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Flora of Serbia – a review of phytotaxonomic studies published during the period 1981 -1993

Abstract

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Floristic and phytogeographical research on the flora of Serbia has been very intense during the past twelve years. As a precursor to a planned, full bibliographical analysis, a synopsis of taxa described and named as new to science (6 species, 5 varieties, 18 formae) is here presented, followed by notes on selected cases in which new research has resulted in a taxonomic reappraisal of critical or neglected taxa.

Introduction

The outstanding personality in the field of Serbian floristics is Josif Pančić (1814-1888). At his time research on the flora of Serbia was just beginning, and he as an experienced botanist noticed immediately upon his arrival the great diversity of plant life present in the country. Published data were poor and often unreliable, and Pančić became soon aware of the need for systematic and detailed research.

As an investigator of the flora, Pančić combined two complementary features in his personality: on the one hand he was a pioneer in this field, on the other, his research marks the golden age of contemporary Serbian botany. Pančić made a significant contribution to scientific knowledge, discovering about fifty species new to science, mostly described on the basis of Serbian but also Bulgarian and Montenegrin material (Mayer & Diklić 1967). He wrote 26 papers in the field of floristics and plant taxonomy, his major work being his *Flora of the Principality of Serbia* (Pančić 1874).

He found a disciple in Sava Petrović, Royal Physician at the court of king Milan Obrenović. Everything indicated that the study of the Serbian flora would be continued, after Pančić's demise, by the young but reliable Petrović. Unfortunately, he prematurely died only one year after his master, having just had time to study the flora of the vicinity of Niš (Petrović 1882, 1885).

The turn of the century was marked by the floristic, phytogeographical, phytocoenological and taxonomic studies of Živojin Jurišić, Nedeljko Košanin and Lujo Adamović.

Between the two world wars, the most noticeable botanists, were Pavle Černjavski, Oleg Grebenščikov, Igor Rudski and Vojteh Lindtner, who collected plants mainly in Serbia, but also in Montenegro, Macedonia, Albania and Greece. All their materials are now kept at the Natural History Museum in Belgrade. During that time, only few species new to science were discovered. Of the generations following them, few were those who at all contributed to the study of the Serbian flora.

One has to await the Seventies for a renewed interest in such studies. At the initiative of the Serbian Academy of Sciences and Arts an ambitious project was then started, to write a Flora of the Peoples' Republic of Serbia. It resulted in intense and diverse studies in the fields of floristics, phytogeography, and taxonomy, including morphological, anatomical, biochemical, cytological and genetic research on species of the Serbian flora. As a result, the eight-volume *Flora SR Srbije* was published (Josifović 1970-1976), with two supplements numbered vol. 9 and 10 (Josifović 1977, Sarić & Diklić 1986). The importance of *Flora SR Srbije* lies in the fact that not only is it the basic reference work that embodies all extant knowledge on the flora of Serbia, but also it became a landmark, providing a new basis for future research. Such research, diverse and continued, goes on to the present day.

In the course of the past dozen years no less than 86 botanists contributed to the knowledge of the flora of Serbia, of which 77 are active today in the fields of basic (25), applied, or interdisciplinary botanical research. They represent different generations, some having a life-long working experience while others are just making their first, though determined, steps.

With its floristic richness and diversity, Serbia occupies a distinguished place in the domain of the European flora and has therefore attracted the attention of botanists both from foreign countries and from research centres elsewhere in former Yugoslavia. Over the past decade, 13 botanists from abroad have contributed to a better knowledge of the Serbian flora: D. A. Hill and S. Husain (Great Britain); M. Fischer (Austria); Galina Kuznjecova, V. Medvedev and A. Ševarda (Russia); E. Mayer and T. Wraber (Slovenia); Zinka Pavletić and I. Trinajstić (Croatia); V. Pulević and Z. Bulić (Montenegro); and M. Janić (Macedonia). Serbian botanists have, in return, contributed to the knowledge of the flora of adjacent areas: Olga Vasić, for Slovenia; Vera Budak, Melanija Obradović, N. Diklić, and O. Vasić, for Bosnia and Herzegovina; N. Diklić, M. Niketić, V. Stevanović, S. Jovanović, D. Lakušić, Mirjana Ilijin-Jug, B. Petković, P. Marin, and O. Vasić, for Montenegro; V. Stevanović, M. Niketić, D. Lakušić, N. Randjelović, and O. Vasić, for Macedonia.

Although such studies, of varying intensity, have been going on for over a century, and although generations of botanists, both Serbian and foreign, have screened every corner of Serbia and climbed every mountain peak; although, in other words, the flora of Serbia has been thoroughly studied, persevering explorers keep discovering beautiful new plants. As a result, taxa new to science continue to be described based on Serbian plants, a great number of plant taxa have been first recorded for Serbia in recent years, and many new localities of already known species have been discovered.

Results of the study of the flora of Serbia have been presented in 210 papers, 10 local floras and 2 monographs published in the period 1981-1993. The first edition of *Flora*

SR Srbije was completed by a second supplement volume (Sarić & Diklić 1986), and work has already started on a second, amended edition (Sarić 1992).

The present paper will concentrate on presenting those taxa that were described as new to science, or newly discovered in Serbia, in the course of the last dozen years, and on discussing those taxa whose taxonomic status has been recently revised.

Taxa new to science

The most obvious recent contribution to the knowledge of the flora of Serbia, and to science in general, is the description of 29 new taxa (9 in the genus *Crocus* alone), viz. 6 species, 5 varieties and 18 forms.

The new species are: *Althaea vranjensis* Diklić & V. Nikolić (1982b), *Viola koritnicensis* Trinajstić (1985), *Centaurea alberti* ('albertii') Rexhepi (1986), *Cynoglossum krasniqii* Wraber (1986), *Mentha serbica* Jančić (1989), and *Crocus rujanensis* Randjel. & D. A. Hill (in Randjelović & al. 1989).

Viola koritnicensis and *Althaea vranjensis* are not really new discoveries but had remained unnoticed for a long time among herbarium materials, whereas the other newly described species were first collected during the past dozen years. Trinajstić (1985), the author of *Viola koritnicensis*, found the corresponding materials among the rich *Viola* collections made long ago by Ivo Horvat throughout the Balkan Peninsula, and in particular on Mt Koritnik in Serbia. The specimens now assigned to a new species, *Althaea vranjensis*, had been collected back in 1946 by the then curator of the Natural History Museum in Belgrade, Pavle Černjavski; almost 40 years later, they were noticed by Diklić and Nikolić who, having compared their features with those of other *Althaea* species, concluded that they belonged to a species new for science (Diklić & Nikolić 1982b).

There has been some confusion concerning the dates of valid publication of *Centaurea alberti* and *Crocus rujanensis*, both of which were published as "new to science" more than once. *Centaurea alberti* was published twice in 1986: once invalidly, as a nomen nudum without Latin diagnosis (Rexhepi 1986), then validly, with a Latin diagnosis and type designation (Rexhepi in Sarić & Diklić 1986: 351). Yet, some perplexity subsists with regard to this species. At the VII OPTIMA Meeting, Wraber (1993) disputed its distinctness, claiming that its features coincide fully with those of *C. melanocephala* Pančić (1874), meaning that *C. alberti* would fall into the synonymy of *C. melanocephala*. But this may not be the last word. Some authors consider *C. melanocephala* to be in fact a hybrid between *C. alpina* L. and *C. fritschii* Hayek (Wraber 1993). Rexhepi (1986) differentiates *C. alberti* against several related species, but not *C. melanocephala* nor its putative parents. Further investigations will have to prove the distinctness (or otherwise) of *C. alberti* and its relationship with these other taxa.

Crocus rujanensis was published thrice, each time qualified as a "species nova" (Randjelović & al. 1989, 1990a-b). As the name was validly published in the first paper already, the two additional ones have no nomenclatural status. The authors (Randjelović, pers. comm.) claim that they were not sure whether and when their papers would be published.

Five new taxa of the rank of variety were described, as follows: *Glechoma hirsuta* var. *fruska-gorae* Djurdjević (1982), *Crepis paludosa* var. *glabra* Diklić & V. Nikolić (in Nikolić & Diklić 1983), *Mentha aquatica* var. *subdentata* Jančić (1984), *Crocus veluchensis* var. *micranthus* Randjel. & D. A. Hill (in Randjelović & al. 1990a), and *Salix caprea* var. *ramuliflora* ('*ramiliflorus*') Tucović & Isajev (1987), nomen nudum.

Not only is *Salix caprea* var. *ramuliflora* not validly published, but it is of doubtful value for other reasons, too. Tucović & Isajev (1987) fail to give good reasons for assigning the rank of variety to their new taxon. According to accepted criteria, that rank should denote a spatially isolated population. A mere deviation from the normal form, with regard to the inflorescence and found in two generations of trees, does not suffice for singling out a varietal taxon. The authors themselves stated that trees with branched inflorescences occur with a 10 % frequency within the population studied, among trees with normal inflorescences. They also describe a number of anomalies and irregularities, as well as a significantly delayed development of the lateral and also central inflorescence branches. These are obvious teratological features, whose possible taxonomic importance must be reassessed by new observations made on a larger scale.

During the last twelve years, the following forms new to science have been described from the territory of Serbia: *Paniccia serbica* f. *lilacina* Diklić & V. Nikolić (in Nikolić & Diklić 1981), *P. serbica* f. *multisectata* Obratov & Matović (1987) and f. *vladanii* Obratov & Matović (1987); *Scabiosa triniifolia* f. *pinnatipartita* Diklić & V. Nikolić (in Nikolić & Diklić 1981); *Orchis simia* f. *longiloba* Obrad. & al. (1983); *Glycyrrhiza echinata* f. *subsedens* Boža (1990) and f. *cylindrica* Boža 1990; *G. subechinata* f. *longipedunculata* Boža (1990) and f. *parvocapitata* Boža (1990); *Kitabelia vitifolia* f. *triloba* Obrad. (in Obradović & al. 1991); *Achillea alexandri-regis* f. *holosericiformis* Diklić & al. (1991); *Crocus tommasinianus* f. *jeremicii* Randjel., *C. kosaninii* f. *albidus* Randjel., *C. pallasii* f. *albidus* Randjel., *C. veluchensis* f. *albus* Randjel., *C. rujanensis* f. *diklicii* Randjel., *C. alexandri* f. *albiflorus* Randjel. and f. *violaceolineatus* Randjel. (all in Randjelović & al. 1990a).

For three of the *Crocus* forms the year 1989 is mentioned in the protologue, suggesting a reference to an earlier paper that was never printed. The real reason (V. Randjelović, pers. comm.) is that through a technical oversight the earlier, erroneous date had not been removed from the text before it was printed.

Taxonomic reassessments

New comparative morphological and chorological, cytogenetic and biochemical research has resulted in a revised appraisal of several taxa.

Rudski (1934) and Bornmüller & Rudski (1935) described *Achillea alexandri-regis* as a species new to the science, while at the same time expressing some misgivings as to its specific distinctness from *A. lingulata* Waldst. & Kit. This is probably the reason why the species has not found its way into the basic botanical manuals, e.g. *Flora europaea* (Richardson 1976), although it was included in *Flora SR Srbije* (Gajić 1975). By comparing the material from the "locus classicus" with other *Achillea* species, Diklić & al.

(1991) found that *A. alexandri-regis* is an independent species, resembling *A. holosericea* Sm. more closely than *A. lingulata*.

Althaea kragujevacensis Pančić (1874: 200) was described as a species new to science, but in the introduction to his book, written as is usual after the main text had been completed, Pančić himself sank it into the synonymy of *A. taurinensis* DC., described in 1824 from the vicinity of Torino (Pančić 1874: xxv). This means that the name was not validly published by Pančić in 1874, but was presumably validated by some other author who mentioned it later. Diklić & Stevanović (1986), who compared Pančić's material with true *A. taurinensis* grown in the Belgrade Botanical Garden, concluded that the first idea of Pančić had been correct, namely that the differences between the two plants are such that *A. kragujevacensis* undoubtedly deserves recognition as an independent species.

Potentilla mollis Pančić (1884) was described as a species related to *P. rupestris* L., but with the differences between them being much more conspicuous than the similarities. However, Ascherson & Graebner (1900-1905: 697. 1904) disagreed and considered Pančić's taxon as a mere variety of *P. rupestris*. Several authors (see Niketić & Diklić 1990) accepted that taxonomic interpretation, while Ball & al. (1968) believed that *P. mollis* was either intermediate between *P. rupestris* and *P. geoides* M. Bieb., or a synonym of the latter. By comparing the three mentioned taxa, Niketić and Diklić (1990) came to the conclusion that they differ to such an extent that they must be regarded as three independent species.

Yet another of Pančić's species has been subject to taxonomic neglect: *Jurinea subhastata* Pančić (1884), which was disregarded by later authors (Hayek 1931, Gajić 1975, Kožuharov 1976). Diklić & Nikolić (1981) confirmed the distinctness of Pančić's taxon, but only at subspecific level within the closely related *J. mollis* (L.) Rchb., as *J. mollis* subsp. *subhastata* (Pančić) Diklić & V. Nikolić.

Similarly, *Hypocoum pseudograndiflorum* Petrović (1885) was regarded by Mayer (1983) and Nikolić & Mayer (1987), not as an independent species but as an infraspecific taxon under *H. imberbe* Sm., as *H. imberbe* Sm. subsp. *pseudograndiflorum* (Petrović) E. Mayer & V. Nikolić.

By comparing the features of *Poa media* Schur and *P. ursina* Velen., Diklić & Nikolić (1982a) concluded that they are much more closely related than it had been thought, and that *P. ursina* is best treated as a subspecies of *P. media*.

On the basis of morphological, anatomical and ecophysiological research on populations of *Peucedanum longifolium* f. *officinaliforme* Todor, Pavlović & Jančić (1981) concluded that the rank of variety within *P. longifolium* Waldst. & Kit. is appropriate for this taxon.

Analysing the infraspecific variability of the polymorphic *Astragalus onobrychis* L., Olga Ivković [now Vasić] came to the conclusion that recognition of *A. onobrychis* var. *wagneri* Jáv. could not be justified. Jávorka had characterized his taxon by the black hairs on the calyx of plants growing on the Deliblato Sand. The biometric characteristics of plants from the locus classicus fall within the range of variation of *A. onobrychis* var. *onobrychis*, and hair colour as a character is not differential. Specimens from different parts of the species range bear black hairs more or less regularly, not only on the calyx

but also on other parts, and so does Linnaeus's holotype of *A. onobrychis*, kept in London. *A. onobrychis* var. *wagneri* is thus a plain synonym of var. *onobrychis* (Ivković 1982).

Pavletić (1985) undertook the complex and unrewarding task of establishing the correct nomenclature of taxa described and named by Lujo Adamović. Out of a total of 43 species and 16 infraspecific taxa, mostly described from Serbia but also from Macedonia, Montenegro, Croatia, and sometimes Bulgaria and Greece, only 10 species remain. Pavletić found that most of Adamović's taxa had not been interpreted correctly, mainly due to lack of material. Since most of these taxa are thought to be endemic, it is necessary to reassess and perhaps sometimes redeem them by using good material for comparison and by applying modern methods of study.

Comments

Floristic and phytogeographical research on the flora of Serbia has been very intense during the past twelve years. A great number of authors have contributed, to a greater or lesser extent, to the discovery of about 160 taxa of varying rank which were not previously known from Serbia, or of new localities for taxa known from one or a few places only. For 11 species, the first record for the territory of Serbia is at the same time the first mention of their presence in the countries of former Yugoslavia and, in the case of *Silene echinata* Otth, on the whole Balkan Peninsula. For taxa of the known flora of Serbia, of varying rank and range, no less than 7000 new localities were published. A more detailed analysis and evaluation of floristic and biogeographical research in Serbia, with a complete bibliography for the last twelve years, will be presented separately elsewhere.

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