

AREAL LIMITS IN THE ROMANIAN TERRITORY: *Aphanes australis* RYDBERG 1908

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Abstract. The taxonomy and chorology of some species belonging to the *Aphanes* genus in Europe, including Romania, is still unclear. This paper continues the series of the type of papers started by the great botanist Dihoru, works regarding the chorology of the species with their limits within Romania. There are included the localities where the species was found within Romania and also some ecological considerations.

Keywords: *Aphanes australis*, taxonomy, chorology, Romania.

Rezumat. Limita arealului pe teritoriul României: *Aphanes australis* RYDBERG 1908. Taxonomia și corologia unor specii aparținând genului *Aphanes* din Europa, inclusiv România este încă neclară. Lucrarea de față continuă seria lucrărilor de acest gen începute de marele botanist Dihoru, lucrări ce vizează corologia speciilor cu limita arealului pe teritoriul României. Sunt incluse localitățile în care a fost găsită specia pe teritoriul României și unele considerații ecologice.

Cuvinte cheie: *Aphanes australis*, taxonomie, corologie, România.

INTRODUCTION

The *Aphanes* genus species of the Romanian flora were initially included in the *Alchemilla* genus (BUIA, 1956). Subsequently there were separated from this genus to the *Aphanes* one in the different determinators of the country (BELDIE, 1977, 1979; CIOCĂRLAN, 2000, 2009) based on obvious characteristics: they are annual plants, the flowers are grouped in side fascicles opposite to the leaves and they have only a stamen.

Initially only *Aphanes arvensis* LINNAEUS 1753 was known from the flora of our country (BUIA, 1956). Subsequently, NÝARADÝ (1957) mentions a second species of this genus in Romania: *Aphanes microcarpa* (BOISS. & REUT.) ROTHM. 1937 with the following synonyms: *Alchemilla microcarpa* BOISS. & REUT. 1842; *A. pusilla* POMEL. ex BATT. & TRAB. 1888; *A. minutiflora* AZN. 1899. The discussions regarding this species made by A. NÝARADÝ refers to the *Aphanes microcarpa s.l.* aggregate species, as it results from the synonyms inserted and as it was also considered by ROTHMALER in 1937.

By 2006, only the two species under the name listed above were known for this genus. DIHORU & RĂDUȚOIU (2006) were the first ones that mention *Aphanes australis* RYBD. under this name in the flora of our country. It is in fact the so-called *A. microcarpa* sensu A. NÝARADÝ.

MATERIAL AND METHODS

The collected material was analysed according to the Romanian and foreign literature (BRITTON & BROWN, 1913; CARRASCO & MONGE, 1991; CIOCĂRLAN, 2000, 2009; DIHORU & RĂDUȚOIU, 2006; HOLUB, 1970; LIPPERT, 1984; WALTERS 1968).

The authors' abbreviations were done after BRUMMITT & POWELL (1992).

The resorts where the species was found are presented together with the GPS coordinates, and we used LEHRER & LEHRER (1990) coordinates (Rugetu - GR20 and Moi - FQ77) for mapping the distribution of this species in Romania.

RESULTS AND DISCUSSIONS

The collected material from the two localities mentioned at the chorology belongs to: *Aphanes australis* RYDB. 1908, (*A. microcarpa* auct. roman., non (BOISS. & REUT.) ROTHM., (NÝARADÝ, 1957), *A. inexpectata* LIPPERT 1984, (CIOCĂRLAN, 2000)), species characterized by divided stipule in elongated and hypanthium lobes of 1.4 mm (Figs. 1-4).

It is worth mentioning that: it is a small, low-growing plant, with leaves having 3-5 lobes, 2-10 mm long, and usually appearing green. Insignificant flowers are produced in the leaf axils, and have no petals.

When it is briefly analysed, it may be confused with *Aphanes arvensis* L. from which it may be differentiated by several characteristics:

1a. Flowers 1.5-2 mm long with sepals slightly divergent. Fructiferous Hypanthium larger than 2 mm. Palmate-lobate stipules with triangular lobes *Aphanes arvensis* L.

1b. Flowers up to 1 mm long with conivent sepals. Fructiferous Hypanthium of 1.4-1.9 mm. Palmate thin stipules with oblong lobes *Aphanes australis* RYDB.

Ecology and cenology: It is an heliophilous, thermophile plant and grows in grassed areas, on textured soils more or less sandy. It cohabits with *Cerastium glomeratum* THUILL., *Montia fontana* L. subsp. *chondrosperma* (FENZL) WALTERS (Fig. 5).

Status: Critically Endangered (CR).

Chorology from Romania: Arad County: Zarand Mountains, Debela Gora Hill, September 25, 1970, leg. I. Pop (as *A. arvensis* [CL 593286], rev. G. Negrean 31.I.2004); Vâlcea County: between Slătioara and Milostea (NÝARADÝ, 1957); Mehedinți County: the Dubova Depression, July 25, 1966, leg. ?, det. G. Negrean [BUCM 71216] (DIHORU & NEGREAN, 2009). The new locations (Fig. 6): Moi village, Gorj county- N 44°54'094 "and E 23°13'358" at heights of 244 m and Rugetu locality N 45°08'290 "and E 23°52'0210" at heights of 531 m.

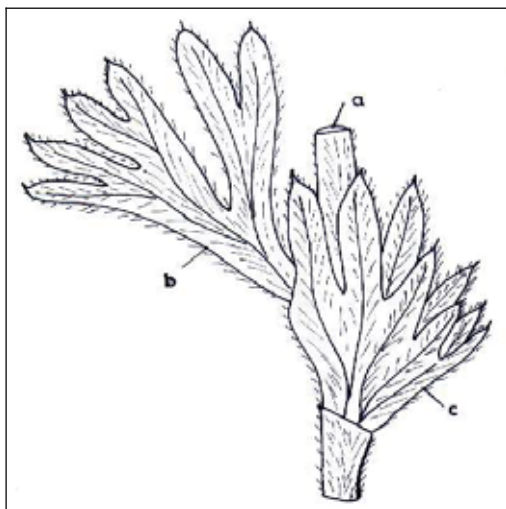


Figure 1. *Aphanes australis* - upper leaf: a. ax; b. lamina; c. stipules (6x).
 Figura 1. *A. australis* - frunză superioară: a. ax; b. lamină; c. stipele (6x) (original).

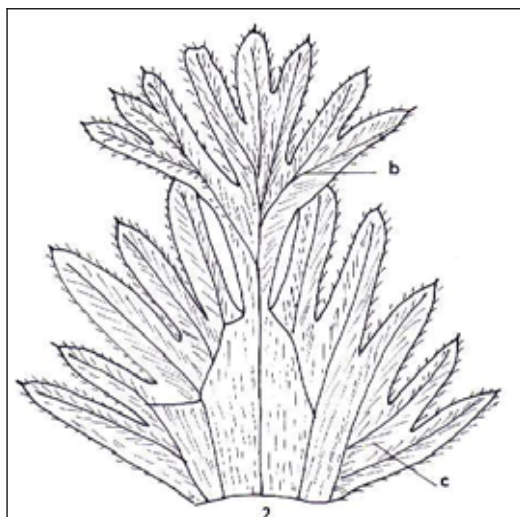


Figure 2. *Aphanes australis* - middle leaf with split and wide stipules: b. lamina; c. stipules (6x).
 Figura 2. *A. australis* - frunză mijlocie cu stipulele despicate și întinse - b. lamină; c. stipele (6x) (original).

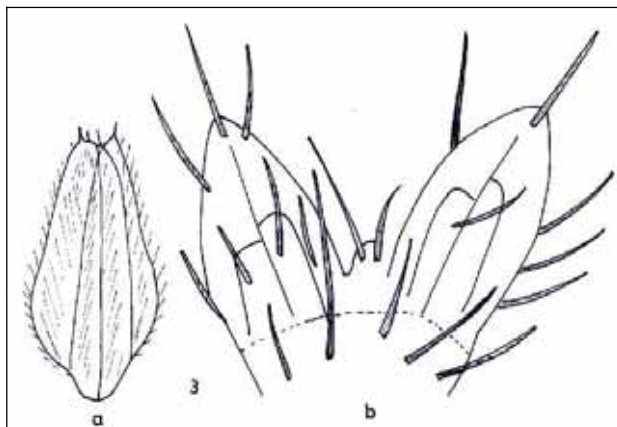


Figure 3. *Aphanes australis* - hypanthium: adaxial seen (15x) b. two lobes from calyx (it can be observed a lobe from calyx) (50x).
 Figura 3. *Aphanes australis* - hipantiu: vedere adaxială (15 x); b. 2 lobi ai caliciului (se observă un lob din caliciu) (50x) (original).

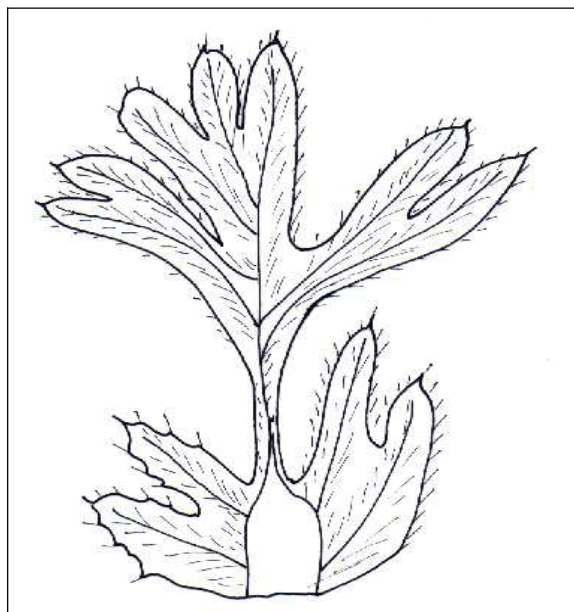


Figure 4. *Aphanes australis* - inferior leaf.
Figura 4. *A. australis* - frunză inferioară (6x) (original).



Figure 5. *Aphanes australis* RYDB, alongside *Montia fontana* L. subsp. *chondrosperma* (FENZL) WALTERS in meadow from Moi locality.
Figura 5. *Aphanes australis* RYDB, alături de *Montia fontana* L. subsp. *chondrosperma* (FENZL) WALTERS în pajiști din localitatea Moi (original).

CONCLUSIONS

The paper represents a timid attempt to clarify the *Aphanes australis* RYDB. species in Romania.

In addition to the information from nomenclature, ecology and taxonomy there are also presented in this paper the chorology information from literature, collections and personal observations that are also included in a map.

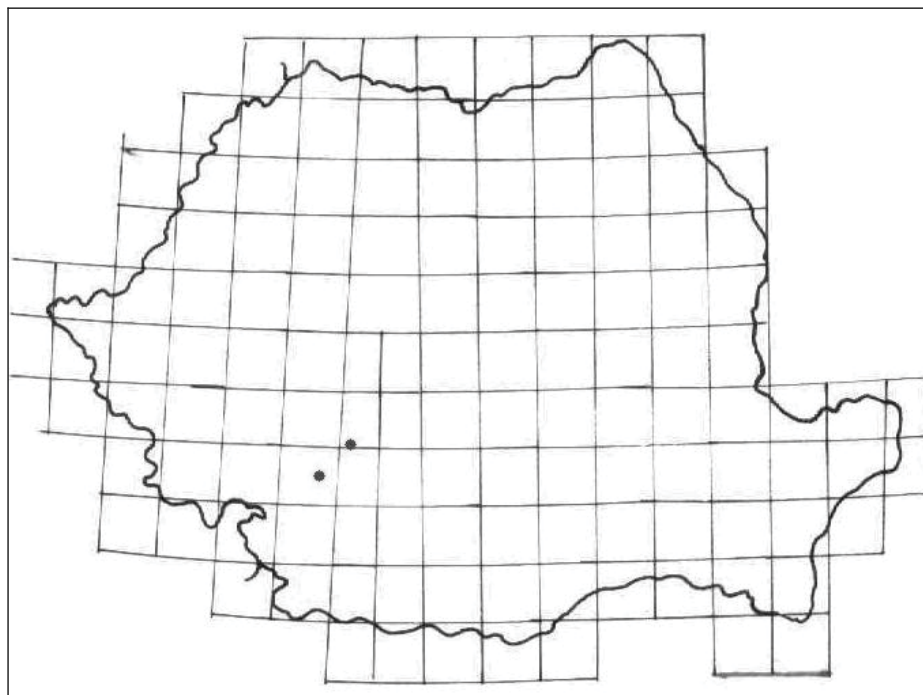


Figure 6. The map with new locations for *Aphanes australis* RYDB. from Romania.
 Figura 6. Harta cu noile locații pentru *Aphanes australis* RYDB. din România (original).

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