named *A. champagnatii* Moraldo & al., was found also in similar environments of Mt Accellica (Picentini massif) and Mt Faito (Lattari massif, Sorrento peninsula) (Moraldo & al. 1985). Other details about this finding and related investigations were reported by Moraldo (2001). According to Cullen & Heywood (1993, rev. by Akeyrod), *A. champagnatii* is similar to *A. ottonis* Orph. ex Boiss. subsp. *ottonis,* but is characterised by somewhat larger flowers with curved (not hooked) spurs and glabrous leaves.

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Fig. 1. Lectotype of *Aquilegia vulgaris* var. *speluncarum* Lacaita (BM 000889316), with a detail view of the flower bud. – Scale bars: 10 cm, detail view = 1 cm.

Greuter & al. (1989) placed *Aquilegia champagnatii* into the *A. olympica* aggregate, together with *A. dinarica* G. Beck, *A. olympica* Boiss. and *A. ottonis* Boiss. s.l. The group is characterised by foliose and glandular stems, often branched inflorescences, more or less nodding and medium-to-large sized flowers, which are often bicolorous and with more or less hooked spurs, longer than the petals limb. The basal leaves are usually biternate, the cauline ones similar but progressively reduced; the leaflets are 3-lobed, crenulate to deeply partite (sometimes petiolate), normally hairy and thin. With the exception of *A. olympica,* which grows in damp meadows and *Picea* forests (Cullen 1965), all other species are found on shaded and often damp montane rocks and screes. As an adaption to this habitat, the rhizome is slender and creeping, with notable remains of precedent seasons leaves (Pignatti 1982).

The present study demonstrates the identity between *Aquilegia champagnatii* and *A. vulgaris* var. *speluncarum* and elucidates the affinity of this taxon.

Material and methods

The study is based on herbarium specimens of *Aquilegia* kept in the herbaria of the Università degli Studi di Napoli Federico II (NAP) and the Natural History Museum London (BM), as well as on living plants from the central and southern Apennines belonging to the *A. olympica* aggregate sensu Greuter & al. (1989).

The data of Table 1 are taken from the literature (especially Cullen 1965; Cullen & Heywood 1993; Strid 1986; Pignatti 1982; Conti & Soldano 2005; Moraldo & al. 1981) and from personal observations.

Results

Identity of *Aquilegia vulgaris* var. *speluncarum*

Despite the opinion of Moggi (2002), *Aquilegia vulgaris* var. *speluncarum* Lacaita (1911) is a validly published name (see Art. 41.3 of the Code, McNeill 2006). In fact, according to Art. 32.2 of the Code, a diagnosis is "a statement of that which in the opinion of its author distinguishes the taxon from other taxa". Such a statement was provided by Lacaita, even if very briefly, when he distinguished his variety *speluncarum* from the typical *A. vulgaris* on the basis of its denser glandular hairiness and its larger and faded flowers, as well as from *A. ottonis* on the basis of the different shape of the leaves. However, a type is not designated and the only diagnostic character indicated in the Italian diagnosis to distinguish *A. vulgaris* var. *speluncarum* from *A. ottonis* is largely uncertain. Moreover, Lacaita himself raised some relevant doubts on the identification of var. *speluncarum,* on account of the lack of fruits in his specimens. Nevertheless, all this does not affect the validity of the publication of his name (Art. 36.1, 37.1, 34.1).

A thorough search through Italian herbaria did not yield any original material of *Aquilegia vulgaris* var. *speluncarum*. At BM, only one sheet (BM 000889316), originally from the herbarium of Lacaita (231\08), was found, which has two autograph labels by Lacaita (Fig. 1). One of them (probably written in a precedent time) reads: "*Aquilegia Othonis* [sic!] Orph. in Boiss. Diagn. II.1.11 \ M. Accelica (Salerno - Avellino) \ ad rupes calcareas umbrosissimas \ c. 1300 m \ 21.6.08". Note that «21.6.08» is the date indicated in the protologue (Lacaita 1911). The other label reads *"Aquilegia vulgaris* L. var. *speluncarum* Lacaita nec *A. Ottonis"*. The two individuals present on the sheet belong without doubt to the *A. olympica* aggregate sensu Greuter & al. (1989). Both of them are largely incomplete, without open flowers, and probably damaged. It is unfortunate that only this herbarium sheet is available, especially because Lacaita described the flowers in his protologue, and therefore must have seen complete individuals. One of the individuals on the sheet has only the basal leaves, while the other has also a flowering stem, but only with a single bud in its early stage (Fig. 1). Therefore, even though the material is incomplete, the sheet at BM can be designated, beyond any doubt, as the lectotype of *Aquilegia vulgaris* var. *speluncarum* on the basis of the information reported on the labels.

Comparison of *Aquilegia vulgaris* var. *speluncarum* and *A. champagnatii*

Literature comparison and field observations reveal great similarity between *Aquilegia vulgaris* var. *speluncarum* and *A. champagnatii*. In their protologues, the flowers of both are reported as large (Lacaita 1911; Moraldo & al. 1981), and their average size is indeed larger than in the other *Aquilegia* species of the region.

The flower bud in the Lacaita specimen at BM shows the typical non-hooked spur of *A. champagnatii*. Also the description of the flower colour, as well as of the shape and consistence of the leaves (Lacaita 1911), concurs with the features of *A. champagnatii.* As far as the hairiness is concerned, *A. champagnatii* is more often glandular and hairy on stems and leaves, despite the contrary statement by Moraldo & al. (1981). Semi-glabrous or hairy individuals can be found together on S. Angelo and Accellica mountains. The habitat of *A. champagnatii* and *A. vulgaris* var. *speluncarum* is identical, i.e., shaded rock-ledges and niches in the beech forest zone, on calcareous substrate. Their distribution is clearly overlapping as well. In fact, if we exclude the Mt Terminio locality (not known to Lacaita), both *A. champagnatii* and *A. vulgaris* var. *speluncarum* are reported from Mt Accellica and Mt S. Angelo (in this case a more accurate indication than Mt Faito, which is also a broader name for the entire massif, cf. Moraldo 2001). No other rupicolous columbine was ever found on these mountains.

Table 1. Diagnostic characters of the taxa in the *Aquilegia olympica* aggregate sensu Greuter & al. (1989).

Taxon	***A. champagnatii***	***A. dinarica***	***A. magellensis***	***A. olympica***
Height [cm]	30-40	up to 20	25-40	30-60
Basal leaf indumentum	glabrous or hairy	densely hairy	hairy	glabrous above, villose to tomentose below
Basal leaf shape	biternate	ternate	biternate	biternate
Leaflet shape	subsessile or petiolate, incised	deeply 3-partite	usually subsessile	crenately lobed
Flower colour pattern	usually concolorous	bicolorous	concolorous or bicolorous	bicolorous
Sepal length [mm]	20-32	25-30	20-22	(18-)25-35
Spur shape	usually slightly curved	hooked	usually hooked	somewhat hooked
Follicle length [mm]	12-15	?	10-14	up to 30

Taxon	***A. ottonis*** subsp. ***amaliae***	***A. ottonis*** subsp. ***ottonis***	***A. ottonis*** subsp. ***taygetea***
Height [cm]	20-45	15-30	10-20
Basal leaf indumentum	glabrescent	sparsely hairy	densely pubescent
Basal leaf shape	biternate	biternate	often ternate
Leaflet shape	subsessile and ± crenate	subsessile and ± crenate	subsessile and ± crenate
Flower colour pattern	bicolorous	bicolorous	bicolorous
Sepal length [mm]	c. 18	c. 18	c. 18
Spur shape	usually hooked	hooked	hooked
Follicle length [mm]	12-15	15-19	11-14

Relationship of *Aquilegia vulgaris* var. *speluncarum*

As already assumed by Lacaita (1911), his taxon is, no doubt, a member of the *Aquilegia olympica* aggregate. The *A. olympica* aggregate sensu Greuter & al. (1989) is represented in Italy, apart from our taxon, only by *A. magellensis,* which is probably endemic to the central Apennines. For both taxa only scattered and often scanty populations, nowadays isolated, with reduced gene flow, are reported. According to Moraldo & al. (1981), both taxa are characterised by primitive morphological features. Moreover, the rarity of these plants, growing in hardly accessible locations, is somehow responsible of the incomplete knowledge of the group in Italy, where it is probably represented by other geographical variants.

Outside Italy *Aquilegia dinarica* G. Beck, *A. olympica* Boiss. and *A. ottonis* Orph. ex Boiss. subsp. *ottonis,* subsp. *amaliae* (Heldr. ex Boiss.) Strid and subsp. *taygetea* (Orph.) Strid (nomenclature mostly according to Cullen & Heywood 1993) belong to the group.

In Table 1, the essential morphological diagnostic features of the taxa of this group of species are compared. *Aquilegia champagnatii* is characterised especially by biternate leaves, hairy or sometimes glabrous, with deeply incised and often elongated and petiolate leaflets. The flowers are large, pale blue, normally with curved (but not hooked) spurs. Comparing it with other species of the *A. olympica* aggregate, the comparison reveals less affinities to *A. olympica* and *A. dinarica* (in particular because of leaf and leaflet shape) and closer relationships to *A. ottonis* and *A. magellensis*, as has been stated before in both floristic (Lacaita 1911; Cullen & Heywood 1993, rev. by Akeyrod) and monographic works (Nolde 2003; Moraldo & al. 1981). Cullen & Heywood (1993) even included *A. ottonis* var. *unguisepala* Borbás (= *A. magellensis*) in *A. ottonis* subsp. *ottonis,* while *A. champagnatii* is regarded similar to this latter taxon. However, the data show remarkable affinities with *A. ottonis* subsp. *amaliae* as well, in particular with respect to the general habit, the sometimes glabrous leaves, the length and the shape of the follicles.

Discussion

Both *Aquilegia magellensis* and *A. champagnatii* are sometimes considered to differ from the authentic *A. ottonis* of the Balkans on account of their large, pale blue, concolorous flowers. According to Strid (2002), the plants of *A. ottonis* s.l. from central Italy (i.e. *A. magellensis*) "with more or less concolour flowers and short, erect, subglabrous follicles, may represent a fourth subspecies" of *A. ottonis*. Nevertheless, also flowers with paler or whitish limbs of honey-leaves (at least on margins and in the centre) are found in *A. magellensis* (Pignatti 1982 sub *A. ottonis* Orph.; Conti & Soldano 2005) and sometimes in *A. champagnatii* (Moraldo & al. 1981). Flower parts (especially the late

Fig. 2. *Aquilegia champagnatii* flower from Mt Faito (Lattari Massif, Campania, Italy). Note the hooked spurs (photo by S. Gargiulo).

ones) are according to my observations often smaller than generally reported, so their measures largely overlap with those indicated for *A. ottonis* subsp. *ottonis* (Strid 1986). Therefore *A. champagnatii* and *A. magellensis* are closely related to *A. ottonis* s.l. from Balkans.

Moreover, *Aquilegia champagnatii* is hard to discriminate from *A. magellensis,* as several populations (National Park of Abruzzo, Simbruini massif) are difficult to characterise (see images and communications at Natura Mediterraneo 2007).

However, while the distinctness of *Aquilegia magellensis* from *A. ottonis* s.l. is yet in need of confirmation, *A. champagnatii* appears more strongly differentiated, especially on account of the shape of its spur. Nevertheless, also this character (and therefore the related spur/limb length ratio) is inconstant, as hooked spurs sometimes occur in *A. champagnatii* populations, e.g., on Mt S. Angelo (Fig. 2 and photos in Visetti 2004-06). Moreover, weakly curved spurs are sometimes found in individuals of the *A. olympica* aggregate from central Italy (pers. obs.) and from the Balkans. Usually, *A. champagnatii* leaflets are more elongated, weakly rounded at the apex (sometimes acute) and often petiolate, but these characters can be observed only in typical individuals. In addition, as already stated, the presumed glabrescence of *A. champagnatii* is to be considered only a peculiarity of a local population. The length of the follicles (not indicated in Moraldo & al. 1981) is c. 12-15 mm in the samples collected by the author, i.e. largely concurrent with the measures reported for *A. magellensis* (Conti & Soldano 2005; pers. obs.), and somewhat shorter than in *A. ottonis* subsp. *ottonis* according to Strid (1986).

Conclusion

Aquilegia champagnatii is not distinct from *A. vulgaris* var. *speluncarum,* and it is closely related to *A. ottonis* s.l. and *A. magellensis,* which is, however, doubtfully distinct from *A. ottonis* at specific level. While a revision of the *A. olympica* aggregate in Italy is beyond the scope of this paper, it appears on the basis of the present state of knowledge and accepting the considerations by Strid (1986, 2002) on *A. ottonis* s.l., the most appropriate solution to consider the Lacaita taxon as a separate subspecies of *A. ottonis:*

Aquilegia ottonis subsp. ***speluncarum*** (Lacaita) Del Guacchio, **stat. & comb. nov.** ≡ *Aquilegia vulgaris* var. *speluncarum* Lacaita in Bull. Orto Bot. Regia Univ. Napoli 3: 258. Nov 1911 (date of the preprint, the complete volume of the journal is dated 1913; cf. Lacaita 1921: 107). – Lectotype (designated here): [Italy], "M. Accelica (Salerno - Avellino) ad rupes calcareas umbrosissimas, c. 1300 m, 21.6.[19]08", *Lacaita* (BM 000889316) – Fig. 1.
= *Aquilegia champagnatii* Moraldo & al. in Webbia 35: 84. 1981. – Holotype: FI; isotype: NAP [in very poor condition].

A related population from the Alburni massif, which is located further south in Campania, Italy, was firstly reported by Lacaita himself (1925) as *Aquilegia ottonis* s.str., but never found again. Herbarium sheets from this population show strongly hooked spurs, somewhat rounded leaf outlines, often petiolate leaflets with acute and deep lobes, and an unusual flower colour (BM 000889310, BM 000889311, BM 000889312). This population should be re-collected and studied on living plants.

Finally, it is appropriate to add here that a plant collected by Guadagno (1908) in the beech woods of Mt Sacro and Mt Terminio, which was identified by Guadagno as the typical *Aquilegia ottonis* of the Balkans (see the notes in Fiori 1911 and Moggi 2002), was later cited by Lacaita (1921) under the designation *"A. ottonis* Gudagno, non Orph." as a synonym of *A. vulgaris* var. *speluncarum*. This statement is still to be proven.

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