BINOMIAL *PIETROSIA LAEVITOMENTOSA* NYÁR. IS VALID

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The illegitimate binomial "*Pietrosia levitomentosa* Nyár. ex Sennik.", wrongly promoted by G. Negrean must be cancelled. The unconvincing transfer of P.D.Sell to *Andryala*, accompanied by personal observations determined A. Senikov to come back to *Pietrosia* Genus, but just before holotype identification, we came to the conclusion that *Pietrosia levitomentosa* Nyár. 1963 was a binomial composed and published correctly in the read version of the specific epithet (levi-). Written version, (laevi-), *Pietrosia laevitomentosa* Nyár. is proposed by Sennikov, but the code and the literature show that the supplementary author is not added because it is not a correction, but a variant transfer. We have also tried to establish the community that this plant belongs to.

Keywords: *Pietrosia laevitomentosa* Nyár., valid, endemic, ecocenology, research, protection, correction.

INTRODUCTION

Pietrosia Nyár. Genus and *Pietrosia levitomentosa* Nyár. 1963 species publication has aroused the interest and curiosity of Romanian botanists, and not only, some of whom set out on mountain paths to the plant's birthplace (Bistriţa Mountains, on Pietrosul Bogolin Mountain, Suceava County, around 1600–1700 m altitude). The latter botanists contributed to the detailed knowledge of the plant and its habitat, but, to our regret, also to the decrease in the number of specimens, as well as to its popularization, thus attracting other curious travelers to have the plant in their collection. Much more serious, even irresponsible, we find the collection of the plant in two series for *Flora Moldaviae et Dobrogeae Exsiccata*, no. 587a (leg. E. Ţopa et T. Chifu, 10.X.1965) si 587b (leg. E. Ţopa, Elena Marin et Floriţa Diaconescu, 4.VII.1973). To this is added the large number of specimens preserved in the herbariums of the country. We also mention the thoughtless gesture of E. Ţopa to offer to the participants at "Flora Europaea" Symposium organized in Romania in 1963 a specimen of the species recently discovered in our mountains (Georgescu 1964; Dihoru, Pârvu 1987). The collections of the specialists and the lack of viable fruits, necessary for the preservation and propagation of the plant, reduced to the limit of extinction the minimum number from the one and only area once known.

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MATERIALS AND METHODS

I have carefully researched the literature on Pietrosia, especially the one on binomial (Nyárády 1963, Soó 1968, Sell 1975, Sennikov 1999, Negrean, 2004), but also for the fertile and ripe fruit (Manole 2015) and I procured the image of the holotype, decisive in the validation of the binomial (fig.1, foto M.Puşcaş). On the other hand, we have carefully applied the old and new rules of botanical nomenclature, that is, strictly taxonomy, even on Sennikov (2016).

RESULTS

a. Short history. The plant ***Pietrosia levitomentosa*** Nyár. 1963 was discovered by the university assistants F. Nagy-Tóth, I. Bosica and the student N. Tomescu, on 7.VII.1961, collected then by E. Ţopa, at 12.VII.1962 and by T. Ştefureac and E. Ţopa, at 28.VIII.1962, for fruit detection and for detailed ecocenological research. In a few years it was collected extensively for drying, as I mentioned.

The habitat and the plant were also researched by other botanists (Corneanu, Szabó 1980; Aiftimie-Păunescu, Toma 2000) who approached various aspects of micromorphology in this mysterious plant. Quickly, the plant almost disappeared from the small and unique area in which it was known. Responsible factors from the Romanian Academy confessed to us that another small area with the plant was found at some distance from the first, but it remains secret, and local, newer research (Negrea, Pricop 2009) identified about 3000 rosettes on 6 small, independent surfaces.

R. Soó (1968) transferred it to *Hieracium*, as Nyárády initially said (in herb.), P.D.Sell (1975, respectively 1976), transferred it to *Andryala*, and after 24 years, the Russian botanist A. Sennikov (1999), reconsidered it as *Pietrosia*, but in an original and favorable way, which was taken over by G. Negrean (2004), with Sennikov's escapes, but also with some of his errors.

After comparative research, it is said that the anatomy of the fruit has not been investigated so far (Sennikov & Illarionova 2002), instead plastids and DNA were investigated, showing that Andryala is a final phylogenetic line in the research group, and hybrids between *Pilosella* and *Andryala* (Fehrer *et al.* 2007). The fertile fruit was collected and researched much later, resulting that it is not much resembling with *Andryala*.

b. Nomenclature. The nomenclatural and systematic situation of the species depends on the morphology and pilosity of the plant and perhaps on the morphology of the fertile and mature fruit. When the fertile fruit was not yet known, R. Soó (1968) changed its systematic position and binomial in *Hieracium levitomentosum* (Nyár.) Soó, followed in our country only by A. Beldie (1979). The same type of double modification is performed later, on the occasion of the elaboration of the Flora

Europaea synthesis, in *Andryala levitomentosa* (Nyár.) P.D.Sell. 1975, Bot. Jour. Linn. Soc. 71: 256. (Pietrosia levitomentosa Nyár.), which is taken over by V. Ciocârlan (2009).

Figure 1. The *Pietrosia levitomentosa* species holotype (Foto Dr. M. Puşcaş).

Both transfers use the specific epithet given by Nyárády. Most Romanian botanists learned of the transfer of the plant to *Andryala* much later after 1976, when *Flora Europaea* 4 was printed. But even then, no one tried to consult "Notulae Systematicae ad Floram Europaeam spectantes", 71 (4): 256, where the author of the transfer, P.D. Sell, inserted "**fundamental differences**" between our plant and *Andryala agardhii* Haenseler ex DC., the closer to it, differences in laciniate receptacle scvames (and biinelate sterile achene disc). So the approach was a bit forced and unconvincing, based on the length of the sterile fruit. He also mentioned, as an excuse, that some African species also have apical disc achenes and at least the marginal ones have receptacle scvames. However, the reference to the sterile fruit is no longer valid, after the fertile fruit has been identified! – which takes her away from *Andryala* (Manole 2015).

It should be noted that E. Nyárády had only sterile fruit, which he drew. On the occasion of the research of the plant habitat, however, the luck arose to find

only two fertile, ripe fruits that obviously differ from the sterile ones, described in detail in the literature, after which we were guided (Manole 2015). The sterile fruit is obconic-linear, yellow-brown, 1.5–1.8 mm long, with the apical disc expressed and with a persistent uniseriate paphus, but, being even mature, it cannot have a systematic value. The fertile, mature fruit is elongated, barely fusiform, scabrous, slightly curved, 3.9–4.3 mm long, with 10 longitudinal ribs, 5 of which are more expressive, all of which are lost in the annular commissure, with paphus caducous and the tip dominated by yellowish–yellow disc (Manole 2015). The description in *Flora Europaea* will remove "Achene about 1.5 mm, obconic, with a bi-ringed disc at the tip". The shape of the fertile and ripe fruit removes it from *Andryala* and perhaps brings it closer to *Hieracium*.

We, the Romanians, used the initial binomial as such in the mentioned exsicata (Lazăr, Leocov 1985), in various works (Dihoru, Pârvu 1987; Aiftimie-Păunescu, Toma 2000; Corneanu, Szabó 1980; Ciocârlan 2000), only A. Beldie (1979) is an exception, taking over the binomial *Hieracium levitomentosum* (Nyár.) Soó, considering that some species of *Hieracium* (*H. sabaudum*, with another habit) have receptacle scvames.

After writing new works on *Pietrosia / Andryala*, I looked more closely at the key to the genus Compositae in *Flora Europaea* 4, as A. Sennikov probably did, and found that the genus *Andryala* is integrated in two key positions in "the receptacle with scvames" and the "receptacle without scvames", but obvious scvames have only *Andryala laevitomentosa*, among the European species of *Andryala*. On this basis, as well as for the fact that the filarias (involucula leaflets) are devoid of glandular and branched hairs, A. Sennikov (1999) proposes, following comparative research, the return to the original binomial, but also modifying the specific epithet, i.e.: "*Pietrosia laevitomentosa* Nyárády ex Sennik. sp. nov. – *P. levitomentosa* Nyárády, 1963, Rev. Biol. (Bucharest), 8, 3: 252, descr. lat., nom. not valid. (Art. 37). – *Andryala levitomentosa* Nyárády ex P.D. Sell, 1976. Bot. J. Linn. Shock. 71, 4: 256, nom. invalid (Art. 37). – *Hieracium levitomentosum* Nyárády ex Soó 1968, Acta Bot. Acad. Sci. Hungaria. 14, 1–2: 153". [See Discussions]. Ex Sennik was for the new species, not for the epithet transcribed in the second version.

This proposed binomial is wrongly "popularized" by G. Negrean (2004), without highlighting it, moreover, he clearly writes the wrong name, *Pietrosia levitomentosa* Nyár. ex Sennik., which is taken as a novelty by A. Sârbu et al. (2007), by Negrea and Pricop (2009, who use it 25 times in this text), we also found it wrong in I. Sârbu *et al.* (2013), but only in the synonym [*Andryala laevitomentosa* (Nyár.). P.D.Sell] is again wrong, as it has never been. The only Anca Manole (2015), uses the renewed binomial, with two authors, changing ex in **in**, *P. laevitomentosa* (Nyár.) in Sennik.

The word **laevis** – smooth, flat, extended – is the basis of many epithets, with two variants, the read (sound), the *levi-* and the written, *laevi-*, both working in the

literature, but now there is a tendency to opt for the written version [*Hieracium levigatum* Willd.1803 = *H. laevigatum* Willd. or *H. levicaule* Jord. 1848 = *H. laevicaule* Jord.], Without additional author (Borza 1947), and the sound one remaining used only as a synonym (*Hieracium levicaule* Jord.). In our case, we apply that trend and use *P. laevitomentosa* Nyár. 1963, although some authors write their names. We may wonder why the tendency to renew the epithet did not appear in P.D.Sell as well? Sennikov himself (2016) participates with *Pietrosia* in his recent proposal to eliminate the name-correcting authors and thus the corrected name remaining only with the original author, as we thought from the beginning.

c. Caenology. In describing the species, E. Nyárády (1963) also cites the cohabitants, *Tracheophytes, Bryophytes* and *Lichens*, which express the saxicol and acid habitat. The specialists who have researched the plant in the natural habitat believe that *Pietrosia laevitomentosa* belongs to *Thlaspietea rotundifolii*, as a characteristic species for *Sempervivo soboliferae – Andryaletum levitomentosae* (Stefan *et al.* 2002). According to the consulted literature (Ştefureac 1968), it does not seem to belong to *Thlaspietea rotundifolii*, because there is no species from that class in the list of local cohabitants. This error started from a previous classification (Popescu & Sanda 1998).

More recently (Oprea 2007), the association of *Sempervivo soboliferae – Andryaletum levitomentosae* Szeged 1985 reappears in the table of cenotaxons in the region, with a synthetic table of 10 surveys, but we believe that the association is erroneously placed in Ord. *Potentilletalia caulescentis* Br.-Bl. 1926, Al. *Gypsophilion petraeae* Borhidi et Pócs 1957, which include associations on the calcareous substrate (basic), or, the botanists who researched the area (Ştefureac 1968 etc.) say that the pH is very acidic (soil pH is 4.4), and a recent author (Oprea 2007) writes, "The substratum is made by porphyroid gneisses" and "the pH is acid" and yet does not use Ord. Androsacetalia vandelii Br.-Bl. 1934, which contains acidophilic cenotaxones. In addition, *Sempervivum soboliferum* does not appear in the synthetic table, although the initial description was made only on areas with *Pietrosia*, and the recent table includes phytocenoses strictly with *Pietrosia*, in which *Campanula kladniana* frequently appears. The dominant species is *Festuca airoides*, followed by *Pietrosia laevitomentosa* and *Juniperus sibirica*, an invader that becomes dangerous for areas with the endemic species.

We ourselves (Dihoru, Pârvu 1987), inspired by literature (Boşcaiu, Täuber 1977), used the Alliance *Gypsophilion petraeae*, although the species cited (*Calamagrostis arundinacea, Luzula luzuloides, Vaccinium myrtillus* etc.) are obviously acidophilic. We consider that the cenotic side of this rare plant must be completed, referring to the species neighboring its clusters and possibly to Bryophytes.

After a closer analysis of the 10 areas in the mentioned synthetic table, with only 16 species of *Tracheophytes* covering the soil 20–60%, of which only 6 are present in at least 5 surveys, we consider that it would be useful to use an appropriate name of the association, *Pietrosio laevitomentosae – Festucetum*

airoidi Sârbu, Ştefan 2000 [*Sempervivo soboliferae – Andryaletum levitomentosae* Szeged 1985 pp] and frame it as follows:

Cl. *Asplenietea rupestris* Br.-Bl.34, Ord. *Androsacetalia vandelii* Br.-Bl. 34, Al. *Asplenion septentrionalis* Oberd. 38, even though I was aiming for *Silenion lerchenfeldianae* Simon 57, in which some of the species in the table walk, but it is of higher altitude.

DISCUSSIONS

(1) We notice that the particle **ex** is used unnaturally before the name P.D.Sell, being a horizontal transfer had to be written (Nyár.) P.D.Sell (Sell 1975) and not the publication of the binomial created and unpublished by the primary author. We believe that P.D.Sell is familiar with the Nomenclature Code. We believe that P.D. Sell knew the Nomenclature Code. In front of Sennikov, **ex** expresses here the tendency of new species even if it also corrects the specific epithet, which Negrean does not notice, but the transfer is made without additional author, as I said. It should be noted, however, that it is not a new species ex Sennik because Nyárády's description is valid, since it has not only a *holotype* but also *drawings*.

(2) Regarding the correction of the specific epithet, it is usually accepted to correct "typographical" or "spelling" mistakes. Apparently it would be a spelling mistake in "levitomentosa", but the special literature of Latin botanical terms (Zabinkova & Kirpicznikov 1957) accepts both forms for smooth: *laevis* and *levis*, and other specific epithets with *levi* are widespread in older literature, as we have shown, so we consider that it is possible to move to the written version, *P. laevitomentosa*, without strongly affecting us because Art. 73 of the Code of Botanical Nomenclature says that "*The original spelling… must be maintained*…".

(3) Why was another type sought for *Pietrosia levitomentosa*, as the holotype means "*a specimen or any **other element** used by the author or indicated by him as a nomenclatural type*"? [Art. 7, from old codes] ["*A holotype is the one specimen or other element used by the author or designated by him as the nomenclatural type*"]. In the last Code (Mcneill *et al.* 2006), holotype means "*one specimen or illustration used by the author*" (Art. 9). Of course, Nyárády (1963) erred in not formally indicating the nomenclatural type, but if we look closely at his work, we will easily find that on page 230 is written "**Tafel I, 1, Tafel II, III**" which represents "***another element***" or "***illustration***" used and indicated by the author in his description. On page 231 is the icon of the plant he described, even though he indicated another specimen as a holotype. So it would not have been necessary to look for another nomenclatural type than the holotype!

(4) Before another nomenclatural type could be indicated, A. Sennikov had to look in the Cluj-Napoca Herbarium (**CL**) for the authentic material used by

E. Nyárády, if the presented drawing did not convince him. This material is [**CL 443.644**] and, in addition, has the notification made by E. Nyárády with "**sp. n.**", as G. Negrean (2004) informs us and the photograph of this herbal sample (fig. 1). Since there is the holotype copy, deposited in a safe and accessible collection, we will not use "*another element*", or "*illustration*", and A. Sennikov's proposal is affected by nullity, so it is canceled. This aspect had to be discussed by G. Negrean (2004), not to wrongly popularize a proposal in Romanian literature, so to have emphasized Art. 8 of the Old Code or 9.17 of the last Code, that the designation of a lectotype or neotype is annulled when his holotype is found ["**his choice is superseded if the holotype… is redescovered**"].

To specify the typification, we reproduce from Taxon Journal (1983) the following key of the types, for clarification:

a. The material cited and / or seen by the author or duplicates thereof is known and exists

b. A specimen used or designated by the author is known and exists – **holotype**

b. Such a specimen is not known – **lectotype**

c. There was a holotype but it was lost, remaining a duplicate specimen of it – *isotype*

c. The holotype has never been formally designated, but there are specimens cited by the author, or group of two or more specimens indicated as type – **syntype**

c. A specimen or element, other than the holotype cited in the original description – **paratype**

a. All material cited and / or seen by the author and its duplicates are unknown or have been lost – **neotype**.

(1) The fact that A. Sennikov more precisely delimited the Genus *Pietrosia*, after the monopodial growth of the rhizome?, the squamiferous and spinning receptacle with simple, long hairs, with diagnema, also seen by Nyárády, is a positive thing [but Nyárády's drawing 1 (1963), and 1 from Flora X (1965), with several rosettes, as well as the description "(root) simple or branched at the top, with branches ending in leaf rosettes"] contradict the monopodial growth.

(2) The transfer of the species "*Andryala agardhii* Haensel ex DC." in *Pietrosia* it is not the object of our work, even if the proximity between them is made even by P.D. Sell (1976). So, A. Sennikov delimits in the Genus *Pietrosia* the two species of *Andryala* (*laevitomentosa* and *agardhii*) which were slightly side by side with the others. It would be a sign that the genus *Pietrosia* still remains close to *Andryala*, even if there are obvious morpho-anatomical differences between their fruits (Manole 2015).

(3) In conclusion, it would be useful to refer to the escapes of G. Negrean, who hurried to popularize Sennikov's article incorrectly, after identifying the holotype in the CL herbarium (fig. 1). We do not know the term isolectotype and if

we examine Sennikov's gesture, we should appreciate that he actually designated a neotype, because the material he saw does not come from the original (Art. 9), so it is not an isotype, respectively isosyntype, neither syntype nor paratype; and worse, Negrean did not notice that Sennikov changed the specific epithet, wrote and erroneously popularized it [*Pietrosia levitomentosa* (Nyár.) ex Sennik.] and, in addition, renamed Alexander Andrei Sennikov, then ignored the abbreviation of the name Sennik. etc.

CONCLUSIONS

We will continue to use the binomial ***Pietrosia laevitomentosa*** Nyár., supported by the presence of the holotype, laciniate receptacular scvama, ripe fruit, and unconvincing transfer to Andryala, until other solid evidence appears for Andryala or Hieracium. The research of this species must continue, both ecocenologically and phenologically, in order to procure as many fertile fruits as possible.

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