

NEW FLORISTICAL INFORMATION FROM CERNA OF OLTEȚ BASIN (VALCEA-ROMANIA)

Răduțoiu D.

University of Craiova, Faculty of Horticulture, Biology Department, Libertății Street 15, Craiova,
200585, Romania

Key words: comment, novelty information, Cerna of Oltet Basin.

Abstract: In the present work we present the analysis of several taxa with controversial taxonomy positions, which have been identified within the territory we have researched. In some cases we can say that the denomination we have given them is the correct one, with others it is risky to recommend as certain one of the names used in some botanical works for the plant that is frequent in this region, because of the lack of botanical works that could help stabilize our position.

INTRODUCTION

The Basin of Cerna of Oltet is situated in the south-western part of the country and frame in the superior part of the Getic Piedmont (178 m), the subcarpathian depression of Oltenia and the mountainous region (inferior, middle and superior) (2100 m).

If we refer to the historical-floristic province of Oltenia, the researched area is located in the north-eastern part. It covers an area of about 750 km², with a north-south direction and a length of 99 km along the axis of the main valley.

MATERIAL AND METHODS

The first phase in researching the Cerna of Olteț Basin has been reviewing the bibliographic material.

Starting from this bibliographic information, I have repeatedly conducted personal researches on location, using the itinerary method, taking into consideration the relatively large surface, but where a much more detailed study was necessary, the stationary method was used, collecting and conserving the flower material.

Taxon identification has been conducted on this material, preserved dry or on live material, using recent sources of taxonomy information.

The authors' abbreviations have been made after Brummitt & Powell (1992).

RESULTS AND DISCUSIONS

As a result of analyzing several important taxa from the researched territory, some unknown information that could contribute to their systematic position emerged. From these taxa, we present:

Aphanes microcarpa s. l.

For longer or shorter periods of time, the *Apanes* L. genus has been included within the *Alchemilla* L. genus (Borza 1947), even in the Romanian Flora (Buia 1956), nonetheless, lately they have been treated separately, because the species of the first genus are annual, have flowers disposed in lateral fascicles opposed to the leaves, and have got a single stamen.

In many European countries, including Romania, the taxonomy of *Aphanes microcarpa* s.l. micro species is yet unclear, this is why, when collecting such a material from the South-Western part of the country, we have decided to determine its systematic position. The analysis of our material, in accordance with recent literature, has led to the conclusion that *Aphanes australis* Rydb. It grows in Romania, thus clarifying numerous questions from different works. We should also mention the fact that this species, collected only from the locality of Slătioara, Vâlcea district, is placed in Romania, at the Eastern limit of the habitat.

Until 1957 in the Romanian flora only the *Aphanes arvensis* L. Was mentioned (Buia 1956). On the basis of a flower material collected in June 1951 from between the Localities of Miloştea and Slătioara, Vâlcea District, A. Nyár. (1957) has identified the *Aphanes microcarpa* (Boiss. & Reut.) Rothm. 1937, to which he also indicated several synonyms: *Alchemilla microcarpa* Boiss. & Reut. 1842; *A. pusilla* Pomel. ex Batt. & Trab. 1888; *A. minutiflora* Azn. 1899.

The Romanian author describes the species, among others, as follows: „The alternate leaves, with short petiols, and long of 6 (-8) mm, weakly haired or glabrescent adpresses, with fan-like laminae, cuneate at base, trifid or trisected palmate, with digitate-lobed 3(-5) segments, with obtuse lobes. Relatively large stipellas, close to the length of the petiole, digitately-incised, with short-pedunculate flowers underneath, reunited in glomerula situated opposed to the leaves. Flowers long of only 0,5 - 1(1,2) mm, with urceolate receptacle, finished with very short dentiform sepals. The fruit: a glabrous nutlet, ovate, to 1 mm long, included in the adpress, weakly-haired receptacle, without a visible narrow part under the calyx teeth”.

The talks made by A. Nyár are related to the aggregate species of *Aphanes microcarpa* s. l., as results also from the synonyms mentioned, and as W. Rothmaler considered it in 1937.

For almost five decades Romanian botanists have known that in Romania the rare *Aphanes microcarpa* could be found, but during this period researches have deepened, and there have been found four related species in Europe (Lippert 1984; Carrasco & Monge 1991 ş.a.). Neither Lippert (1984), nor Carrasco & Monge (1991) and not even Kurtto & Frohner 2004 (mnsc.) make any precise mention to the species in Romania, the first authors not even knowing the work of A. Nyár. (1957), and the last two authors don't mention the species because A. Nyár's iconography does not contain the leaves, including the stipellas, important in delimiting micro species, but only the habitat and hypanthia. Not long ago, the name of the plant in Romania has been intuitively replaced, according to literature, without examining the material, with *Aphanes inexpectata* Lippert 1984, and within parentheses he incorrectly mentioned the priority denomination, *A. australis*, without author (Ciocârlan 2000).

Hazard made it that one of the authors conducted research in the area indicated by A. Nyár. And found material for the so-called *A. microcarpa* sensu A. Nyár. The analysis of this material, according to special works, has led to this final binomial, characterized by stipellas divided into elongated lobes and 1,4 mm hypanthiums, which is exactly *A. inexpectata*. Lately, several authors (Kurtto & Frohner, mnsc.) have noticed that the adventive species in America could correspond to *A. inexpectata*, only that there it has been described prior to this one, and under a different name which becomes priority, which leads to the following conclusion regarding the species in Romania collected until now:

Aphanes australis Rydb. 1908, North Am. Fl. 32: 380 (Fig. 35.-38.) (*A. microcarpa* auct. roman., non (Boiss. & Reut.) Rothm., A. Nyár. 1957, Stud. Cerc. Biol. (Cluj): 285; - Beldie 1977, Fl. Rom., Det. Il. Pl. Vasc., 1: 268; *A. inexpectata* Lippert 1984, Mitt. Bot. Munchen, 20: 458; - Ciocârlan 2000, Fl. Il. Rom., Pterid., Spermat., ed. 2: 320.

Montia fontana L. (Portulacaceae)

As a result of the research conducted in the Cerna de Olteţ Basin, within regular time intervals, in order to surprise the flora and vegetation in all its stages, a material has been found, and after its analysis proved to be *Montia fontana* L., a taxon whose presence in the Romanian flora was controversial.

In botanical literature in general, and in the Romanian one especially, it is mentioned under different names:

- *Montia verna* Neck. (Prodan 1939, Borza 1947, Grinţescu 1952, Bujorean & al. 1959).
- *Montia fontana* L. (Roman 1974, Beldie 1977).
- *Móntia mīnor* C.C. Gmel. (Schur 1866, Grecescu 1898, Ciocârlan 2000) and different combinations of the above-mentioned:
- *Montia fontana* L. subsp. *minor* (C.C. Gmel.) Schubl. & Mart. 1837 (Soo1980)
- *Montia fontana* L. subsp. *minor* (C.C. Gmel) Čelak. (Kreisel 1966)
- *Montia fontana* L. subsp. *chondrosperma* (Fenzl) Walters (Walters 1953. Moore 1963).

Bujorean & al. (1959) examine from a taxonomy and caenological point of view this taxon on Banat- based material, when in the Romanian Flora (Grinţescu 1952) it was mentioned with a question mark. From these authors on, nothing special has been mentioned regarding *Montia* in Romania.

Because recently this species has been found in Oltenia by Daniel Răduţoiu and Dragoş Dumitriu, we have considered that a synthesis of our knowledge about it could bring about unknown or even wrong aspects about it.

Short history. If we start with F. Schur (1866) we find that he mentions two taxa, *Montia minor* C.C. Gmel. and *M. repens* C.C. Gmel. No one mentions the first one again, even if Schur characterizes it as well (“*Caudiculis flaccidis, elongatis; foliis lineari oblongis. Seminibus subtilissime granulato-punctatis, nitidis*”) from the Rodnei, Făgăraş and Arpaş Mountins. These characteristics could lead us to *M. fontana* subsp. *fontana*, from the Northern part of Europe. It is not excluded that this taxon exists within the mountain area, thus frequently mentioning the *Cardamino-Montion* alliance.

Taxonomy. *Montia fontana* L. is an aggregate species, from which subspecies (micro species, respectively) almost exclusively separate according to size, luster and ornamentation of the seed. It is less common to refer to habitat and ecology (lax stem with long branches, generally lateral inflorescences, submersed or natant plants) which would correspond to the subspecies of *amporitana* (= *M. rivularis* C.C. Gmel.), similar to the *M. repens*, mentioned by Schur (1866). The plant we have examined is terrestrial, short (3-4 cm), with straight branches and lateral cymes, and the seeds are matte, of 0.9-1,1 mm, with obtuse verrucosities all over it and corresponds to the *chondrosperma* subspecies (Fenzl) Walters (= *M. minor* C.C. Gmel.)

A separating key for the taxa found in Romania is the one found by Coste (1937) and Coode (1966):

1a. Annual plant, terrestrial, yellowish, under 8 cm height, with the majority of the cymes terminal; opaque seed, with obtuse tubercles; calyx is equal or surpassing the mature capsule - *M. fontana* subsp. *chondrosperma* (Fenzl) Walters 1953 (*M. minor* C.C. Gmel.)

1b. Generally perennial plant, and ± aquatic, green, of 10 to 30 cm in height, with the majority of the cymes lateral; seed ± smooth, shiny, with acute, less developed tubercles on the side, then on the careen; calyx smaller than the mature capsule - *M. fontana* subsp. *amporitana* Sennen 1911 (*M. rivularis* C.C. Gmel.).

Denominations. It is almost risky to recommend as certain one of the names used in the numerous botanical works regarding the plant so wide-spread here, because of the lack of botanical works that might help establish our position. There are two options: we either keep the linear binomial *M. fontana* and use the subspecies as subordinated taxa, or we use directly micro species names. It depends on who we follow. If we consider special taxonomy researches, the plant that grows in Romania should be called:

Montia fontana L. subsp. *chondrosperma* (Fenzl) Walters 1953, *Watsonia*, 3(1): 4, (fig. 40).

= *M. fontana* L. var. *chondrosperma* Fenzl 1843, in Ledeb., *Fl. Ross.* 2: 152.

= *M. verna* Neck. 1766, *Delic. Fl. Gallo-Belg.* 1: 70, nom illeg., quoad descr.

= *M. minor* C.C. Gmel. 1805, *Fl. Bad.* 1: 301, nom. illeg., quoad descr.

The majority of authors (Walters 1953; Clapham & al. 1962; Moore 1963; Jage 1979; Paiva & Villanueva 1990; Simon 1992) have adopted this denomination. Others (Schur 1866, Kreisel 1966, Ciocârlan 2000) adopt the minor epithet, either at species level, *M. minor* C.C. Gmel. (Coste 1937, Kuzeneva 1936; Ciocârlan 2000, Holub 1982; Coode 1966), or at subspecies level, *M. fontana* L. subsp. *minor* (C.C. Gmel.) Schubl. & Mart. 1837 (Soo 1968) or other authors, subsp. *minor* (C.C. Gmel.) Čelak. 1864 (Kreisel 1966). Recent monographies consider that the binomial *M. minor* C.C. Gmel. is illegitimate, but were it legitimate, then, as subtaxon, it has priority as follows, *M. fontana* L. subsp. *minor* Schubl. & Mart. 1837.

Cenology and ecology. *M. fontana* s.l. is related to humidity excess, as hygro- or hydrophilic plant. The one in Romania grows on acid soils (pH = 4,8-5,2), in small depressions where water is to be found during a variable period of time, in which the rapid and short development of the plant takes place, usually on podsols. It cohabitates with *Agrostis stolonifera*, *Lysimachia nummularia*, *Potentilla reptans*, *Trifolium fragiferum* subsp. *bonannii* și chiar *Rumex acetosulla*, indicators of acidity.

Chorology. When Bujorean & al. (1959) were writing details on the *Montia* in Banat, it resulted there were little things known about its chorology in Romania, as we are able to note that Prodan (1939) was puzzled by some indications of where the plant might be growing, but Borza (1947) mentions it from Transylvania, Oltenia, Muntenia.

Festuca has some species with confused taxonomy: *Festuca rupicola*, *F. valesiaca*, *F. pseudodalmatica* and *F. pseudovina*. With *Festuca pseudodalmatica* the ears are 6-8,5 mm long, and the lemma 4,5-5,7 mm, almost the same length as *F. rupicola*, but the stems and leaves are in bloom like the *F. valesiaca*.

Initially, we have determined from the researched territory a material that, according to a series of characters, belonged to the *F. pseudodalmatica*, but after a close examination, and based on a material from Russia, it has been determined that it belonged to the *F. rupicola*. According to the characteristics given by the author, we can say that *F. pseudodalmatica* is a blooming *F. rupicola*.

Rosa has got a series of species that are hard to determine because of a series of similar characteristics. During our field search we have collected and identified a material as *Rosa stylosa* Desv. For lack of comparative material, this determination proved to be incorrect. After the publishing of the last volume of *Atlas Flora Europaea* we can say that this taxon is not part of Romania's Flora, although it is cited by several national botanists. This is why we make the necessary correction, on this occasion.

Poa has got a few taxa that are difficult to differentiate. E.g. *Poa angustifolia* și *P. pratensis*.

The difference appears at ligulae level (decurent or nondecurent), leaves' width, and panicum (contracted or lax).

Material has been planted in the "Al. Buia" Botanical Garden in Craiova, and has been followed for 3 years. It was noticed that from material with plain leaves, during the following spring material with conduplicate leaves appeared, the ligulae remaining decurrent before and after that, and this determined us to believe that this character is not differential, and it cannot be taken into consideration when differentiating the 2 taxa.

1a. *Poa angustifolia* L. – setiform shape, narrow (- 1,2 mm lățime); the panicum slightly open, with pointy and rigid ramifications, because of the large thorns. It usually forms bushes of close intravaginal growths.

1b. *P. pratensis* L. – plain leaves; wide open panicum. Stem with short vegetative side growths. Panicus branches are smooth or almost smooth, with rare thorns.

CONCLUSIONS

As a result of analyzing the taxa presented in this work, a series of conclusions can be drawn:

- The *Aphanes microcarpa* material collected until now in Romania corresponds to *Aphanes australis* Rydb.

- The montia genus, from Romania, is represented by only one *Montia fontana* L. subsp. *chondrosperma* taxon (Fenzl) Walters, which is found in specialty books under different names, none of any special priority, according to the International Code of Botanical Denominations.

- the *Rosa stylosa* Desv. Species does not exist in the Romanian flora, according to the last volume of Flora Europaea.

BIBLIOGRAPHY

- Borza Al., 1947, *Conspectus Florae Romaniae regionumque affinium*. Fasc. 1. 160 pag. Editio Institutii Botanici Universitatis Clujiensis. Cluj Napoca.
- Beldie Al., 1977, 1979, *Flora României. Determinator ilustrat al plantelor vasculare*. 406, 412 pag. Vol. I, II. Edit. Acad. R.S.R. București.
- Boșcaiu N., 1971, *Flora și vegetația Munților Țarcu, Godeanu și Cernei*. 494 pag. Edit. Acad.R.S.R. Bucuresti.
- Buia Al., 1956, Alchemilla, in *Flora R.P.R.* vol. IV.: 680-684. Edit. Acad. R.P.R. București.
- Bujorean G., S. Grigore, C. Oprin, P.C. Popescu & V. Popescu, 1959, *Montia verna* Neck. în *flora Banatului (contribuție la flora Republicii Populare Române)*. Stud. Cerc. - Ști. Agric. (Timisoara), 6(3-4): 91-95. București.
- Carrasco M.A. & C. Monge, 1991, Precisiones sobre el grupo *Aphanes microcarpa* en la Peninsula Iberica. *Candollea*, 46: 101-110. Gennève.
- Ciocârlan V., 2000, *Flora ilustrată a României. Pteridophyta et Spermatophyta*. 1038 pag. Edit. Ceres, București.
- Clapham A.R., T.G. Tutin & E.F. Warburg, 1962, *Flora of the British Isles*. Second Edition. 1269 pag. At the University Press. Cambridge.
- Coode M.J.E., 1966, *Montia* L. in Davis P.H. (Ed.), *Flora of Turkey*, 2: 14. At the University Press. Cambridge. 644
- Coste L., 1937, *Flore descriptive et illustrée de la France*.II 627 pag. Edit. Librairie des Sciences et de Arts. Paris.
- Drăgulescu C., 2003, *Cormoflora Județului Sibiu*. 533 pag. Edit. Pelecanus. Sibiu.
- Ehrendorfer F., 1967, *Liste der Gefasspflanzen Mitteleuropas* (Litogr.). 253 pag. Verlag Natring der wissenschaftlichen Verbande Osterreichs. Graz.
- Grecescu D., 1898, *Conspectul Florei României*. 835 pag. Tipografia Dreptatea. București.
- Grițescu G., 1952, Fam. Portulacaceae Rchb. in T. Săvulescu (Ed.), *Flora Republicii Populare Române*, 1: 614-616. Edit. Acad. R.P.R. București.
- Holub J., 1982, Higher plants. In Neuhäuslová Zdenka & Kolbek J. , *A list of Higher plants, Bryophytes and Lichenes of Central Europe Used in the Bank of Geobotanical Data in the Botanical Institute of Czechoslovak Academy of Science* (Litogr.). 224 pag. Botanický ústav CSAV. Pruhonice.

- Jage H., 1979, *Familie Portulacaceae*. In Hegi G., *Illustrierte Flora von Mitteleuropa*, 3(2): 1183-1221. Verlag Paul Parey. Berlin, Hamburg.
- Kreisel H., 1966, *Montia* L. In W. Rothmaller, *Excursionsflora von Deutschland. Kritischer Ergänzungsband Gefasspflanzen*: 113-114. Volk und Wissen Volkseigener Verlag. Berlin.
- Kuzeneva O.I., 1936, *Portulacaceae* Lindb. In Komarov V.L. (Ed.), *Flora SSSR*, 6: 376-386. Izd. Akad. Nauk SSSR. Moskva, Leningrad
- Lippert W., 1984, Zur Kenntnis *Aphanes microcarpa* - Komplexes. *Mitt. Bot. Munchen*, 20: 451-464. Munchen.
- Moore D. M., 1963, *The Subspecies of Montia fontana* L. *Bot. Not.*, 116(1): 16-30. Lund.
- Nýaradý A., 1957, *Aphanes microcarpa* (Boiss. & Reut.) Rothm., o specie nouă pentru flora României din Fam. Rosaceae. *Stud. Cercet. Biol. (Cluj)*, 8(3-4): 285-289. București.
- Paiva J. & E. Villanueva, 1990, *Montia* L. In Castroviejo S. & al. (Ed.), *Flora Iberica. Plantas vasculares de la Península Ibérica e Islas Baleares*. 2. Platanaceae - Plumbaginaceae (partim). Real Jardín Botánico, C.S.I.C. Madrid.
- Prodan I., 1939, *Flora pentru determinarea și descrierea plantelor ce cresc în România*, 1(1). 624 pag. Tipografia "Cartea Românească". Cluj.
- Roman N., 1974, *Flora și vegetația din sudul Podișului Mehedinți*. 222 pag. Edit. Acad. R.S.R. București.
- Rothmaler W., 1935, Systematische Vorarbeiten zu einer Monographie der *Alchemilla* (L.) Scop. emend. III. Notizen über das Subgenus *Aphanes*. *Feddes Repert.*, 38: 36-43. Berlin.
- Rothmaler W., 1937, Systematische Vorarbeiten zu einer Monographie der *Alchemilla* (L.) Scop. emend. VII. Aufteilung der Gattung und Nomenclatur. *Feddes Repert.* 42: 164-173. Berlin.
- Schur F., 1866, *Enumeratio Plantarum Transsilvaniae*. 984 pag. Apud Guilielmum Braumüller. Vindobonae.
- Simon T., 1992, *A Magyarországi Edényes Flóra Határozója. Harasztok - Virágos Növények*. 829 pag. Tankönyvkiadó. Budapest.
- Soó R., 1980, *Synopsis Sistematico-Geobotanica Florae Vegetationisque Hungariae*. Vol. 6. 557 pag. Edit. Academiai Kiadó Budapest.
- Walters S.N., 1949, *Aphanes microcarpa* in Britain. *Watsonia*, 1: 163-169. London.
- Walters S. M., 1953, *Montia fontana* L. *Watsonia*, 3: 1-6. London.
- Walters S.N., 1968, *Aphanes* L. in T.G. Tutin & al. (eds.), *Flora Europaea*, 2: 64. At the University Press. Cambridge.