

Index florae Bosnae et Hercegovinae (Part 5)

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Review article

UDK: 582.572.2 + 582.842.2 (497.6) " 19/20 "

INTRODUCTION

Part 5 of the Index presents particulars of the families Violaceae and Liliaceae. The significant contribution to investigations of these families in Bosnia and Herzegovina was given by Lijerka Kutleša, M.Sc. (1929-2019), through her own works and the works she co-authored with Bosnian and Herzegovinian botanists. For three decades, she taught Botany as an assistant professor at the University of Sarajevo, Faculty of Science, Department of Biology. Professor Kutleša was also a passionate researcher who devoted much of her work life to the study of the flora of Bosnia and Herzegovina, above all the families of Violaceae and

Liliaceae (Lakušić & Kutleša, 1971, Lakušić et al., 1977; Kutleša, 1982; Kutleša, 1988-1992; Kutleša, 2006-2007; Kutleša, 2008).

Findings of Kutleša (Kutleša, 1988-1992, 2006-2007, 2008) about the diversity of the family Violaceae in the flora of Bosnia and Herzegovina have remained mostly unchanged. Changes in this paper are related to the updates to the nomenclature and the current taxonomic status of detected taxa (Euro+Med, 2019), including the conservation status (IUCN, 2019). Moreover, the first record of the alien species *Viola sororia* in Bosnia and Herzegovina by

Maslo et al. (2018) was included. The family Violaceae in Bosnia and Herzegovina comprises of 28 species and 10 subspecies belonging to the genus *Viola*.

Special attention was paid to the family Liliaceae in terms of chorology, ecology, genetics, and systematics for the last two decades (Muratović et al., 2003, 2005a, 2005b, 2006, 2007, 2008, 2010a, 2010b, 2010c, 2011; Siljak-Yakovlev et al., 2003a, 2003b; Zoldoš et al., 2018; Koljanin et al., 2021). Due to the different classification scheme based on the phylogeny of monocots (APG II, 2003; APG III, 2009; APG IV, 2016), the current treatment of the family includes a significantly lower number of genera compared to the traditional classification (Heywood & Chater, 1980).

Consequently, the family Liliaceae in Bosnia and Herzegovina includes 6 genera, 20 species and 3 subspecies. The List is additionally modified with two species from the genus *Gagea* (*G. sphatacea* and *G. villosa*), recently observed in Bosnia and Herzegovina (Milanović et al., 2013; Maslo, 2014).

Part 5 of the Index, like the previous ones, provides the following details for each taxon:

- Botanical name of the genus, authority, and common name(s) in the English language,
- Botanical name of the species, authority, and first publication,
- Synonyms, where applicable,
- The nomenclature following Euro+Med PlantBase (Euro+Med, 2019), or the World Checklist of Selected Plant Families (WCSP, 2019) wherever possible,
- Conservation status following the IUCN Red List criteria (IUCN, 2019) and the Red List of Vascular Flora for the Federation of BiH (Đug et al., 2013) and the Republic of Srpska (Crvena lista zaštićenih vrsta flore i faune Republike Srpske-Lista vaskularne flore, 2012).
- Within a family, the genera and the species within each genus are listed alphabetically.

INDEX PART 5:

VIOLACEAE BATSCH, TAB. AFFIN. REGNI VEG.: 57. 1802

VIOLA L., SP. PL.: 933. 1753. (=MNEMON SPACH)– LJUBICA, LJUBIČICA (VIOLET)

(EN2) **aetolica Boiss. & Heldr.**, Boissier, Diagn. Pl. Orient., ser. 2, 6: 24. 1859.

alba Besser, Prim. Fl. Galiciae Austriac. 1: 171. 1809. (=V. *besseri* Rupr., nom. illeg., V. *martii* subsp. *alba* [Besser] Döll)

subsp. **alba** (V. *armena* Boiss. & A. Huet, V. *scotophylla* Jord., V. *thessala* Boiss. & Heldr., V. *virescens* Boreau, V. *alba* subsp. *scotophylla* [Jord.] Nyman, V. *alba* subsp. *thessala* [Boiss. & Heldr.] Hayek)

subsp. **dehnhardtii (Ten.) W. Becker**, Ber. Bayer. Bot. Ges. 8: 257. 1902. (= V. *dehnhardtii* Ten., V. *cadevallii* Pau, V. *pentelica* Vierh. [provisional])

ambigua Waldst. & Kit., Descr. Icon. Pl. Hung. 2: 208. 1804. (=V. *campestris* M. Bieb., V. *ambigua* subsp. *campestris* [M. Bieb.] Gams)

(LC1) **arvensis Murray**, Prodr. Stirp. Gott.: 73. 1770. (=V. *tricolor* subsp. *arvensis* [Murray] Gaudin, V. *agrestis* Jord, V. *banatica* Roem. & Schult., V. *segetalis* Jord.)

beckiana Beck, Wiener Ill. Gart.-Zeitung 21: 197. 1895.
(NT2,o) subsp. **beckiana**

(LC2) **biflora L.**, Sp. Pl.: 936. 1753. (=Chrysion *biflorum* [L.] Spach)

calcarata L., Sp. Pl.: 935. 1753.
(VU2,o) subsp. **zoysii (Wulfen) Murb.**, Lunds Univ. Årsskr. 27: 165. 1891. (=V. *zoysii* Wulfen)

(LC1) **canina L.**, Sp. Pl.: 935. 1753. (=V. *apetala* F. W. Schmidt, V. *flavicornis* Sm., V. *canina* subsp. *silvensis* [Font Quer] O. Bolòs & Vigo, V. *montana* subsp. *silvensis* Font Quer)
subsp. **canina**
subsp. **ruppii (All.) Schübl. & G. Martens**, Fl. Württemberg: 159. 1834. (=V. *ruppii* All., V. *montana* L., nom. rej., V. *nemoralis* Kütz., V. *canina* subsp. *montana* [L.] Hartm.)

chelmea Boiss. & Heldr., Boissier, Diagn. Pl. Orient., ser. 2, 1: 54. 1854.

(CR2,o) subsp. **vratnikensis Gáyer & Degen**, Magyar Bot. Lapok 13: 309. 1914. (V. *dinarica* Trinajstić, nom. illeg., V. *vilaensis* Hayek, V. *dinarica* subsp. *vilaensis* [Hayek] Trinajstić, nom. illeg.)

collina Besser, Enum. Pl.: 10. 1822. (=V. *odorata* subsp. *collina* [Besser] Čelak., V. *porphyrea* Garcke)

dacica Borbás, Magyar Növényt. Lapok 13: 79. 1890. (=V. *polydonta* W. Becker, V. *prolixa* [Adamović] W. Becker)

elatio Fr., Novit. Fl. Suec. Alt.: 277. 1828. (=V. *stipularis* Fr. [non Sw.], nom. illeg.)

(LC2,o) **elegantula Schott**, Oesterr. Bot. Wochenbl. 7: 167. 1857. (= *V. latisejala* Wettst.)

(DD2) **grisebachiana Vis.**, Mem. Reale Ist. Veneto Sci. 10: 436. 1861. (= *V. korabensis* Trinajstić)

hirta L., Sp. Pl.: 934. 1753. (= *V. calcarea* [Bab.] Greg., *V. hirta* subsp. *brevifimbriata* W. Becker, *V. hirta* subsp. *longifimbriata* W. Becker, *V. hirta* var. *calcarea* Bab.)

kitaibeliana Schult, Roemer & Schultes, Syst. Veg. 5: 383. 1819. (= *V. arvensis* subsp. *kitaibeliana* [Schult.] W. Becker, *V. parviflora* Roem. & Schult., des. inval., *V. tricolor* subsp. *minima* Gaudin)

mirabilis L., Sp. Pl. 936. 1753. (= *V. brachysejala* Maxim.)

(LC1) **odorata L.**, Sp. Pl.: 934. 1753. (= *V. maderensis* Lowe, *V. stolonifera* J. J. Rodr., *V. wiedemannii* Boiss., *V. odorata* var. *maderensis* [Lowe] Lowe)

(LC1) **palustris L.**, Sp. Pl.: 934. 1753.

pinnata L., Sp. Pl.: 934. 1753.

pyrenaica DC., Lamarck & Candolle, Fl. Franç., ed. 3, 4: 803. 1805. (= [CR2] *V. prenja* Beck, *V. sciaphila* W. D. J. Koch)

reichenbachiana Jordon ex Borean, Fl. Centre Fr. Ed. 3, 2: 78. 1857. (= *V. sylvestris* Lam., *V. sylvatica* Fries ex Hartm.)

riviniana Rchb., Iconogr. Bot. Pl. Crit. 1: 81. 1823. (= *V. canina* subsp. *riviniana* [Rchb.] Schübler & G. Martens, *V. sylvestris* subsp. *riviniana* [Rchb.] Tourlet, *V. caniniformis* K. Richt., *V. insularis* Gren. & Godr., *V. riviniana* subsp. *minor* [Greg.] Valentine, *V. riviniana* subsp. *neglecta* W. Becker)

rupestris F. W. Schmidt, Neuere Abh. Königl. Böhm. Ges. Wiss. 1: 60. 1791. (*V. arenaria* DC., *V. glaberrima* [Murb.] Sergent, [LC*] *V. rupestris* subsp. *arenaria* [DC.] Tzvelev, *V. rupestris* subsp. *glaberrima*, *V. rupestris* subsp. *relicta* Jalas, *V. rupestris* var. *glaberrima* Murb.)

sororia Willd., Hort. Berol. [Willdenow] 1(6): t. 72 (1806). (= *V. alachuana* Murrill, *V. allardii* Greene, *V. chalcosperma* Brainerd), Maslo et al. 2018.

(EN2) **stagnina Schult.**, Oestr. Fl., ed. 2, 1: 426. 1814. (*V. persicifolia* Schreb., nom. rej.)

suavis M. Bieb., Fl. Taur.-Caucas. 3: 164. 1819. (= *V. austriaca* A. Kern. & Jos. Kern., *V. beraudii* Boreau, *V. catalonica* W. Becker, *V. cyanea* Čelak., *V. pontica* W. Becker, *V. segobricensis* Pau, *V. sepincola* Jord., *V. sepincola* subsp. *austriaca* [A. Kern. & Jos. Kern.] W. Becker, *V. sepincola* subsp. *cyanea* [Čelak.] W. Becker, *V. sepincola* subsp. *wolfiana* [W. Becker] W. Becker, *V. suavis* subsp. *catalonica* [W. Becker] O. Bolòs & Vigo, *V. suavis* subsp. *cyanea* [Čelak.] Dostál, *V. suavis* subsp. *sepincola* [Jord.] Becker)

(o) subsp. **adriatica (Freyn) Haesler**, Mitt. Bot. Staatssamml. München 12: 111. 1975. (= *V. adriatica* Freyn)

(LC1) **tricolor L.**, Sp. Pl.: 935. 1753. (= *V. kupfferi* Klokov, *V. luteola* Jord., *V. nemausensis* Jord., *V. tricolor* subsp. *faeroeënsis* W. Becker) subsp. **alpestris (Ging.) Ces.**, Cattaneo, Not. Nat. Civ. Lombardia 1: 288. 1844. (= *V. tricolor* var. *alpestris* Ging., *V. alpestris*

[Ging.] Jord., *V. saxatilis* F. W. Schmidt, *V. vespertina* Klokov, *V. tricolor* subsp. *saxatilis* [F. W. Schmidt] Arcang., *V. tricolor* subsp. *subalpina* Gaudin, nom. illeg.)

(VU2) subsp. **macedonica** (Boiss. & Heldr.) A. F. W. Schmidt, Feddes Rept. 74:30. 1967. (= *V. macedonica* Boiss. & Heldr., *V. saxatilis* subsp. *macedonica* [Boiss. & Heldr.] Hayek)

LILIACEAE

ERYTHRONIUM L., SP. PL.: 305. 1753. (= *DENS-CANIS* TOURN. EX RUPP., DES. INVAL., *MITHRIDATIUM* ADANS.) – **P A S J I Z U B (TROUT LILY)**

(LC2) **dens-canis L.**, Sp. Pl. 305. 1753. (= *E. bifidum* Sweet, *E. bulbosum* St.-Lag., *E. caninum* Dulac, *E. latifolium* Schur, *E. longifolium* Mill., *E. maculatum* DC., *E. maculosum* Lam., *E. obtusiflorum* Opiz, *E. ovatifolium* Poir., *E. vernale* Salisb., *E. dens-canis* subsp. *albiflorum* Kricsf., *E. dens-canis* var. *niveum* Baumg., *E. dens-canis* var. *purpureum* Baumg., *E. dens-canis* var. *roseum* Baumg., *E. dens-canis* var. *tetragonum* Schur)

FRITILLARIA TOURN. EX L., SP. PL.: 303. 1753. (= *AMBLIRION* RAF., *BAIMO* RAF., *CORONA* FISCH. EX GRAHAM, *EUCRINUM* [NUTT.] LINDL., *IMPERIALIS* ADANS., *KOROLKOWIA* REGEL, *LILIORHIZA* KELLOGG, *LYPERIA* SALISB., *MELORIMA* RAF., *MONOCODON* SALISB., *OCHROCODON* RYDB., *PETILIMUM* LUDW., *RHINOPE TALUM* FISCH. EX D. DON, *SARANA* FISCH. EX BAKER, *THERESIA* K. KOCH, *TOZZETTIA* PARL.) – **K O C K A V I C A (FRITILLARY)**

(CR2) **meleagris L.**, Sp. Pl. 304. 1753. (= *Lilium meleagris* [L.] E. H. L. Krause)

subsp. **meleagris** (*F. contorta* Baker, *F. graminifolia* Stokes, *F. lutea* Rchb., nom. illeg., *F. major* Baker, *F. montana* Sanguin., nom. illeg., *F. pallida* Salisb., *F. praecox* K. Koch, *F. tessellata* Salisb., *F. meleagris* var. *contorta* [Baker] W. Mill.)

(LC1) **messanensis Raf.**, J. Bot. (Desvaux) 4: 272. 1814.

(VU2,o) subsp. **gracilis (Ebel) Rix**, Bot. J. Linn. Soc. 76: 356. 1978. (= *Lilium gracile* Ebel., *L. chalcedonicum* subsp. *gracile* [Ebel] K. Richt., *F. gracilis* [Ebel] Asch. & Graebn., *F. montana* var. *gracilis* [Ebel] Griseb., *F. lusitanica* subsp. *neglecta* [Parl.] K. Richt., *F. lusitanica* var. *neglecta* [Parl.] Baker, *F. messanensis* var. *neglecta* [Parl.]

(o) subsp. **neglecta (Parl.) Nyman**, Consp. Fl. Eur.: 721. 1882.

(DD1,VU2) **montana Hoppe ex W. D. J. Koch**, Flora 15: 476. 1832 (= *F. caussolensis* Goaty & Pons ex Ardoino, *F. degeniana* J. Wagner, *F. gawleri* Jaub. & Spach, *F. intermedia* N. Terracc., *F. orsiniana* Parl., *F. pollinensis* N. Terracc., *F. tenella* subsp. *orsiniana* [Parl.] Nyman, *F. pyrenaica* var. *multiflora* Ker Gawl., *F. tenella* var. *caussolensis* Goaty & Pons ex Nyman, nom. nud., *F. tenella* var. *intermedia* [N. Terracc.] Fiori, *F. tenella* var. *micrantha* Beck ex Fiori & Paol., *F. tenella* var. *orsiniana* [Parl.] Fiori, *F. tenella* var. *pollinensis* [N. Terracc.] Fiori)

GAGEA SALISB., ANN. BOT. (KÖNIG & SIMS) 2: 555. 1806. (BOISSIERA HAENS. EX WILLK., *BULBILLARIA* ZUCC., *HEMIERIUM* RAF., *HORNUNGIA* BERNH., *ORNITHOXANTHUM* LINK, *PLECOSTIGMA* TURCZ., *REGGERIA* RAF., *SOLENIARIUM* DULAC, *SZECHENYIA* KANITZ, *UPOXIS* ADANS.) – **B A L O Č E** (YELLOW STAR OF BETHLEHEM)

(LC1) **lutea (L.) Ker Gawl.**, Bot. Mag. 30: t. 1200. 1809. (= *Ornithogalum luteum* L., *Ornithoxanthum luteum* (L.) Link, *Solenarium luteum* (L.) Dulac, *Stellaster luteus* (L.) Kuntze, *G. fascicularis* Salisb., nom. superfl., *G. burnatii* A. Terracc., *G. coreana* Nakai, nom. illeg., *G. elegans* Wall. ex G. Don, *G. escarelii* Arènes & Bouchard, *G. glauca* Blocki, nom. illeg., *G. indica* Pascher, *Gagea lowariensis* Pascher, *Gagea moorcroftiana* Wall., des. inval., *G. reverchonii* Degen, *G. sylvatica* [Pers.] Loudon, *G. szepusiana* Ullep. *G. transsilvanica* Schur, *Ornithogalum majus* Gilib., des. inval. *O. persoonii* Hoppe, *Ornithoxanthum sylvaticum* (Pers.) Link, *G. pusilla* subsp. *burnatii* [A. Terracc.] A. Terracc., *G. pusilla* subsp. *reverchonii* [Degen] A. Terracc.)

minima (L.) Ker Gawl., Quart. J. Roy. Inst. 1: 180. 1816. (= *G. stellaris* Salisb., nom. superfl., *Ornithogalum minimum* L., *Ornithoxanthum minimum* [L.] Link, *Stellaris minima* [L.] Moench, *Stellaster minimus* [L.] Kuntze, *G. arvensis* Dumort., nom. superfl., *G. baumgarteniana* Schur, *G. callosa* [Kit.] Schult. & Schult. f., *G. sternbergii* [Hoppe] Sweet, *Ornithogalum acutipetalum* Herb. ex Schult. & Schult. f., *O. arvense* Pers., nom. superfl., *O. callosum* Kit., *O. gracile* K. G. Hagen, *O. minutum* Pall., *O. pannonicum* Chaix ex Vill., *O. proliferum* Pall., *O. sternbergii* Hoppe, *Ornithoxanthum arvense* Link, *O. gracile* [K. G. Hagen] Link, *O. sternbergii* [Hoppe] Link, *Stellaster arvensis* Kuntze, *G. callosa* var. *alpina* A. Terracc.)

pratensis (Pers.) Dumort., Fl. Belg.: 140. 1827. (= *Ornithogalum pratense* Pers., *Ornithoxanthum pratense* [Pers.] Link, *Stellaster pratensis* [Pers.] Kuntze, *G. bracteolaris* Salisb., nom. superfl., *G. stenopetala* subsp. *pratensis* [Pers.] K. Richt., *G. composita* Opiz, *G. equitans* Wallr., *Gagea gussonei* [A. Terracc.] Stroh, *Gagea polymorpha* F. W. Schultz, nom. illeg., *G. schreberi* Rchb., *G. stenopetala* [Fr.] Rchb., *G. succedanea* Griseb. & Schenk, *Ornithogalum exscapum* Schultz, nom. illeg., *O. glaucum* Dethard. ex Schult. & Schult. f., *O. intermedium* Schultz ex Schult. & Schult. f., *O. nudiscapum* Schultz, *O. schreberi* Rchb., *O. simplex* Becker, *O. stenopetalum* Fr., *G. pratensis* subsp. *gussonei* A. Terracc., *G. pratensis* subsp. *stenopetala* [Fr.] O. Schwarz, *G. stenopetala* subsp. *schreberi* [Rchb.] K. Richt.)

pusilla (F. W. Schmidt) Sweet, Hort. Brit.: 418. 1826. (= *Ornithogalum pusillum* F.W. Schmidt, *Ornithoxanthum pusillum* [F. W. Schmidt] Link, *Stellaster pusillus* [F. W. Schmidt] Kuntze, *G. clusiana* Schult. & Schult. f., nom. illeg., *G. pineticola* Klokov, *G. praeciosa* Klokov, *G. reflexa* Czern. ex Rchb., *G. tunicata* [J. Presl & C. Presl] Kretzer, *Ornithogalum marginatum* Pall., *O. podolicum* Besser ex Schult. & Schult. f., *O. trigonophyllum* Schult. & Schult. f., *O. tunicatum* J. Presl & C. Presl, *O. uniflorum* Zauschn., nom. illeg., *G. pusilla* var. *reflexa* [Czern. ex Rchb.] Nyman, *G. pineticola* f. *praeciosa* [Klokov] Levichev)

(CR2) **spathacea (Hayne) Salisb.**, Ann. Bot. (König & Sims) 2: 556. 1806. (= *Ornithogalum spathaceum* Hayne, *O. belgicum* Lej., *O. heynii* Roth, *Stellasterspathaceus* [Hayne] Kuntze, *Gagea belgica* [Lej.] Dumort., *G. spathacea* var. *transcarpatica* Domin), Milanović et al 2013.

villosa (M. Bieb.) Sweet, Hort. Brit.: 418. 1826. (= *Ornithogalum villosum* M. Bieb., *Ornithoxanthum villosum* [M. Bieb.] Link), Maslo 2014.

LILIUM TOURN. EX L., SP. PL.: 302. 1753. (= *LIRIUM* SCOP., NOM. ILLEG., *MARTAGON* [RCHB.] OPIZ, NOM. ILLEG., *MARTAGON WOLF*) – **LJILJAN (LILY)**

(LC1, DD2,o) **albanicum Griseb.**, Spic. Fl. Rumel. 2: 385. 1846. (= *L. carniolicum* subsp. *albanicum* [Griseb.] Hayek, *L. chalcidonicum* subsp. *albanicum* [Griseb.] K. Richt., *L. chalcidonicum* var. *albanicum* [Griseb.] Asch. & Graebn., *L. pyrenaicum* var. *albanicum* [Griseb.] V. A. Matthews).

(LC2,o) **bosniacum (Beck) R. M. Fritsch**, Mitt. Naturwiss. Vereines Steiermark 45: 163. 1909. (= *L. carniolicum* var. *bosniacum* Beck, *L. carniolicum* subsp. *bosniacum* [Beck] Asch. & Graebn., *L. pyrenaicum* var. *bosniacum* [Beck] V. A. Matthews)

(DD2) **bulbiferum L.**, Sp. Pl. 302. 1753. (= *L. atosanguineum* H. Vilm., *L. aurantiacum* Weston, *L. biligulatum* Baker, *L. croceum* Chaix, *L. elatum* Salisb., *L. fulgens* Baxter, *L. haematocroum* Lem., *L. humile* Mill., *L. lateritium* Baker, *L. latifolium* Link, *L. luteum* Gaterau, *L. pictum* Baker, *L. pubescens* Bernh. ex Hornem., *L. sanguineum* Lindl., *L. scabrum* Moench, *L. sibiricum* Willd., *L. bulbiferum* subsp. *croceum* [Chaix] Nyman, *L. bulbiferum* var. *aurantiacum* Regel, *L. bulbiferum* var. *chaixii* [Elwes] Stoker, *L. bulbiferum* var. *croceum* [Chaix] Pers., *L. bulbiferum* var. *giganteum* N. Terracc., *L. croceum* var. *chaixii* Elwes)

(NT1, cult.) **candidum L.**, Sp. Pl.: 302. 1753. (= *L. album* Houtt., *L. peregrinum* Mill., *L. striatum* Baker, des. inval., *L. candidum* subsp. *peregrinum* [Mill.] Baker, *L. candidum* var. *aureomarginatum* Elwes, *L. candidum* var. *cernuum* Weston, *L. candidum* var. *monstruosum* H. Vilm., *L. candidum* var. *peregrinum* [Mill.] Pers., *L. candidum* var. *plenum* Weston, *L. candidum* var. *purpureostriatum* Souillet, *L. candidum* var. *purpureum* Weston, *L. candidum* var. *rubrolineatum* H. Vilm., *L. candidum* var. *salonikae* Stoker, *L. candidum* var. *striatum* Baker, *L. candidum* var. *variegatum* Loudon, *L. candidum* f. *peregrinum* [Mill.] Voss, *L. candidum* f. *striatum* [Baker] Voss)

(DD2) **carniolicum Bernh. ex W. D. J. Koch**, Syn. Fl. Germ. Helv.: 708. 1837. (= *L. pyrenaicum* subsp. *carniolicum* [Bernh. ex W. D. J. Koch] V. A. Matthews, *L. pomponium* var. *carniolicum* [Bernh. ex W. D. J. Koch] Fiori)

(VU2,o) **cattaniae (Vis.) Vis.**, Mem. Reale Ist. Veneto Sci. 16: 64. 1871. (= *L. martagon* L. var. *martagon*, *L. martagon* subsp. *cattaniae* [Vis.] Nyman, *L. martagon* L. var. *cattaniae* Vis., *L. catanii* Baker, *L. dalmaticum* Vis., des. inval.)

(LC1) **martagon L.**, Sp. Pl.: 303. 1753.

STREPTOPUS MICHX, FL. BOR.-AMER. 1: 200. 1803.
(*HEKORIMA* KUNTH, *KRUHSEA* REGEL, *TORTIPES* SMALL)
– **Č E P N J A K (CLASPLEAF TWISTEDSTALK)**

(EN2) **amplexifolius (L.) DC.**, Lamarck & de Candolle, Fl. Franç., ed. 3, 3: 174. 1805. (= *Convallaria amplexifolia* [L.] E. H. L. Krause, *C. di-chotoma* Thibaud ex Pers., *Tortipes amplexifolius* [L.] Small, *Streptopus amplexifolius* var. *genuinus* Fassett, des. inval., *S. distortus* Michx., *S. fassettii* Á. Löve & D. Löve, *S. amplexifolius* subsp. *americanus* [Schult. & Schult. f.] Á. Löve & D. Löve, *S. amplexifolius* var. *americanus* Schult. & Schult. f., *S. amplexifolius* var. *chalcidatus* Fassett, *S. amplexifolius* var. *denticulatus* Fassett, *S. amplexifolius* var. *grandiflorus* Fassett, *S. amplexifolius* var. *oreopolus* Fassett, *S. amplexifolius* var. *papillatus* Ohwi, *S. amplexifolius* f. *indivisus* Lepage, *Uvularia amplexicaulis* Mill.)

TULIPA L., SP. PL.: 305. 1753. (= *EDUARDOREGELIA*
POPOV, *LIRIACIS* RAF., *LIRIOPOGON* RAF., *ORITHYIA*
D. DON, *PODONIX* RAF.) – **T U L I P A N (TULIP)**

(EN2) **grisebachiana Pant.**, Oesterr. Bot. Z. 23: 265. 1873. (= *T. sylvestris* L. subsp. *sylvestris*, *T. sylvestris* subsp. *grisebachiana* (Pant.) Hayek, *T. australis* subsp. *grisebachiana* /Pant./ Hayek)

(EN2) **sylvestris L.**, Sp. Pl. 305. 1753. (= *Lirio pogon sylvestre* [L.] Raf.)

ABBREVIATIONS AND SYMBOLS

(cult.) - cultivated

(o) - endemic

(CR) - critically endangered

(EN) - endangered

(VU) - vulnerable

(NT) - near threatened

(LC) - least concern

(DD) - data deficient

- Conservation status at the EU biogeographical level (IUCN 2019)
- Conservation status at Bosnia and Herzegovina according to Red List of Vascular Flora for the Federation of BiH (Đug et al. 2013) and the Republic of Srpska (2012).

REFERENCES

- APG, II. 2003. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG II. Bot J Linn Soc, 141: 399–436.
- APG, III. 2009. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants. APG III. Bot J Linn Soc, 161: 105–121.
- APG, IV. 2016. An update of the Angiosperm Phylogeny Group classification for the orders and families of flowering plants: APG IV. Bot J Linn Soc, 181: 1–20.
- Beck, M. G. 1903. Liliaceae (str. 199–215) u: Flora Bosne, Hercegovine i Novopazarskog Sandžaka, vol 1: Gymnospermae i Monocotyledones. (ed. Herman K.). GZM BH, Sarajevo.
- Beck, M. G. 1918. Violaceae (str. 189–204) u: Flora Bosne, Hercegovine i bivšeg sandžaka Novog Pazara (ed. Truhlenka Č.). Vol 2/8. Nastavak. GZM BH, Sarajevo.
- Bilz, M. 2011. *Fritillaria montana*. The IUCN Red List of Threatened Species 2011: e.T165151A5983026. <http://dx.doi.org/10.2305/IUCN.UK.2011-2.RLTS.T165151A5983026.en>. Downloaded on 10 September 2019.
- Chadburn, H. 2014. *Lilium candidum*. The IUCN Red List of Threatened Species 2014: e.T203356A2764337. Downloaded on 16 September 2019.
- Chadburn, H. 2014. *Lilium martagon*. The IUCN Red List of Threatened Species 2014: e.T201585A2708653. Downloaded on 16 September 2019.
- Chappuis, E. 2014. *Viola odorata*. The IUCN Red List of Threatened Species 2014: e.T203495A2766319. Downloaded on 06 September 2019.
- Crvena lista zaštićenih vrsta flore i faune Republike Srpske-Lista vaskularne flore, 2012. http://www.nasljedje.org/sr_RS/prirodno-nasljedje/biodiverzitet/202.
- Đug, S., Muratović, E., Drešković, N., Boškailo, A. & Dudević, S. 2013. Crvena lista flore Federacije BiH, knjiga 2. <https://www.fmoit.gov.ba/upload/file/okolis/Crvena%20lista%20Flore%20FBiH.pdf>
- Ericsson, S. & Kempainen, E. 2011. *Viola rupestris* subsp. *relicta*. The IUCN Red List of Threatened Species 2011: e.T162443A5591305. <http://dx.doi.org/10.2305/IUCN.UK.2011-1.RLTS.T162443A5591305.en>. Downloaded on 06 September 2019.
- Euro+Med, 2019. Euro+Med PlantBase - the information resource for Euro-Mediterranean plant diversity. Published on the Internet <http://www2.bgbm.org/EuroPlusMed/>. Downloaded on 06 September 2019.
- Hayek, A. - *Prodromus Florae peninsulae Balcanicae*, 1 - Repertorium Specierum Novarum Regni Vegetabilis Beihefte 30(1): 1–1193.
- Heywood, V. H. & Chater, A. O. 1980. Liliaceae in: Tutin T. G., Heywood V. H., Burges N. A., Moore D. M., Valentine D. H., Walters S. M., Webb D. A. (eds.) *Flora Europaea*, Cambridge University Press. 5: 14–74.
- IUCN, 2019. The IUCN Red List of Threatened Species. Version 2019-2. <http://www.iucnredlist.org>. Downloaded on 18 July 2019.
- Khela, S. 2012. *Viola arvensis*. The IUCN Red List of Threatened Species 2012: e.T203493A2766307. Downloaded on 06 September 2019.

- Khela, S. 2012. *Viola canina*. The IUCN Red List of Threatened Species 2012: e.T203494A2766313. Downloaded on 06 September 2019.
- Khela, S. 2012. *Viola tricolor*. The IUCN Red List of Threatened Species 2012: e.T203496A2766325. Downloaded on 06 September 2019.
- Koljanin, D., Milanović, Đ. & Stupar, V. 2021. New data on the distribution and threat status of three rare spring geophytes from Bosnia and Herzegovina. *Phytologica Balcanica* 27(1): 107-114.
- Kulteša, L. 2008. *Bosna i Hercegovina - zemlja raznolikosti* (Redžić, S., Barudanović, Radević M., eds.): Raznolikost vaskularne flore (Šoljan D., ed.). Federalno ministarstvo okoliša i turizma, Sarajevo.
- Kulteša, L. 1982. Horološka i ekološko-morfološka diferencijacija populacija agg. *Viola calcarata* L. na Dinaridima. Naučni skup Ekologija populacija, Izvodi radova, str. 32-33, Sarajevo.
- Kulteša, L. 1988-1992. In: Šoljan D. (ed.) Rod *Viola* L. na prostoru Bosne i Hercegovine. *Floristička istraživanja rodova: Viola L., Arabis L., Cardamine L. i Campanula L.*, Tema 2.1.2. u okviru projekta DC IV., SIŽ nauke SR BiH, Sarajevo.
- Kulteša, L. 2006-2007. Rod *Viola* L. In Redžić S., Radević M. (eds.) *Nacionalna strategija i akcioni plan za zaštitu biološke i pejzažne raznolikosti*. Federalno ministarstvo okoliša i turizma, Sarajevo.
- Lakušić, R. & Kutleša, L. 1971. Ekologija endemičnih oblika *Lilium bosniacum* Beck. i *L. albanicum* Grsb. *Ekologija* 6 (1): 93-104, Beograd.
- Lakušić, R., Kutleša, L. & Šiljak, S. 1977. *Biosistematska istraživanja nekih vrsta rodova Edraianthus, Viola i Leontopodium*. Elaborat Biol Ins. Univ u Sarajevu, Republički fond za naučni rad SR BiH.
- Lansdown, R.V., Shuka, L., Matevski, V. & Caković, D. 2018. *Lilium albanicum*. The IUCN Red List of Threatened Species 2018: e.T13142532A18614420. Downloaded on 16 September 2019.
- Lansdown, R.V. 2018. *Fritillaria messanensis*. The IUCN Red List of Threatened Species 2018: e.T13137294A18612925. <http://dx.doi.org/10.2305/IUCN.UK.2018-1.RLTS.T13137294A18612925.en>. Downloaded on 10 September 2019.
- Maiz-Tome, L. 2016. *Viola palustris*. The IUCN Red List of Threatened Species 2016: e.T64326289A67731242. <http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T64326289A67731242.en>. Downloaded on 06 September 2019.
- Maslo, S. 2014. The urban flora of the city of Mostar (Bosnia and Herzegovina). *Nat Croat Vol.* 23(1): 101-145.
- Maslo, S., Sarajlić, N. & Kotrošan, D. 2018. *Viola sororia* Willd. (Violaceae): nova strana vrsta u flori Bosne i Hercegovine. *Glas Hrvat bot druš* 6(2): 20-24.
- Milanović, Đ., Stupar, V. & Brujić, J. 2013. Novelities for vascular flora of Bosnia and Herzegovina. *Botanica Serbica*. 37 (2): (2013) 173-181.
- Muratović, E., Bogunić, F., Šoljan, D., Martín, J., Vallès, J. & Šiljak-Yakovlev, S. 2010c. Stomata and pollen grain characteristics of two endemic lilies: *Lilium bosniacum* and *L. carniolicum* (Liliaceae). *Phytologica Balcanica* 16(2): 285-292.
- Muratović, E., Bogunić, F., Šoljan, D. & Šiljak-Yakovlev, S. 2003. Molecular-cytogenetic differentiation between two endemic European lilies. Third International Balkan Botanical Congress, Sarajevo, Bosnia and Herzegovina, p. 321.
- Muratović, E., Bogunić, F., Šoljan, D. & Šiljak-Yakovlev, S. 2005a. Does *Lilium bosniacum* merit species rank? A classical and molecular-cytogenetic analysis. *Pl Syst Evol*, 252:97-109.
- Muratović, E., Hidalgo, O., Garnatje, T. & Šiljak-Yakovlev, S. 2010b. Molecular Phylogeny and Genome Size in European Lilies (Genus *Lilium*, Liliaceae). *Adv. Sci.Let.*, 3: 180-189.
- Muratović, E., Hidalgo, O., Garnatje, T., Bogunić, F., Pustahija, F. & Šiljak-Yakovlev, S. 2011. Molekularno-filogenetička studija eurposkih predstavnika roda *Lilium*. I simpozij genetičara u Bosni i Hercegovini, Sarajevo, Bosna i Hercegovina, p. 54.
- Muratović, E., Robin, O., Bogunić, F., Soljan, D. & Šiljak-Yakovlev, S. 2005b. Differentiation of Turk's cap lilies in Balkan region: molecular-cytogenetic approach. XVII International Botanical Congress, Vienna, Austria, p. 66.
- Muratović, E., Robin, O., Bogunić, F., Soljan, D., Solic, M. E. & Šiljak-Yakovlev, S. 2007. Molecular-cytogenetic differentiation of two Turk's-cap lilies: *L. martagon* and *L. cattaniae*, XII OPTIMA Meeting, Piza.
- Muratović, E., Robin, O., Bogunić, F., Soljan, D. & Šiljak-Yakovlev, S. 2008. Chromosome Evolution and speciation of European lilies from *Liriotypus* section. The fourth international conference: The Comparative Biology of the Monocotyledons- The fifth international symposium: Grass Systematic and Evolution, Copenhagen, Denmark, p. 87.
- Muratović, E., Robin, O., Bogunić, F., Šoljan, D. & Šiljak-Yakovlev, S. 2010a. Karyotype evolution and speciation of European lilies from *Lilium* sect. *Liriotypus*. - *Taxon*, 59: 165-175.
- Muratović, E., Robin, O., Bogunić, F., Soljan, D., Solic, M. E. & Šiljak-Yakovlev, S. 2006. 8 Chromosomes in some Species of Genus *Lilium*, IV Balkan Botanical Congress, Sofija, Bulgaria, p.187.
- Niketić, M., Cikovac, P., Barina, Z., Pifkó, D., Melovski, L., Duraki, Š. & Tomović, G. 2015. *Viola chelmea* and *Viola jooi* (Violaceae), new species for the flora of Serbia and their distribution in the Balkan peninsula and the Carpathians - Bulletin of the Natural History Museum of Belgrade 8: 49-74.
- POWO, 2019. Plants of the World Online. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; <http://www.plantsoftheworldonline.org/> Retrieved august 2019.
- Raab-Straube, E. von & Henning, T. 2018. Violaceae. - In: Euro+Med Plantbase - the information resource for Euro-Mediterranean plant diversity. Published on the Internet <http://ww2.bgbm.org/EuroPlusMed/>. Downloaded on July 22. 2019.
- Šiljak-Yakovlev, S., Pecennini, S., Muratović, E., Blanco, A., Redžić, S. & Valles, J. 2003a. Taille de génome et différenciation chromosomique dans quelques espèces méditerranéennes du genre *Lilium* L. *Bocconea*, vol. 16 (2): 697-702.
- Šiljak-Yakovlev, S., Pecennini, S., Muratović, E., Zoldos, V., Robin, O. & Vallès, J. 2003b. Chromosomal differentiation and genome size in three European mountain *Lilium* species. *Pl Syst Evol*, 236: 165-173.
- Tison, J.-M. 2016. *Gagea reverchonii*. The IUCN Red List of Threatened Species 2016: e.T89775699A89775743. <http://dx.doi.org/10.2305/IUCN.UK.2016-1.RLTS.T89775699A89775743.en>. Downloaded on 13 September 2019.
- Trinajstić, I. 1975. *Supplementum ad Floram analyticam Jugoslaviae* 3:6-8. Institutum botanicum Universitatis Zagrabienis. Zagreb.
- WCSP, 2019. 'World Checklist of Selected Plant Families. Facilitated by the Royal Botanic Gardens, Kew. Published on the Internet; <http://wcsp.science.kew.org>. Retrieved 25 September 2019.
- World Checklist of Selected Plant Families, 2010. The Board of Trustees of the Royal Botanic Gardens, Kew. Published on the Internet <http://www2.bgbm.org/EuroPlusMed/>. Downloaded on August 20. 2019.
- Zoldoš V., Biruš, I., Muratović, E., Šatović, Z., Vojta, A., Robin, O., Pustahija, F., Bogunić, F., Vičić-Bočkor, V. & Šiljak-Yakovlev, S. 2018. Epigenetic differentiation of natural populations of *Lilium bosniacum* associated with contrasting habitat conditions. *Genome Biol Evol*, 10(1):291-303. <https://doi.org/10.1093/gbe/evy010>