

THE MELLIFEROUS PLANTS OF THE BULGARIAN FLORA – CONSERVATION IMPORTANCE

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Abstract

The paper presents a classification of 1010 species, belonging to 296 genera and 84 families of wild melliferous plants. A particular attention is given to the characteristics of the conservational importance of these plants at national and international level. Two hundred and one of these species belonging to 71 genera and 36 families were considered to have some conservational status in Bulgaria and Europe. Many of them are endemics for Bulgaria and/or Balkan Peninsula and are protected by the national Bulgarian legislation or by international conventions ratified by Bulgaria. The results indicate that substantial part of melliferous plant species of the Bulgarian flora is of high conservation value.

Key words: Bulgaria, flora, melliferous plants, conservation value.

Introduction

Melliferous plants are these, whose flowers are natural food source for honey-bee (*Apis mellifera* L.). Based on critical analysis of literature data, it was established that wild melliferous plants in Bulgaria are represented by 1010 species belonging to 296 genera, 84 families and two phyla (Tashev and Pancheva 2010). They represent 25.3% of the species, 31.7% of the genera and 54.9% of the families of the Bulgarian flora (Tashev 2008).

Being an integral part of the plant kingdom, the melliferous plants are characterized by different life-histories, different ecology and conservation status. The assessment of their conservation status is an important part of

the modern concepts and practices of sustainable use of plant resources and conservation of plant diversity. Therefore, the aim of the present study was to characterize the conservation importance of the wild melliferous plants of Bulgarian flora. National and international documents were used for this assessment, with particular reference to the endemic taxa.

Material and Methods

For determining the national conservation status of the honeyberry plants from the Bulgarian flora, we used the Red Data Book of Bulgaria, Volume I – Plants (Velchev 1984), Red Data Book of Bulgaria, Volume I – Plant and Fungi

(Peev 2011). We used also the national legislation treating the legal protection of the plant species (Biodiversity Act; Anonymous 2007). Determining the international status of the analyzed species was based on the Red List of Endangered Plants of IUCN (Walter and Gillett 1998) as well as on the "List of Rare, Endangered and Endemic Plants of Europe" (Lucas 1983). We also used the CITES (Anonymous 1973) and the Convention on the Conservation of European Wildlife and Natural Habitats called also Bern Convention (Anonymous 1979). The Balkan and Bulgarian endemics were determined following Assyov and Petrova (2006).

Results and Discussion

Table 1 presents the conservation status of the honeyberry plant of Bulgarian flora.

The results showed that considerable part of melliferous plants of Bulgarian flora is important from conservation point of view and the species are included in the Red Data Book of Bulgaria, Volume I – Plants (Velchev 1984). They are total 112 species, or 11.1% of all species of this group. Among them with category "Rare" (R) are 78 species, and with category "Endangered" (EN) – 34 species. In percents, compared to the whole number of melliferous plants of the Bulgarian flora, the distribution is as follows: 7.7% "Rare" and 3.4% "Endangered". When compared to the number of all wild melliferous plants, included in the Red Data Book of Bulgaria, 69.6% are "Rare" and 30.4% are "Endangered".

In the new edition of the Red Data Book of Bulgaria, Volume I – Plants and

Fungi (Peev 2011), the number of melliferous plants is reduced to 74 species (7.4%). This could be explained by the fact that many of the species included in the first edition of the Red Data Book (Velchev 1984) had category "Rare", which does not exist in the new edition. This is because it considers only IUCN threatened categories, i.e. "Extinct", "Critically Endangered", and "Endangered". A few species labeled as "Rare" in Velchev (1984) were included with the category "Vulnerable" in the Red List of Bulgarian vascular plants (Petrova and Vladimirov 2009). The new edition of the Red Data Book of Bulgaria includes 43 species with the category "Endangered" (EN), which accounts to 4.3% of all wild melliferous plants; "Critically Endangered" (CR) are 26 (2.6%) species, and "Vulnerable" (VU) are 5 (0.5%) species.

Comparison of the plant taxa in the two Red Data Book editions showed that 50 melliferous species are present in both of them. This means that in the period after the publication of the first edition (more than 25 years), 24 wild melliferous species have acquired conservation importance. Eighteen species were transferred from category "Rare" to category "Endangered"; 11 species from category "Rare" to category "Critically Endangered"; 2 species from category "Rare" to category "Vulnerable", and 5 species from category "Endangered" to category "Critically Endangered". This unequivocally means that the population status of the rare melliferous plants is getting worse.

Eighty-one (8%) species are protected by the Bulgarian legislation and are included in the Appendix 3 of the Biodiversity Act (Anonymous 2007).

Table 1. Conservation status of honeyberry plants of Bulgarian flora.

Family/Species	Conservation importance						Measures taken				No of documents including the taxon*
	Red Data Book of Bulgaria (1984)	Red Data Book of Bulgaria (2011)	IUCN (1998)	Eur. List, (1983)		Bulgarian endemic	Balkan endemic	Biodiv. Act (2007)	Bern. conv. (1979)	CITES Appendix 2 (1973)	
				BG status	EU status						
1	2	3	4	5	6	7	8	9	10	11	12
Acanthaceae											
<i>Acanthus spinosus</i> L.	R	EN	–	–	–	–	–	+	–	–	3
<i>Acanthus balcanicus</i> Heywood et Richardson	–	–	–	–	–	–	+	–	–	–	1
Alliaceae											
<i>Allium angulosum</i> L.	R	CR	–	–	–	–	–	+	–	–	3
<i>Allium montanum</i> F. W. Schmidt	EN	–	–	–	–	–	–	+	–	–	2
<i>Allium rhodopaeum</i> Velen.	–	–	–	–	–	+	–	–	–	–	1
Amaryllidaceae											
<i>Galanthus elwesii</i> Hook. f.	EN	EN	–	–	–	–	–	+	–	+	4
<i>Galanthus nivalis</i> L.	EN	EN	–	–	–	–	–	+	–	+	4
<i>Leucojum aestivum</i> L.	EN	–	–	–	–	–	–	–	–	–	1
Apiaceae (Umbelliferae)											
<i>Anethum graveolens</i> L.	R	EN	–	–	–	–	–	–	–	–	2
<i>Heracleum angustisectum</i> (Stoj. et Acht.) Peev	R	–	–	–	–	+	–	–	–	–	2
<i>Heracleum verticillatum</i> Panč.	–	–	–	–	–	–	+	–	–	–	1
Asteraceae (Compositae)											
<i>Hieracium ančevii</i> Szelag	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium asenovgradense</i> Jasiewicz & Pawl.	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium belogradčense</i> T. Georg. & Kitanov	–	CR	–	–	–	+	–	+	–	–	3
<i>Hieracium divergens</i> Naeg. & Peter	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium dolopicum</i> Freyn & Sint.	–	–	–	–	–	–	+	–	–	–	1
<i>Hieracium ferdinandii-regis</i> Zahn	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium gregorii-bakuriani</i> S. Bräut.	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium heldreichii</i> Boiss.	–	–	–	–	–	–	+	–	–	–	1
<i>Hieracium heterogynum</i> (Froel.) Gut.	–	–	–	–	–	–	+	–	–	–	1
<i>Hieracium kittaniae</i> Vladimirov	–	EN	–	–	–	+	–	–	–	–	2
<i>Hieracium marmoreum</i> Panč.	–	–	–	–	–	–	+	–	–	–	1
<i>Hieracium matffeldianum</i> Zahn	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium merxmullerianum</i> S. Bräut.	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium naegelianum</i> Panč.	–	–	–	–	–	–	+	–	–	–	1
<i>Hieracium nipholasum</i> T. Georg. & Zahn	–	–	–	–	–	+	–	–	–	–	1
<i>Hieracium olympicum</i> Boiss.	–	–	–	–	–	–	+	–	–	–	1
<i>Hieracium ossaeum</i> Zahn	–	–	–	–	–	–	+	–	–	–	1

1	2	3	4	5	6	7	8	9	10	11	12
<i>Campanula euxina</i> (Velen.) Ančev	-	EN	-	-	-	+	-	+	-	-	3
<i>Campanula jordanovii</i> Ančev & Kovanda	-	VU	-	-	-	-	+	+	-	-	3
<i>Campanula lanata</i> Friv.	-	VU	R	-	-	-	+	+	+	-	5
<i>Campanula latifolia</i> L.	R	EN	-	-	-	-	-	+	-	-	3
<i>Campanula moesiaca</i> Velen.	-	-	-	-	-	-	+	-	-	-	1
<i>Campanula orphanidea</i> Boiss.	-	EN	-	-	-	-	+	+	-	-	3
<i>Campanula patula</i> L.	-	-	-	-	-	-	-	-	+	-	1
<i>Campanula scutellata</i> Griseb.	-	-	-	-	-	-	+	-	-	-	1
<i>Campanula sparsa</i> Friv.	-	-	-	-	-	-	+	-	-	-	1
<i>Campanula thyrsoides</i> L.	-	EN	-	-	-	-	-	-	-	-	1
<i>Campanula transsilvanica</i> Schur ex Andrae	R	EN	R	R	I	-	-	+	-	-	5
<i>Campanula trojanensis</i> Kovanda & Ančev	-	-	-	-	-	+	-	-	-	-	1
<i>Campanula velebitica</i> Borbas	-	-	-	-	-	-	+	-	-	-	1
<i>Campanula versicolor</i> Andrews	EN	EN	-	-	-	-	-	+	-	-	3
Cistaceae											
<i>Cistus salvifolius</i> L.	R	EN	-	-	-	-	-	+	-	-	3
Elaeagnaceae											
<i>Hippophae rhamnoides</i> L.	EN	CR	-	-	-	-	-	+	-	-	3
Ericaceae											
<i>Calluna vulgaris</i> (L.) Hull	R	-	-	-	-	-	-	+	-	-	2
<i>Erica arborea</i> L.	R	-	-	-	-	-	-	+	-	-	2
<i>Rhododendron ponticum</i> L.	EN	-	-	-	-	-	-	+	-	-	2
<i>Vaccinium arctostaphylos</i> L.	EN	EN	-	R	R	-	-	+	+	-	5
Fabaceae (Papilionaceae)											
<i>Anthyllis aurea</i> Weld.	-	-	-	-	-	-	+	-	-	-	1
<i>Chamaecytisus danubialis</i> (Velen.) Rothm.	R	-	-	-	-	-	-	-	-	-	1
<i>Chamaecytisus absinthioides</i> (Janka) Kuzm.	-	-	-	-	-	-	+	-	-	-	1
<i>Chamaecytisus calcareus</i> (Velen.) Kuzm.	-	-	-	-	-	-	+	-	-	-	1
<i>Chamaecytisus jankae</i> (Velen.) Rothm.	-	-	-	-	-	-	+	-	-	-	1
<i>Chamaecytisus frivaldszkyanus</i> (Deg.) Kuzm.	R	EN	-	-	-	+	-	-	-	-	3
<i>Chamaecytisus kovačevii</i> (Velen.) Rothm.	R	EN	-	V	-	+	-	+	-	-	5
<i>Chamaecytisus neičeffii</i> (Urum.) Rothm.	R	-	VU	E	-	+	-	+	-	-	5
<i>Chamaecytisus ratisbonensis</i> (Schaeff.) Rothm.	EN	-	-	-	-	-	-	+	-	-	2
<i>Genista germanica</i> L.	-	CR	-	-	-	-	-	+	-	-	2
<i>Genista pilosa</i> L.	EN	EN	-	-	-	-	-	+	-	-	3
<i>Genista rumelica</i> Velen.	-	-	-	-	-	-	+	-	-	-	1
<i>Genista subcapitata</i> Panč.	-	-	-	-	-	-	+	-	-	-	1
<i>Lathyrus grandiflorus</i> Sibth. et Sm.	R	EN	-	-	-	-	-	-	-	-	2
<i>Lupinus albus</i> L.	R	-	-	-	-	-	-	-	-	-	1
<i>Ononis adenotricha</i> Boiss.	R	-	-	-	-	-	-	-	-	-	1
<i>Ononis repens</i> L.	R	CR	-	-	-	-	-	+	-	-	3
<i>Trifolium affine</i> C. Presl.	-	-	-	R	R	-	-	-	-	-	1

1	2	3	4	5	6	7	8	9	10	11	12
<i>Trifolium dalmaticum</i> Vis.	-	-	-	-	-	-	+	-	-	-	1
<i>Trifolium heldreichianum</i> Hausskn.	-	-	-	-	-	-	+	-	-	-	1
<i>Trifolium pignanii</i> Fauche et Chaub.	-	-	-	-	-	-	+	-	-	-	1
<i>Trifolium trichopterum</i> Panč.	-	-	-	-	-	-	+	-	-	-	1
<i>Trifolium globosum</i> L.	R	-	-	-	-	-	-	-	-	-	1
<i>Trifolium spumosum</i> L.	R	-	-	-	-	-	-	-	-	-	1
<i>Trifolium ligusticum</i> Balb. ex Loisel	EN	EN	-	-	-	-	-	-	-	-	2
<i>Trifolium phleoides</i> Pourr. ex Willd.	EN	CR	-	-	-	-	-	-	-	-	2
<i>Trifolium physodes</i> Stev. ex M. B.	-	CR	-	-	-	-	-	-	-	-	1
<i>Trifolium rubens</i> L.	EN	CR	-	-	-	-	-	-	-	-	2
<i>Trifolium spumosum</i> L.	-	CR	-	-	-	-	-	-	-	-	1
<i>Trifolium squamosum</i> L.	EN	CR	-	-	-	-	-	-	-	-	2
<i>Trifolium squarrosum</i> L.	EN	CR	-	-	-	-	-	-	-	-	2
<i>Trifolium velenovskyi</i> Vandas	-	-	-	-	-	-	+	-	-	-	1
Fagaceae											
<i>Castanea sativa</i> Mill.	EN	EN	-	-	-	-	-	-	-	-	2
Geraniaceae											
<i>Erodium absinthoides</i> Willd.	R	EN	-	-	-	-	+	+	-	-	4
<i>Erodium hoefftianum</i> C. A. Meyer	R	-	-	-	-	-	-	-	-	-	1
Grossulariaceae											
<i>Ribes nigrum</i> L.	R	CR	-	-	-	-	-	+	-	-	3
Hippocastanaceae											
<i>Aesculus hippocastanum</i> L.	EN	EN	-	-	-	-	+	+	-	-	4
Hypericaceae (Guttiferae)											
<i>Hypericum androsaemum</i> L.	R	EN	-	-	-	-	-	+	-	-	3
<i>Hypericum calycinum</i> L.	R	-	-	-	-	-	-	+	-	-	2
Iridaceae											
<i>Crocus veluchensis</i> Herbert	-	-	-	-	-	-	+	-	-	-	1
Lamiaceae (Labiatae)											
<i>Marrubium friwaldskyanum</i> Boiss.	R	VU	-	R	R	+	-	-	-	-	4
<i>Salvia forskahlei</i> L.	EN	-	-	-	-	-	-	+	-	-	2
<i>Salvia pinnata</i> L.	-	CR	-	-	-	-	-	+	-	-	2
<i>Salvia ringens</i> Sibth. & Sm.	-	-	-	-	-	-	+	-	-	-	1
<i>Salvia scabiosifolia</i> Lam.	EN	CR	R	R	R	-	-	+	-	-	5
<i>Salvia verbenaca</i> L.	R	-	-	-	-	-	-	-	-	-	1
<i>Satureja rumelica</i> Velen.	R	-	R	-	I	+	-	-	-	-	4
<i>Satureja pilosa</i> Velen.	-	-	-	nt	-	-	+	-	-	-	2
<i>Teucrium botrys</i> L.	-	-	-	-	-	-	-	+	-	-	1
<i>Teucrium lamiifolium</i> D'Urv.	R	-	-	R	R	-	-	+	+	-	4
<i>Thymus albanus</i> Heinr. Braun	-	-	-	-	-	-	+	-	-	-	1
<i>Thymus atticus</i> Čelak.	-	-	-	-	-	-	+	-	-	-	1

1	2	3	4	5	6	7	8	9	10	11	12
<i>Thymus bracteosus</i> Vis. ex Benth.	-	-	-	-	-	-	-	+	-	-	1
<i>Thymus comptus</i> Friv.	-	-	-	-	-	-	+	-	-	-	1
<i>Thymus longedentatus</i> (Degen & Urum.) Ronniger	-	-	-	-	-	-	+	-	-	-	1
<i>Thymus perinicus</i> (Velen.) J alas	R	EN	-	-	-	+	-	+	-	-	4
<i>Thymus stojanovii</i> Degen	-	CR	-	-	-	+	-	+	-	-	3
Liliaceae											
<i>Fritillaria pontica</i> Wahlenb.	R	-	R	-	-	-	-	+	-	-	3
Menyanthaceae											
<i>Menyanthes trifoliata</i> L.	EN	EN	-	-	-	-	-	-	-	-	2
Morinaceae											
<i>Morina persica</i> L.	R	-	-	-	-	-	-	+	-	-	2
Orchidaceae											
<i>Platanthera bifolia</i> (L.) Rich.	-	-	-	-	-	-	-	-	-	+	1
Paeoniaceae											
<i>Paeonia mascula</i> (L.) Mill.	EN	EN	-	-	-	-	-	+	-	-	3
<i>Paeonia tenuifolia</i> L.	EN	EN	-	-	-	-	-	+	+	-	4
Polygalaceae											
<i>Polygala acarnanica</i> (Chodat) Koz. et Petrova	R	-	-	-	-	-	+	+	-	-	3
<i>Polygala amarella</i> Crantz	R	EN	-	-	-	-	-	+	-	-	3
<i>Polygala alpestris</i> Reichenb.	-	EN	-	-	-	-	-	+	-	-	2
<i>Polygala carniolica</i> Kern.	R	EN	-	-	-	-	+	-	-	-	3
<i>Polygala hospital</i> Heuff.	R	-	-	-	-	-	-	-	-	-	1
<i>Polygala monspeliaca</i> L.	R	-	-	-	-	-	-	-	-	-	1
<i>Polygala rhodopea</i> (Velen.) Janch.	R	-	-	-	-	-	+	-	-	-	2
<i>Polygala supina</i> Schreb.	R	-	-	-	-	-	-	-	-	-	1
Primulaceae											
<i>Primula deorum</i> Velen.	R	VU	R	-	nt	+	-	+	+	-	7
<i>Primula frondosa</i> Janka	R	EN	R	-	R	+	-	+	+	-	7
<i>Primula halleri</i> G. F. Gmel.	R	-	-	-	-	-	-	+	-	-	2
<i>Primula vulgaris</i> Huds.	R	-	-	-	-	-	-	+	-	-	2
Ranunculaceae											
<i>Adonis microcarpa</i> DC.	-	EN	-	-	-	-	-	-	-	-	1
<i>Adonis vernalis</i> L.	R	-	-	-	-	-	-	-	-	+	2
<i>Adonis wolgensis</i> Stev. in DC.	R	-	-	-	-	-	-	+	-	-	2
<i>Anemone narcissiflora</i> L.	R	-	-	-	-	-	-	+	-	-	2
<i>Anemone sylvestris</i> L.	EN	-	-	-	-	-	-	+	-	-	2
<i>Aquilegia aurea</i> Janka	R	-	-	-	-	-	+	+	-	-	3
<i>Aquilegia nigricans</i> Baumg.	R	-	-	-	-	-	+	+	-	-	3
<i>Caltha cornuta</i> Schott	-	-	-	-	-	-	-	+	-	-	1
<i>Caltha polypetala</i> Hochst. ex Lorent	-	EN	-	-	-	-	-	+	-	-	2
<i>Pulsatilla halleri</i> (All.) Willd.	R	EN	-	-	-	-	-	-	+	-	3
<i>Pulsatilla pratensis</i> (L.) Mill.	R	-	-	-	-	-	-	+	-	-	2

1	2	3	4	5	6	7	8	9	10	11	12
<i>Thalictrum foetidum</i> L.	EN	CR	–	–	–	–	–	+	–	–	3
<i>Trollius europaeus</i> L.	R	–	–	–	–	–	–	+	–	–	2
Rosaceae											
<i>Crataegus orientalis</i> Pall. ex M. B.	–	–	–	–	–	–	–	+	–	–	1
<i>Mespilus germanica</i> L.	R	–	–	–	–	–	–	–	–	–	1
<i>Potentilla chrysantha</i> Trevir.	R	–	–	–	–	–	–	+	–	–	2
<i>Potentilla emili-popii</i> Nyarady	R	CR	R	–	–	–	+	+	+	–	6
<i>Potentilla fruticosa</i> L.	R	–	–	–	–	–	–	–	–	–	1
<i>Potentilla montenegrina</i> Pant.	–	CR	–	–	–	–	–	+	–	–	2
<i>Potentilla nicicii</i> Adam.	R	CR	–	–	–	–	–	+	–	–	3
<i>Potentilla pirotensis</i> (Borb.) Mark.	–	–	–	–	–	–	+	–	–	–	1
<i>Potentilla palustris</i> (L.) Scop.	R	–	–	–	–	–	–	+	–	–	2
<i>Potentilla regis-borisii</i> Stoj.	–	–	–	–	–	–	+	–	–	–	1
<i>Pyracantha coccinea</i> M. Roem.	EN	–	–	–	–	–	–	–	–	–	1
<i>Rubus macrophyllus</i> Weihe & Nees	EN	–	–	–	–	–	–	–	–	–	1
<i>Rubus oblongoobovatus</i> Markova	R	–	–	–	–	+	–	–	–	–	2
<i>Rubus thyrsoiflorus</i> Wehe et Nees	EN	–	–	–	–	–	–	–	–	–	1
<i>Rubus vepallidus</i> Sudre	R	–	–	–	–	–	–	–	–	–	1
<i>Spiraea crenata</i> L.	EN	CR	–	E	V	–	–	+	–	–	4
<i>Spiraea hypericifolia</i> L.	EN	–	–	–	–	–	–	–	–	–	1
<i>Spiraea salicifolia</i> L.	EN	CR	–	–	–	–	–	+	–	–	3
Rutaceae											
<i>Ruta graveolens</i> L.	EN	EN	–	–	–	–	–	+	–	–	3
Salicaceae											
<i>Salix pentandra</i> L.	EN	CR	–	–	–	–	–	+	–	–	3
<i>Salix rosmarinifolia</i> L.	–	CR	–	–	–	–	–	+	–	–	2
Scrophulariaceae											
<i>Pedicularis palustris</i> L.	R	CR	–	–	–	–	–	+	–	–	3
<i>Veronica austriaca</i> L.	R	–	–	–	–	–	–	–	–	–	1
<i>Veronica chamaedrys</i> L.	R	–	–	–	–	–	–	–	–	–	1
Thymelaeaceae											
<i>Daphne laureola</i> L.	R	EN	–	–	–	–	–	+	–	–	3
<i>Daphne pontica</i> L.	R	EN	–	–	–	–	–	+	–	–	3
Tiliaceae											
<i>Tilia rubra</i> DC.	R	–	–	–	–	–	–	–	–	–	1
Valerianaceae											
<i>Valeriana dioscoridis</i> Sm.	R	EN	–	–	–	–	–	–	–	–	2

* Column 12 represents the number of different documents (Red lists, Red data books and different legislative documents) where the respective taxon is included.

Seventeen species (1.7%) are in the “European List of Rare, Endangered and Endemic Plants” (Lucas 1983). It de-

finies the National (BG) and European (EU) status of the species. According to the national status, 6 species have

category "Rare" (R), 3 species category "Vulnerable" (VU), 2 species category "Endangered" (E), 1 species category "Undetermined" (I), and 2 species "neither Rare, nor Endangered". According to their European status 7 species have category "Rare" (R), 3 species category "Vulnerable" (V), 2 species category "Undetermined", and 1 species category "neither Rare, nor Endangered" (nt).

Eleven melliferous species were included in the IUCN's Red List of Endangered Species of 1997 (Walter and Gillett 1998). These are: *Buglossoides grandulosa*, *Onosma rhodopea*, *Campanula lanata*, *C. transsilvanica*, *Chamaecytisus nejčeffii*, *Salvia scabiosifolia*, *Satureja rumelica*, *Fritillaria pontica*, *Primula deorum*, *P. frondosa*, and *Potentilla emili-popii*.

Eight European melliferous species are strictly protected under the Bern Convention (Anonymous 1979), Appendix 2. These are: *Campanula lanata*, *C. patula*, *Vaccinium arctostaphylos*, *Teucrium lamiifolium*, *Paeonia tenuifolia*, *Primula deorum*, *P. frondosa*, *Pulsatilla halleri*, and *Potentilla emili-popii*.

Four species are listed in Appendix 2 of the Convention on International Trade in Endangered Species (Anonymous 1973, supplemented in 2003), and these are: *Galanthus elwesii*, *G. nivalis*, *Platanthera bifolia* and *Adonis vernalis* L.

Thirty-three species (3.3%) of the melliferous plants are Bulgarian endemics and 54 (5.3%) are Balkan endemics.

Conclusion

The data presented so far show that the melliferous plants of the Bulgarian flora

amount 201 species from 71 genera and 36 families. This represents 20% of the species, 24.3% of the genera and 42.9% of the families with wild melliferous plants. With the highest conservation status among them are the Bulgarian endemics *Primula deorum* and *P. frondosa*, included in seven lists of conservation importance. They are followed by *Onosma rhodopea*, *Potentilla emili-popii* – present on six lists, *Campanula lanata*, *C. transsilvanica*, *Chamaecytisus kovačevićii*, *C. nejčeffii*, *Salvia scabiosifolia*, *Vaccinium arctostaphylos* – part of 5 lists, and *Aesculus hippocastanum*, *Buglossoides grandulosa*, *Erodium absinthoides*, *Galanthus elwesii*, *G. nivalis*, *Marrubium friwaldsky-anum*, *Matthiola odoratissima*, *Paeonia tenuifolia*, *Satureja rumelica*, *Spiraea crenata*, *Teucrium lamiifolium*, *Thymus perinicus*, which are part of 4 list.

The results outline the high conservation importance of the Bulgarian honeyberry plants, both for the national and for the European flora.

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