

Ranunculus binatus* Kit. ex Rchb. (RANUNCULACEAE) FROM OLTENIA, ROMANIA*RĂDUȚOIU Daniel**

Abstract. The present work started from the collection of plant material that, at a first analysis regarding the morphological characters, was classified as *R. auricomus*, but the basal leaves showed incisions that clearly separate it from the above-mentioned species. The detailed laboratory analysis of the material collected from Preajba - Dolj county led us to the conclusion that the studied material belongs to *Ranunculus binatus* Kit. ex Rchb. Opinions regarding the taxonomic position of this taxon are divided. In Romanian literature, this species is included in *Ranunculus auricomus* var. *binatus*, but foreign literature accepts the scientific name also presented by us, rarely *R. auricomus* subsp. *binatus* (Kit. ex Rchb.) Jasiewicz. The initial description of this taxon was based on material collected from Transylvania (Romania) (1832). The present paper discusses the material collected by the author and brings new contributions regarding the chorology of this species in Romania. Moreover, a map distribution of the species is also made in correlation with the average annual precipitation and temperatures in Romania.

Keywords: *Ranunculus binatus*, chorology, Oltenia, Romania.

Rezumat. *Ranunculus binatus* Kit. ex Rchb. (Ranunculaceae) din Oltenia, România. Lucrarea de față a pornit de la colectarea unui material vegetal care la o primă analiză referitoare la caracterele morfologice, a fost încadrat la *R. auricomus*, însă frunzele bazale prezentau incizii care îl separă net de specia mai sus amintită. Analiza amănunțită în laborator a materialului colectat din localitatea Preajba - județul Dolj, ne-a condus la concluzia că materialul studiat se încadrează la *Ranunculus binatus* Kit. ex Rchb. Punctele de vedere referitoare la poziția taxonomică a acestui taxon sunt împărțite. În literatura românească această specie este încadrată la *Ranunculus auricomus* var. *binatus*, însă literatura străină acceptă numele științific prezentat și de noi, rareori *R. auricomus* subsp. *binatus* (Kit. ex Rchb.) Jasiewicz. Descrierea inițială a acestui taxon a fost realizată pe baza unui material colectat din Transilvania (România) (1832). În prezenta lucrare se fac unele discuții pe seama materialului colectat de noi și se aduc noi contribuții referitoare la corologia acestei specii din România, realizându-se și o repartizare pe hărți, corelat cu precipitațiile și temperaturile medii anuale din România.

Cuvinte cheie: *Ranunculus binatus*, corologie, Oltenia, România.

INTRODUCTION

The species analysed in the present paper was included for some time in the *Ranunculus auricomus* Linnaeus 1753 complex (TUTIN 1964, TUTIN & AKEROYD, 1993), either as a subspecies (*R. auricomus* L. subsp. *binatus* (Kitaibel ex Reichenbach 1832) (JASIEWICZ 1985)), or as a variety (NYÁRÁDY, 1933; BELDIE, 1977; CIOCĂRLAN, 2009; SÂRBU et al., 2013). JASIEWICZ (1956) analyses the plants collected by Marklund and proposes *R. binatus* emend Jasiev.

Based on the material collected from Romania (Sighisoara), REICHENBACH is the first to publish this taxon in *Flora Germanica Excursoria*, in 1832. The present taxon is also known under this name from the flora of the Republic of Moldova (PÎNZARU, 2019; PÎNZARU et al., 2021), or from various specialized works (NYÁRÁDY, 1953; SANDA et al., 1983; POPESCU & SANDA, 1998, DUNKEL, 2011; DIMOPOULOS et al., 2016; MIREK et al., 2020). DUNKEL (2011) also typifies this scientific name.

Over time, there have been numerous debates concerning this taxon (SCHUR, 1853; JANKA, 1856; SCHILLER, 1917, JASIEWICZ, 1956). We agree with Schiller's idea (1917) regarding the "*auricomus*" group. He mentions that there are four phylogenetic pillars of this group, i.e. *R. binatus*, *R. auricomus*, *R. cassubicus*, *R. flabellifolius*, presented in order of their phylogenetic development (NYÁRÁDY, 1933). For these statements, Schiller relies on the research conducted at the time by Schrödinger, who stated that the main construction plan of the leaves of the Ranunculaceae family representatives - and also their original state - is the radial basipetal division of the leaf lamina. According to this point of view, species with more divided leaves are older, while those with simpler leaves represent younger phylogenetic forms.

SOÓ (1964) does not share the above-mentioned opinion and specifies that *R. binatus* is rather a taxon characterised by variability at the leaf level. He includes the images presented by NYÁRÁDY (1933) and JASIEWICZ (1956) within *Ranunculus pseudobinatus* Soó 1964.

MATERIAL AND METHODS

Detailed research on the species *R. binatus* started after the gathering of material from the Preajba settlement (Dolj county). During the first analysis, it was attributed to *R. auricomus* L. The laboratory analysis of the entire plant, including the basal leaves, led to the conclusion that the material collected by us belongs to *R. binatus* Kit. ex Rchb. The material was herbarized and included in the herbarium of the University of Craiova (CRA).

Data related to the distribution of this taxon in the vascular flora of Oltenia were extracted from specialized works that mainly dealt with the study of the flora of a certain region, as well as from the herbarium of the University of Craiova (CRA).

The RoBioAtlas program (2023) was employed in order to draw up the distribution maps. This program uses the UTM codes (LEHRER & LEHRER, 1990) for the distribution of the species, in correlation with the average annual precipitation and temperatures.

RESULTS AND DISCUSSIONS

Ranunculus binatus Kitaibel ex Reichenbach 1832 is mentioned as a native species in Central and South-Eastern Europe: Slovakia, Poland, and Greece (POWO, 2023) (Fig. 1). A few years ago, it was also identified in the flora of the Republic of Moldova (PÎNZARU, 2019) and it was subsequently mentioned as a rare species (PÎNZARU et al., 2021; PÎNZARU, 2023).



Figure 1. Distribution of the species *Ranunculus binatus* green – native (<https://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:712309-1>).

The comparative analysis of the plant material collected from the Preajba area - Dolj county and of the herbarized one, as well as of the existing data in the specialized literature regarding *Ranunculus binatus* Kit. ex Rchb., led to certain information that we present below.

Taxonomy. The material collected and analysed by the author does not exceed 30-40 cm in height; it has a thin stem that is branched at the top. The basal leaves display long petioles and variability in terms of incisions, being from palmately cleft to palmately divided (Fig. 2). The ones situated on upper stems show entire linear segments (Fig. 3). Achenes are pubescent.



Figure 2. *Ranunculus binatus* – herbarized material (orig.).



Figure 3. The upper part of the flowering stem of *Ranunculus binatus* (orig.).

Habitat and coenology. It is present in areas covered by grass, located in river meadows, on soils with water variability, from moist to humid. From a coenological point of view, most specialists place it in the Molinio-Arrhenatheretea R. Tx. 1937 class (POPESCU & SANDA, 1998; SÂRBU et al., 2013; PÎNZARU, 2021), which represents a viewpoint also supported by the author of the present paper. In other works, it is included in Querco-Fagetea BRAUN BLANQUET et VLEIGER in VLEIGER 1937 (POPESCU & SANDA, 1998; SÂRBU et al., 2013), or in Carpinion betuli ISSLER 1931 (COSTACHE, 2005).

Biology. It is a perennial species, a hemicryptophyte that reproduces by seeds. It blooms from April to May.

Importance. Rarity, even at the European level.

Limiting factors. Isolated and relatively poor populations, to which certain zoo-anthropogenic activities (e.g. irrational grazing) are added.

Chorology. After researching the specialized literature that contains information about the spontaneous flora within Oltenia, the author found that this taxon is also mentioned as identified in several settlements under the name *Ranunculus auricomus* L. var. *binatus* (Kitaibel 1832) Penev: Corcova, Arginești, Gura Motrului, Lunca Banului (Mehedinți county) (COSTACHE, 2005), Ciumagi, Lădești (Vâlcea county) (RĂDUȚOIU, 2008). The data identified in the specialized literature and the information connected to the new location are included on the two maps that display correlations with the average annual temperatures (Fig. 4) and with the average annual precipitations (Fig. 5).

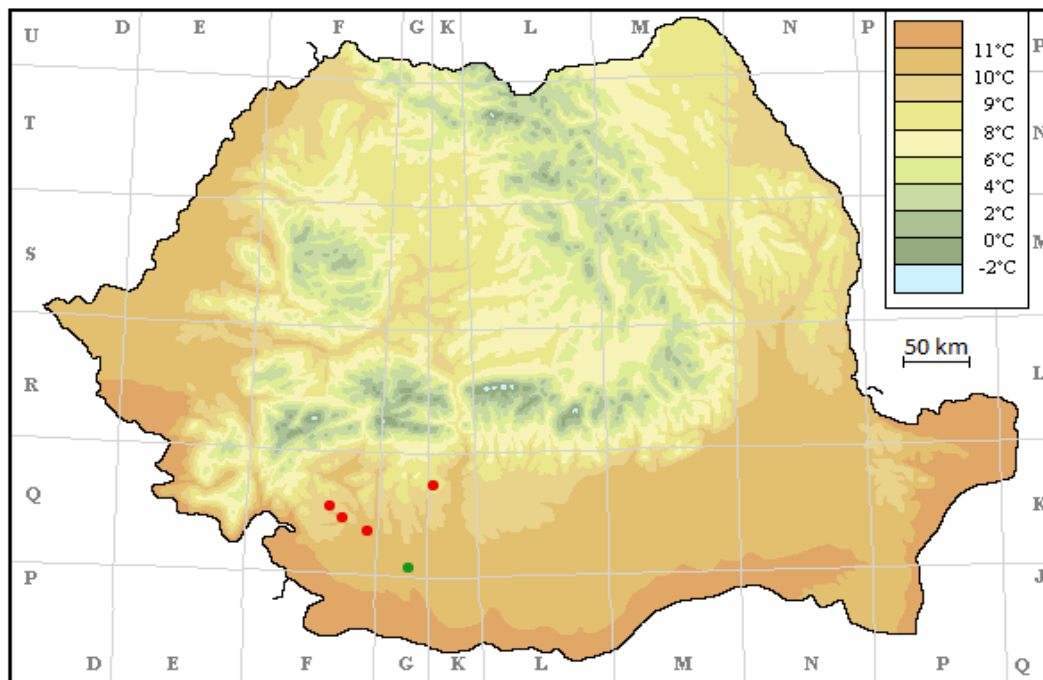


Figure 4. Distribution of *Ranunculus binatus* in Oltenia, in correlation with the average annual temperatures (orig.).

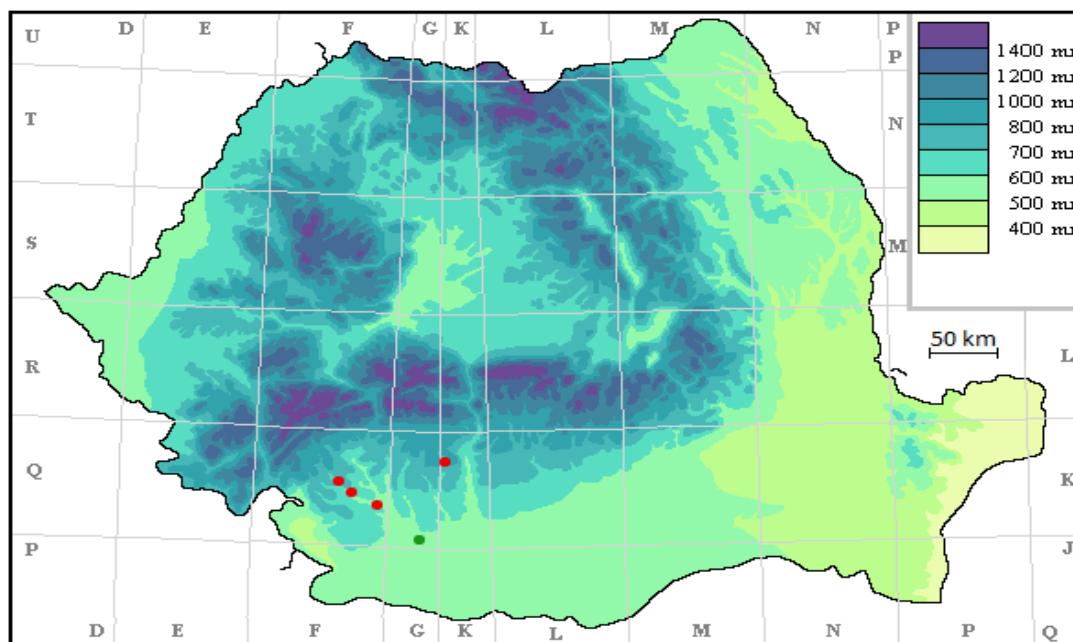


Figure 5. Distribution of *Ranunculus binatus* in Oltenia, in correlation with the average annual precipitation (orig.).

CONCLUSIONS

The present paper introduces certain information related to the species *Ranunculus binatus* from Oltenia, Romania. Based on material identified in the Preajba settlement - Dolj county, some data on the taxonomy, habitat, coenology, biology, importance, limiting factors, and chorology of this taxon are presented. Chorological data documented in the field literature

and personal data are also inserted in two maps that display correlations with the average annual temperatures and precipitation. Therefore, contributions are brought to the chorology of this species from Oltenia - Romania.

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