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TAXONOMIC REVISION OF ROSES (ROSA L.) OF SELECTED AREAS IN BUFFER ZONE OF THE LOW TATRAS NATIONAL PARK (SLOVAKIA)

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Abstract. The paper presents results of preliminary research carried out in 2011 in the area of two Protected Sites – CHA Jakub, CHA Kopec and Nature Reserve PR Mackov bok in the buffer zone of the Low Tatras National Park. Six native species and one native hybrid of roses were found there (1 from the *Pimpinellifoliae* section and 6 from the *Caninae* section) and their 13 varieties. The most numerous among them are *Rosa canina* var. *dumalis* Baker and *R.* × *subcanina* (H. Christ) R. Keller. Such great diversity of species and varieties in such a small area (only 20.2 ha) proves considerable floristic richness, and occurrence of habitats preferred by roses.

Key words: *Rosa*, Rosaceae, taxonomic revision, Low Tatras National Park, Carpathians, Slovakia

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Introduction

The genus *Rosa* L. is one of the most complicated ones as far as the systematics is concerned, hence, for over 200 years it has been the subject of numerous taxonomic investigations. Hybridisation, especially the introgressive one, is a crucial problem in identification of rose species. Rose species are formed by mixed ones not only closely related, but also species originating from different sections. Hence, it is sometimes difficult to determine species boundaries between them (Zieliński 1985).

Rodological literature applies morphological traits of flower shoots to distinguish the species e.g.: the shape of a disc, the width of an orifice, the shape of prickles, intensity of hairiness and the most important glandularity of leaves and position and shape of sepals. At the beginning of the 19th century the above mentioned features were discussed separately which resulted in multiplication of species names and many forms described today as intraspecies had been described as species (Zieliński 1985). According to the latest rodological systematics the morphological features have to be considered comprehensively and in various combinations. It gives a chance to apply simple selection of forms which might be treated as species and can be easy to characterise (Popek 1996, 2002, 2007; Zieliński 1985, 1987).

Occurrence of wild species of roses in the Low Tatras National Park and its buffer zone has not been thoroughly investigated so far. The data from the area are scattered among several publications. Occurrence of 14 taxa of roses were determined after literature. Most of them are listed in the works of V. Větvička (1992) and B. Benčaťová & K. Ujházy (1998) and F. Procházka & F. Krahulec (1982), where 11 species and one hybrid form were presented. Additionally J. Tmák (1886) and E. Martincova (1989) mentioned two more species in their publications. Partial data on occurrence of the species from the genus *Rosa* as well as the change of concepts concerning their systematics gave an impulse to undertake investigations which aim was to create a complete list of species of roses and their varieties wildly growing in the area. The results presented in the paper cover selected protected areas and they are an introduction to a further more detailed investigation.

Material and methods

Field investigations were carried out in the buffer zone of the Low Tatras National Park in the area of the Protected Sites – CHA Jakub (12,71 ha), CHA Kopec (3,76 ha) and Nature Reserve PR Mackov bok (3,75 ha) (Fig. 1) in the vegetation season of 2011.

Fruiting short shoots were collected in the field and their following features were recorded: the shape of the prickles (straight, hooked or falcate), the shape of a disc (flat, conical), hypanthium opening (diameter bigger or smaller than 1/3 of the disc), position of sepals and their durability and also

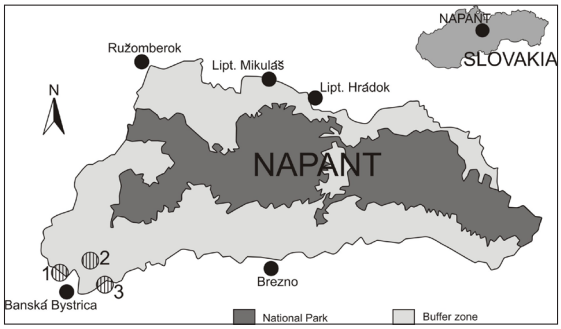

Fig. 1. Distribution of study areas: 1 – Protected Site CHA Jakub, 2 – Protected Site CHA Kopec, 3 – Nature Reserve PR Mackov bok. Abbreviations: NAPANT – Low Tatras National Park, Lipt. Hrádok – Liptovský Hrádok, Lipt. Mikuláš – Liptovský Mikuláš.

intensity of hairiness and glandularity of leaves. In case of the leaves, middle and top parts were taken into consideration, while in case of the prickles the top parts of one-year or two-year-old long shoots, which had already completed the process of growth and their prickles were not changing, were studied.

Systematic approach and the nomenclature of the species were adopted after the works of H. HENKER (2000), R. POPEK (1996, 2002, 2007) and J. ZIELIŃSKI (1985, 1987). Herbarium material was deposited in the herbarium of the Ojców National Park.

Symbols used in article: CHA – Protected Site, leg. – legit, OPN – Herbarium of the Ojców National Park, PR – Nature Reserve.

Results

Six native species and one native hybrid of wild roses (one of them from section *Pimpinellifoliae* and 6 from section *Caninae*) and their 13 varieties were recorded in the study area.

I. Sect. *Pimpinellifoliae* DC.

1. *Rosa spinosissima* L. (syn.: *R. pimpinellifolia* L.)

R. spinosissima appears in variety spinosissima which is characterized by simple serrate leaflets and glandular pedicels; 13 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN).

II. Sect. *Caninae* DC. emend. H. Christ.

2. *Rosa dumalis* Bechst. (syn.: *R. vosagiaca* Desp.)

The species was found in the study area in three varieties, distinctly differing in hairiness and serration of leaves.

- var. *afzeliana* (Fr.) Boulenger (syn.: *R. afzeliana* Fries.) – is characterized by glabrous, simple or doubly serrate leaflets, normally glandless margin. Pedicels usually glabrous; 6 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN); CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN); PR Mackov bok, *leg. Sołtys-Lelek*, 24.09.2011 (OPN).

- var. *dumalis* – is characterized by glabrous, complex serrate leaflets, glandless or ± glandular on the underside. Pedicels usually glabrous; 3 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN); PR Mackov bok, *leg. Sołtys-Lelek*, 24.09.2011 (OPN).

- var. *coriifolia* (Fr.) Boulenger (syn.: *R. coriifolia* Fries.) – simple or doubly serrate leaflets, bilaterally haired or only on the underside; 2 records: CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN); PR Mackov bok, *leg. Sołtys-Lelek*, 24.09.2011 (OPN).

3. *Rosa tomentosa* Sm. var. *tomentosa*

R. tomentosa was found in the studied area in one variety, which is characterized by complex serrate leaflets glandular on the underside and glandular pedicels as well; 2 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN).

4. *Rosa inodora* Fr. var. *inodora* (syn.: *R. elliptica* Tausch.)

R. inodora occurs in one variety with glabrous, not glandular pedicels; 3 records: CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN); PR Mackov bok, *leg. Sołtys-Lelek*, 24.09.2011 (OPN).

5. *Rosa agrestis* Savi

Found in the study area in four varieties differing in hairiness of the leaflets and the degree of glandularity of pedicels.

- var. *agrestis* – leaflets glabrous or ± haired. Pedicels glabrous; 7 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN); CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN).

- var. *schulzei* R. Keller – leaflets glabrous or ± haired. Pedicels glandular; 5 records: CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN).

- var. *albiflora* (Opiz.) Degen – bilaterally haired leaflets. Not glandular pedicels; 2 records: CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN).

- var. *gizellae* (Borbás) R. Keller – bilaterally haired leaflets. Pedicels glandular; 5 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN); CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN).

6. *Rosa canina* L.

R. canina occurs in the study area in four varieties, distinctly differing in hairiness and serration of leaves and degree of glandularity of pedicels.

- var. *canina* – glabrous, mostly simple serrate leaflets; 1 record: CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN).

- var. *andegavensis* (Bastard.) Desp. – simple or complex-glandular serrate leaflets, glabrous and pedicels glandular with stalked glands; 2 records: CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN).

- var. *dumalis* Baker – glabrous, doubly or complex serrate leaflets; 61 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN); CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN); PR Mackov bok, *leg. Sołtys-Lelek*, 24.09.2011 (OPN).

- var. *corymbifera* (Borkh.) Boulenger – leaflets bilaterally haired or only on the underside. Pedicels not glandular; 13 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN); CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN).

7. *Rosa* × *subcanina* (H. Christ) R. Keller

R. × *subcanina* is a hybrid form characterized by intermediate features between *R. dumalis* Bechst. and *R. canina* L. This hybrid is separated by some researches (Henker 2000) as independent species; 36 records: CHA Jakub, *leg. Sołtys-Lelek*, 20.09.2011 (OPN); CHA Kopec, *leg. Sołtys-Lelek*, 21.09.2011 (OPN); PR Mackov bok, *leg. Sołtys-Lelek*, 24.09.2011 (OPN).

Discussion and summary

The investigated area is characterised by abundance of species from the genus *Rosa* L. More than a half of the species that were recorded in the whole region of the Low Tatras National Park occurred in the area which covered only about 20 ha. Roses with exceptionally varied morphological features, especially *R. canina* and *R. agrestis* (4 varieties were distinguished among each of them) occurred there. In case of *R. agestis* all varieties described by Popek (1996) for Central Europe were in the site. The varieties of R. agrestis found in the investigated region are presented in Fig. 2.

R. canina features the highest variety among all of the recorded roses. Several hundreds of species currently included into the complex of *R. canina* were described already at the beginning of the 20th century. Many of them have already been synonymised at the level of variety e.g.: *R. corymbifera* = *R. canina* var. *corymbifera*, *R. dumalis* Baker = *R. canina* var. *dumalis* (Popek 1996). The varieties of *R. canina* which were found in the investigated region are not characterised by a single feature but a group of them (Fig. 3). Similar groups of features are applied to distinguish varieties within other species of roses. Within critical genus like *Rosa*, morphological and geographical diversity of particular species and their varieties can be described only by such comprehensive approach to the features.

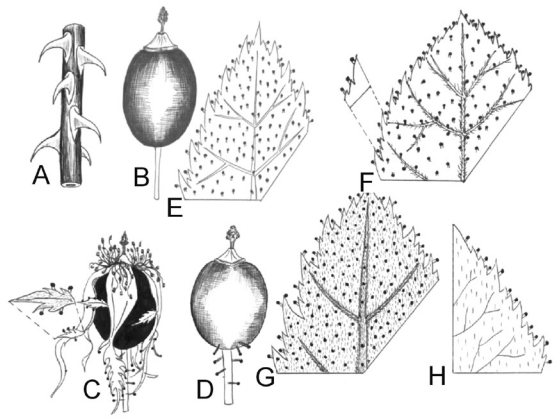

Fig. 2. Morphological differentiation within the distinguished varieties of *Rosa agrestis* Savi; A – part of long shoot; B, C, D: fruit; E: part of leaf (upperside); F, G, H: part of leaf (underside). Complexes of characteristics: *R. agrestis* var. *agrestis* (A, B, E, F), *R. agrestis* var. *schulzei* (A, C, D, E, F), *R. agrestis* var. *albiflora* (A, B, G, H), *R. agrestis* var. *gizellae* (A, C, D, G, H).

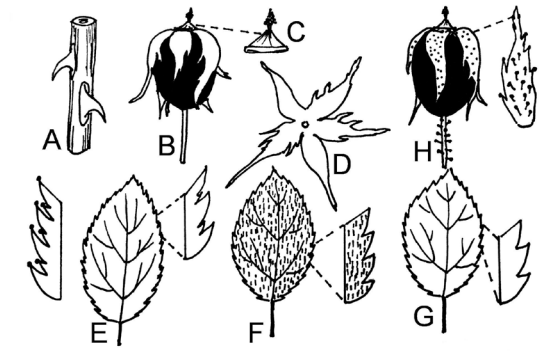

Fig. 3. Morphological differentiation within the distinguished varieties of *Rosa canina* L.; A – part of long shoot; B, H: fruit, C - conical disc and styles of a spray type, D – sepal; E, F, G: part of leaf (underside). Complexes of characteristics: *R. canina* var. *dumalis* (A, B, C, D, E), *R. canina* var. *canina* (A, B, C, D, G), *R. canina* var. *corymbifera* (A, B, C, D, F), *R. canina* var. *andegavensis* (A, C, G, H, E).

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