

# MISTLETOES (LORANTHACEAE JUSS.) AND THEIR PRELIMINARY DISTRIBUTION IN BOSNIA AND HERZEGOVINA

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Mistletoe is a hemi-parasitic flowering plant. There are five taxa (three genera) in Bosnia and Herzegovina, all of which are native. A wide range of woody species may be infected by mistletoe including some introduced trees. This study reviews the taxonomy, hosts, and distribution of mistletoe in Bosnia and Herzegovina. The hosts of the five mistletoe taxa in Bosnia and Herzegovina belong to 14 families, 26 genera and 58 taxa.

**Key words:** *Arceuthobium*, Bosnia and Herzegovina, distribution, hemiparasite, *Loranthus* mistletoes, *Viscum*

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Imele su poluparazitske cvjetnice. U Bosni i Hercegovini rasprostranjeno je pet autohtonih svojiti iz tri roda. Veliki broj drvenastih svojiti može biti zaražen imelama, uključujući i neke unesene svojite. U ovom radu daje se pregled taksonomije, domaćina i rasprostranjenosti imela u Bosni i Hercegovini. Domaćini pet svojiti imela u Bosni i Hercegovini su 58 svojiti drveća i grmlja iz 14 porodica i 26 rodova.

Ključne riječi: *Arceuthobium*, Bosna i Hercegovina, rasprostranjenost, poluparazit, imele *Loranthus*, *Viscum*

## INTRODUCTION

According to Uotila (2011), eight taxa from the Familia Loranthaceae occur in Europe, of which five grow in Bosnia and Herzegovina (*Arceuthobium oxycedri* (DC.) M. Bieb., *Loranthus europaeus* Jacq., *Viscum album* L. subsp. *album*, *Viscum album* subsp. *abietis* (Wiesb.) Janchen and *Viscum album* subsp. *austriacum* (Wiesb.) Vollm. Except for the dwarf mistletoe (with its explosive fruits), most mistletoe seeds are primarily dispersed by birds.

The genus *Arceuthobium* M. Bieb (dwarf mistletoes) includes 42 species which are parasitic on Pinaceae in the Old and New Worlds and on Cupressaceae in the Old World. Eight species are known in the Old World, from Spain and Morocco to the Himalayas of SW China, and 34 species occur in the New World (HAWKSWORTH & WIENS, 1996). In the flora of Europe, *Arceuthobium* is represented by only two species:

*Arceuthobium azoricum* Wiens & Hawksw. and *Arceuthobium oxycedri* (DC.) M. Bieb (Uotila, 2011).

Juniper dwarf mistletoe, *Arceuthobium oxycedri* (DC.) M. Bieb Fl. Taur.-Caucas. 3: 629. 1820, Homotypic synonyms: *Razoumofskyia oxycedri* (DC.) F. W. Schultz, *Viscum oxycedri* DC.

The juniper dwarf mistletoe has the most extensive geographic distribution within the genus *Arceuthobium*. It infects various trees and shrubs of the family Cupressaceae, mainly species of *Juniperus* L. (CIESLA *et al.*, 2004). It is distributed in southern Europe, northern Africa, via Asia Minor to the Himalayas. First reported for Bosnia and Herzegovina in 1891 by MURBECK (Buna and Žitomislići). In the area of Bosnia and Herzegovina *A. oxycedri* occurs exclusively on *Juniperus oxycedrus* L. subsp. *oxycedrus*.

The dwarf mistletoe is a hemiparasitic, evergreen, dioecious shrub. Leaves are scale-like, connate in pairs, sheathing the stem. Flowers are solitary or in pairs. Fruit is a green berry, dehiscing explosively as far as 10 m away. Any long-distance distribution is certainly by birds, pollination is mainly or entirely effected by insects (TURRILL, 1926).

The genus *Viscum* L. includes about 100 species, native in Africa, Australia, and Eurasia. In the flora of Europe, *Viscum* is represented by only two species: *Viscum album* L. and *Viscum cruciatum* Boiss. *V. cruciatum* is native only to the Iberian Peninsula. *V. album* is much more widespread, occurring across most of Europe and spreading eastwards well into Asia.

### **White mistletoe, *Viscum album* L. Sp. Pl.: 1023. 1753**

White mistletoe is a hemiparasitic, evergreen, dioecious shrub which in differing intensity occurs on numerous deciduous and coniferous tree species. Stems are branched, forming a globe which may reach up to 150 cm in diameter. White mistletoe is mainly pollinated by flies. The fruits mature in early winter and are spread by birds, in central Europe mainly by the mistle thrush (*Turdus viscivorus* L.) (KARLSSON, 2010). *V. album* is native in Europe and has a native range to South Scandinavia in the north (UOTILA, 2011). The European population is divided into four subspecies that have different hosts. Morphological differentiation of subspecies can only be done through characteristics of the ripe berry (ZUBER, 2004), but can be most easily differentiated according to the hosts: *Viscum album* L. subsp. *album*, growing on deciduous trees and shrubs; *Viscum album* subsp. *abietis* (Wiesb.) Janchen, growing on *Abies* sp.; *Viscum album* subsp. *austriacum* (Wiesb.) Vollm., growing on *Pinus* and rarely *Larix* sp. and *Picea* sp.; *Viscum album* subsp. *creticum* N.Bohling, Greuter, Raus, B.Snogerup, Snogerup & Zuber, growing on *Pinus brutia* Ten., exclusively from Crete. A detailed description of the species can be found in ZUBER (2004) and identification key in GRAZI & URECH (1981).

### ***Viscum album* L. subsp. *album*, Sp. Pl.: 1023. 1753**

This taxon is the most widespread subspecies of *V. album* in Europe and has been recorded from Greece in the south to Norway in the north. According to BARNEY *et al.* (1998), *V. album* subsp. *album* was observed as a parasite on 411 taxa. The occurrence of *V. album* subsp. *album* in Bosnia and Herzegovina has been reported in the literature for more than hundred years. It was first mentioned by Struschka (1880) who reported

it as growing on *Malus pumila* Mill. in Blagaj in Herzegovina and Hofmann (1882) who reported it for Banja Luka and Sarajevo without specifying the host. During the last century the species has been found in many other localities (Pichler, 1901; Schiller, 1903; Malý, 1904, 1908, 1910, 1912, 1919, 1923, 1928, 1933; Tubeuf, 1923; Ritter-Studnička, 1958).

***Viscum album* subsp. *abietis* (Wiesb.) Janchen, in Österr. Bot. Z. 91: 231. 1942**

According to Uotila (2011), *V. album* subsp. *abietis* has been recorded in most of Europe but is absent in Scandinavia and the British Isles. The occurrence of *V. album* subsp. *abietis* in Bosnia and Herzegovina has been reported in the literature for more than a hundred years. In Bosnia and Herzegovina, it occurs only on silver fir (*Abies alba* Mill.) and is one of the most significant biotic factors that has affected silver fir stands (Mujezinović *et al.*, 2013). It was first mentioned by Protić (1898) who reported it as growing on *Abies alba* near the village of Duboštica in the vicinity of Vareš and Zelengora Mt. (Protić, 1902). During the last century, the species has been found in a few other localities (Pichler, 1901; Malý, 1908, 1912; Tubeuf, 1923).

***Viscum album* subsp. *austriacum* (Wiesb.) Vollm., Fl. Bayern: 212. 1914**

Pine mistletoe is described as the most sensitive to low temperatures of the three central European mistletoe subspecies. It occurs almost exclusively on pine species. Norway spruce trees are very rarely infected, and only if they grow in pine forests (Tubeuf, 1923). The occurrence of pine mistletoe in Bosnia and Herzegovina has been reported in the literature for more than a hundred years. It was first mentioned by Pichler (1901) who reported it as growing on *Pinus nigra* Arnold. in Lastva near Trebinje and Vrtaljica near Konjic, as well as growing on *Pinus heldreichii* H. Christ in Porim near Rujšte. During the last century the species was found in a few other localities (Malý, 1912; Tubeuf, 1923; Ritter-Studnička, 1959). Pine mistletoe infection in Bosnia and Herzegovina is currently very high in the Neretva Valley in the vicinity of Konjic on Scots pine, as well as Austrian pine (Treštić & Mujezinović, 2015). Some authors consider the pine mistletoe a predisposing stress factor for pine mortality in Europe, as it affects water balance. According to Dobbertin & Rigling (2006), Scot pines infested with mistletoe in the Swiss Alps had mortality rates more than twice those of non-infested trees.

The genus *Loranthus* Jacq. includes about 500 species, mostly distributed in tropical and subtropical areas in the Old World (Paleotropis). *L. europaeus* is the only European species of that genus (Uotila, 2011).

**Yellow mistletoe, *Loranthus europaeus* Jacq., Enum. Stirp. Vindob.: 55. 1762.**

Yellow mistletoe is a spherical or slightly flaccid epiphyte, up to 150 cm across. It is a deciduous shrub with opposite branching, dull brown stems. Flowers are produced in May and June. Berry up to 10 mm in diameter, pyriform-globose, yellow. The fruits ripen in late autumn, and gradually fall off in late winter. In Europe, the mistle thrush (*Turdus viscivorus* L.) is the principal vector of yellow mistletoe. These birds migrate from Africa to Europe in late winter and during this period feed almost exclusively

on mistletoe berries (BARTHA, 2014). Yellow mistletoe has a wide distribution across central southern Europe and Asia-Minor (UOTILA, 2011). First reported for Bosnia and Herzegovina in 1888 by FREYN & BRANDIS (Travnik). During the last century the species has been found in many other localities (PICHLER, 1901; MALÝ, 1905, 1908, 1910, 1912, 1920, 1928; TUBEUF, 1923; RITTER-STUDNIČKA, 1958).

About the distribution of mistletoe in Bosnia and Herzegovina and of its hosts, there is a relatively large amount of data from older literature (ĐOKIĆ, 1899; PICHLER, 1901; TUBEUF, 1923; TURILL, 1926). However, these data are over 100 years old, so there was a need to supplement them with new data based on recent field research.

MATERIAL AND METHODS

The study was carried through field studies in Bosnia and Herzegovina conducted between 2010 and 2024, analysis of herbarium material deposited at the National Museum of Bosnia and Herzegovina SARA (THIERS, 2023), and literature data. Based on literature and herbarium data, as well as current field research, a list of all historical and current mistletoe finds in the territory of Bosnia and Herzegovina has been compiled (Appendix 1). The list includes precise localities with dates of observation or collection, as well as possible voucher numbers stored in the SARA herbarium. The list also includes WGS 1984 coordinates. Based on the aforementioned list, the first finds of all known hosts of *Viscum album* L. subsp. *album* and *Loranthus europaeus* are also listed (Tab. 1, Tab. 2). Digital photographs were taken in the field (Fig. 1, Fig. 2). The percentage of *V. album* L. subsp. *album* hosts, by family, is indicated in Fig. 3. The distribution of five taxa of mistletoes which are present in Bosnia and Herzegovina was mapped on a 10 × 10 sq. km area using the UTM grid system. On the map localities gathered from the literature are indicated by black symbols, while new data are indicated in red (Fig. 4). Plant names followed the Euro+Med Check List (EURO+MED, 2006). Two taxa, *Malus × zumi* (Matsum.) Rehder and *Salix × pendulina* Wender. were missing from the above database (marked with an asterisk (\*)); therefore, they were listed under Plants of the World Online (POWO, 2022).

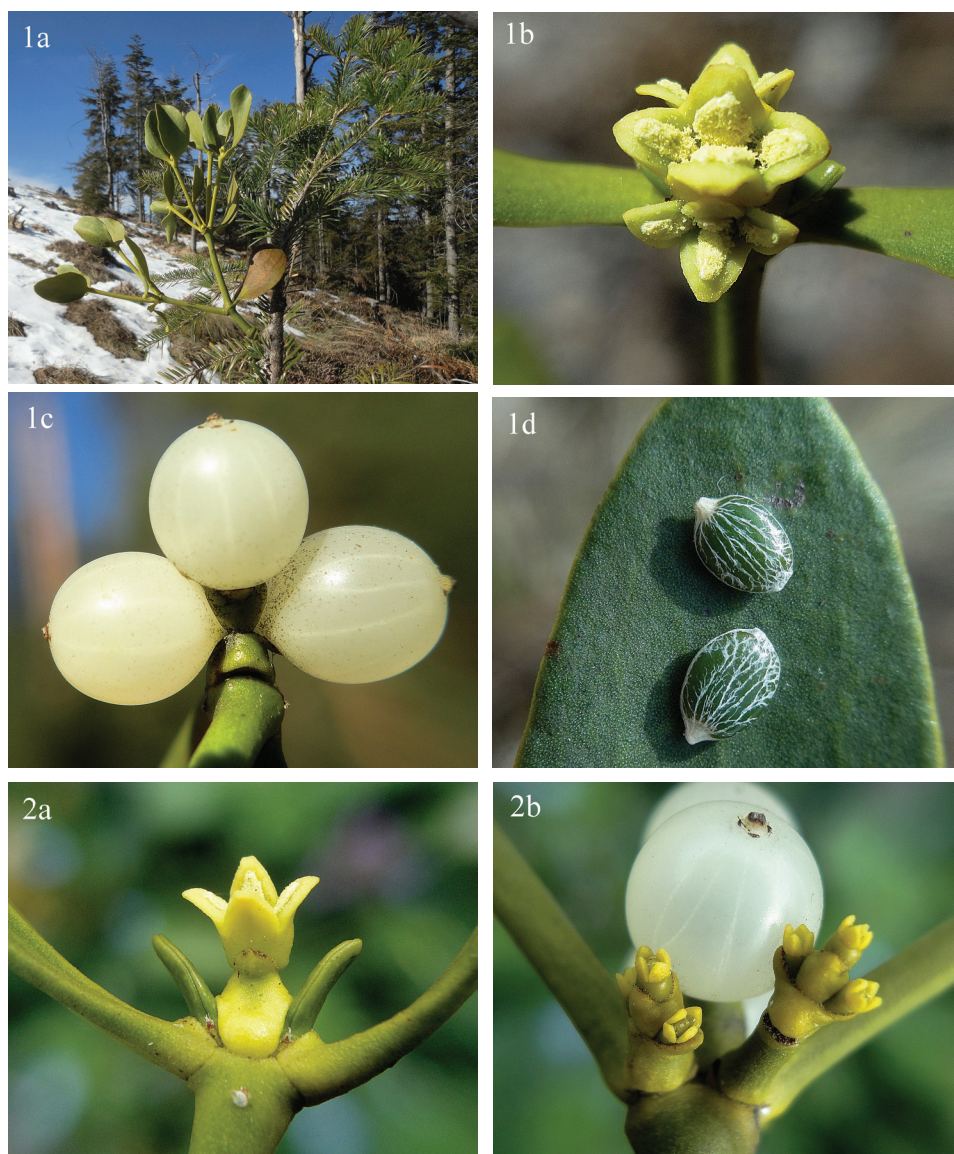
Tab. 1. Hosts of *Viscum album* L. subsp. *album* in Bosnia and Herzegovina (for more details see Appendix 1).

| Host                               | Family      | Non-native | 1st record/author                  |
|------------------------------------|-------------|------------|------------------------------------|
| <i>Acer campestre</i> L.           | Sapindaceae |            | Pichler 1901, Ljubuški             |
| <i>Acer heldreichii</i> Oroph.     | Sapindaceae |            | Treštić 2015, Vogošća              |
| <i>Acer monspessulanum</i> L.      | Sapindaceae |            | Pichler 1901, Goranci              |
| <i>Acer obtusatum</i> Willd.       | Sapindaceae |            | Malý 1908, Rujšte                  |
| <i>Acer platanoides</i> L.         | Sapindaceae |            | Treštić et al. 2012, Sarajevo      |
| <i>Acer pseudoplatanus</i> L.      | Sapindaceae |            | Pichler 1901, PorimMt.             |
| <i>Acer saccharinum</i> L.         | Sapindaceae | +          | Treštić et al. 2012, Sarajevo      |
| <i>Acer tataricum</i> L.           | Sapindaceae |            | Malý 1933, Rajlovac                |
| <i>Alnus glutinosa</i> (L.) Gaertn | Betulaceae  |            | Tubeuf 1923, Konjic                |
| <i>Betula pendula</i> Roth         | Betulaceae  |            | Tubeuf 1923, Cazin, Foča, Derventa |
| <i>Carpinus betulus</i> L.         | Corylaceae  |            | Tubeuf 1923, Bosanska Krupa        |
| <i>Cornus mas</i> L.               | Cornaceae   |            | Tubeuf 1923, Bosanska Krupa        |
| <i>Corylus avellana</i> L.         | Corylaceae  |            | Tubeuf 1923, Bosanska Krupa        |
| <i>Corylus colurna</i> L.          | Corylaceae  |            | Pichler 1901, Crna Gora Mt.        |
| <i>Crataegus monogyna</i> Jacq.    | Rosaceae    |            | Pichler 1901, PorimMt.             |

| Host                                                                  | Family       | Non-native | 1st record/author                    |
|-----------------------------------------------------------------------|--------------|------------|--------------------------------------|
| <i>Cydonia oblonga</i> Mill.                                          | Rosaceae     | +          | Malý 1928, Sarajevo                  |
| <i>Fagus sylvatica</i> L.                                             | Fagaceae     |            | Pichler 1901, Velež Mt.              |
| <i>Fraxinus excelsior</i> L.                                          | Oleaceae     |            | Pichler 1901, Blažuj                 |
| <i>Juglans regia</i> L.                                               | Juglandaceae | +          | Đokić 1899, Bosanski Novi            |
| <i>Malus pumila</i> Mill.                                             | Rosaceae     | +          | Formanek 1890, Ostrožac              |
| <i>Malus sylvestris</i> (L.) Mill.                                    | Rosaceae     |            | Treštić <i>et al.</i> 2012, Sarajevo |
| * <i>Malus</i> × <i>zumi</i> (Matsum.) Rehder                         | Rosaceae     | +          | Koševo, Sarajevo (this work)         |
| <i>Populus alba</i> L.                                                | Salicaceae   |            | Treštić <i>et al.</i> 2012, Sarajevo |
| <i>Populus nigra</i> L.                                               | Salicaceae   |            | Pichler 1901, Lisičići               |
| <i>Populus tremula</i> L.                                             | Salicaceae   |            | Malý 1912, Sarajevo                  |
| <i>Prunus avium</i> (L.) L.                                           | Rosaceae     |            | Pichler 1901, Ostrožac               |
| <i>Prunus.cerasifera</i> Ehrh                                         | Rosaceae     |            | Malý 1928, Sarajevo                  |
| <i>Prunus domestica</i> L. subsp. <i>domestica</i>                    | Rosaceae     | +          | Đokić 1899, Goražde                  |
| <i>Prunus domestica</i> subsp. <i>insititia</i> (L.) Bonnier & Layens | Rosaceae     | +          | Pichler 1901, Planinica Mostar       |
| <i>Prunus.mahaleb</i> L.                                              | Rosaceae     |            | Pichler 1901, Goranci                |
| <i>Prunus.spinosa</i> L.                                              | Rosaceae     |            | Pichler 1901, Bišina                 |
| <i>Pyrus.communis</i> L.                                              | Rosaceae     |            | Đokić 1899, Sarajevo                 |
| <i>Pyrus.spinosa</i> Forssk                                           | Rosaceae     |            | Pichler 1901, Planinica Mostar       |
| <i>Quercus.cerris</i> L.                                              | Fagaceae     |            | Pichler 1901, Klobuk                 |
| <i>Quercus.frainetto</i> Ten                                          | Fagaceae     |            | Pichler 1901, Gradnići               |
| <i>Quercus.pubescens</i> Willd.                                       | Fagaceae     |            | Pichler 1901, Bišina                 |
| <i>Quercus.robur</i> L.                                               | Fagaceae     |            | Malý 1928, Sarajevo                  |
| <i>Quercus.rubra</i> L.                                               | Fagaceae     | +          | Treštić, 2015, Sarajevo              |
| <i>Robinia.pseudoacacia</i> L.                                        | Fabaceae     | +          | Malý 1912, Sarajevo                  |
| <i>Rosa canina</i> L.                                                 | Rosaceae     |            | Malý 1928, Sarajevo                  |
| <i>Salix alba</i> L.                                                  | Salicaceae   |            | Pichler 1901, Konjic                 |
| <i>Salix caprea</i> L.                                                | Salicaceae   |            | Kopijari, Vareš                      |
| <i>Salix</i> × <i>fragilis</i> L.                                     | Salicaceae   | +          | Malý 1908b, Trebević                 |
| * <i>Salix</i> × <i>pendulina</i> Wender.                             | Salicaceae   | +          | Treštić <i>et al.</i> 2012, Sarajevo |
| <i>Sambucus nigra</i> L.                                              | Viburnaceae  |            | Tubeuf 1923, Kladanj                 |
| <i>Sorbus aria</i> (L.) Crantz                                        | Rosaceae     |            | Pichler 1901, VeležMt.               |
| <i>Sorbus aucuparia</i> L.                                            | Rosaceae     |            | Pichler 1901, Prozor                 |
| <i>Sorbus torminalis</i> (L.) Crantz                                  | Rosaceae     |            | Freyn & Brandis 1888, Crna Gora Mt.  |
| <i>Tilia cordata</i> Mill.                                            | Malvaceae    |            | Pichler 1901, Pazarić                |
| <i>Tilia platyphyllos</i> Scop.                                       | Malvaceae    |            | Đokić 1899, Banja Luka               |
| <i>Tilia tomentosa</i> Moench                                         | Malvaceae    |            | Malý 1908, Banja Luka                |

Tab. 2. Hosts of *Loranthus europaeus* in Bosnia and Herzegovina (for more details see Appendix 1).

| Host                                  | Family   | 1st record/author                     |
|---------------------------------------|----------|---------------------------------------|
| <i>Castanea sativa</i> Mill.          | Fagaceae | Malý 1920, Bijela valley near Konjic. |
| <i>Quercus cerris</i> L.              | Fagaceae | Tubeuf 1923, Mostar, Trebinje         |
| <i>Quercus frainetto</i> Ten          | Fagaceae | Malý 1905, Domanovići                 |
| <i>Quercus petraea</i> (Matt.) Liebl. | Fagaceae | Tubeuf 1923, Trebinje                 |
| <i>Quercus pubescens</i> Willd.       | Fagaceae | Pichler 1901, Krehin Gradac, Stolac   |
| <i>Quercus robur</i> L.               | Fagaceae | Banovići, 2017 (this work)            |



**Fig. 1.** *Viscum album* subsp. *abietis* (Wiesb.) Janchen, Bosnia, Zvijezda Vareš. 1a whole plant, 1b male flowers, 1c fruits, 1d seeds and *Viscum album* L. subsp. *album*, Bosnia, Maglaj. 2a male flower, 2b fruits and female flowers (Photos by Š. Šarić).



**Fig. 2.** *Viscum album* L. subsp. *austriacum* (Wiesb.) Vollm., Herzegovina, Glavatičevo. 3a whole plant, 3b habitat *Loranthus europaeus* Jacq., Bosnia, Olovo. 4a flowers, 4b fruits *Arceuthobium oxycedri* (DC.) M. Bieb., Herzegovina, Neum-Klek. 5a habitat, 5b whole plant (Photos 3a, b and 5a, b by S. Maslo, photos 4a, b by Š. Šarić).

## RESULTS AND DISCUSSION

The distribution of mistletoe species in Bosnia and Herzegovina is uneven, but the absence of mistletoe in SW Bosnia and Herzegovina is noticeable. There are no literature data on the presence of mistletoe on the slopes of Mt Dinara, nor on Livanjsko Polje in general, although the host plants are present in the mentioned area. This can be explained by the fact that the area of SW Bosnia is among the regions of Bosnia and Herzegovina that have been poorly botanically explored. In the Herbarium of the National Museum of Bosnia and Herzegovina (SARA), only 44 specimens of mistletoe were stored (nine specimens of *Arceuthobium oxycedri*, twelve specimens of *Loranthus europaeus*, ten specimens of *Viscum album* subsp. *abietis*, nine specimens of *V. album* subsp. *album*, and four specimens of *V. album* subsp. *austriacum*). After our detailed field research, however, we were able to establish that mistletoe is in reality much more widespread in Bosnia and Herzegovina, which can be concluded from previous data from herbarium collections and from the literature (Fig. 4, Appendix 1).

*A. oxycedri* has limited distribution in Bosnia and Herzegovina; its habitats are located only in the Mediterranean part of the country, in fragmented populations, where it follows the range of its host, *Juniperus oxycedrus* L. It is currently known only from ten grid-cell quadrants in Bosnia and Herzegovina (17 localities, of which 8 are new as well as confirmed, see Appendix 1, Fig. 4). During the last century, the species has been found only in a few other localities: Tasovčići, Trebižat and Gradac near Neum (FIALA, 1896), Kručevići (MALÝ, 1900), Hotanj-Počitelj and Čitluk (PICHLER, 1901), Hutovo (MALÝ, 1912), Dubrava Forest near Stolac (TURRILL, 1926), Neum-Klek (KUTLEŠA & LAKUŠIĆ, 1964). During our field investigations in the southern part of the Neretva valley we were able to confirm some of the localities (Žitomislići, Počitelj, Neum-Klek), and even record three new sites (Mostar, Blagaj and Hutovo Blato).

*V. album* subsp. *abietis* is the taxon with the second widest distribution in Bosnia and Herzegovina but is found only in the continental part of the country, where it follows the range of its host, *Abies alba* Mill. It is currently known from 55 grid-cell quadrants in Bosnia and Herzegovina, with the most numerous populations in the area of Central Bosnia (69 localities, 28 of which are new as well as those confirmed, see Appendix 1, Fig. 4).

*V. album* subsp. *album* is the sub-species with the widest general distribution and has the widest distribution in Bosnia and Herzegovina. It is found in the continental as well as the Mediterranean part of the country. It is currently known from 70 grid-cell quadrants in Bosnia and Herzegovina (208 localities, 85 of which are new as well as the confirmed, see Appendix 1, Fig. 4). In Bosnia and Herzegovina, it occurred on 51 taxa (40 autochthonous and 8 allochthonous, and three hybrids) (Tab.1). The hosts belong to 12 families (Fig. 3). Most of them (17 taxa) were from the Rosaceae family. Then followed Sapindaceae (eight taxa), Salicaceae (seven taxa), and Fagaceae (six taxa). Commonly infested genera are: *Acer* (8 taxa), *Prunus* (6 taxa), *Quercus* (5 taxa), *Salix* (4 taxa), *Malus* (3 taxa), *Populus* (3 taxa), *Sorbus* (3 taxa), and *Tilia* (3 taxa). All hosts found in Bosnia and Herzegovina have been previously reported, except *Malus* × *zumi*, and *Salix caprea*. In the continental part of the country, the taxon is most often recorded on *Malus pumila* (33 records) and *Pyrus communis* (30 records), while in Mediterranean Herzegovina it is mostly recorded on *Prunus mahaleb* (10 records) as well as on some oak species (*Quercus cerris*, *Q. frainetto* and *Q. pubescens*) (for more details see Appendix 1).

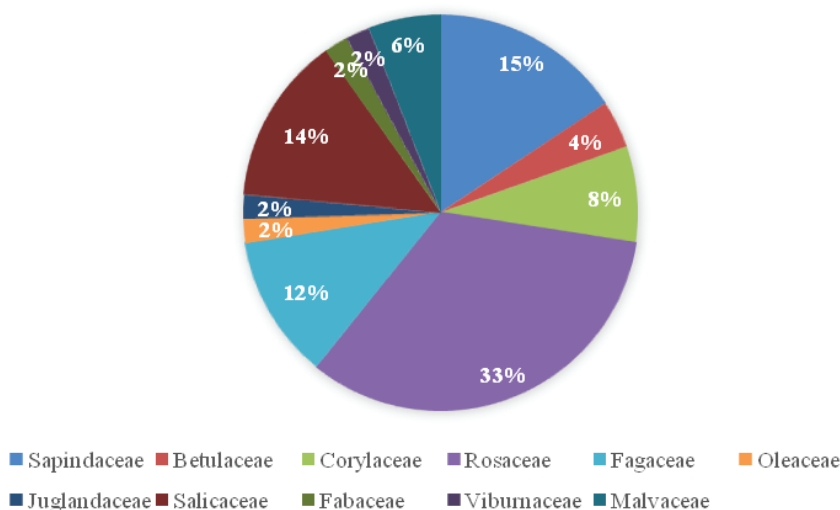


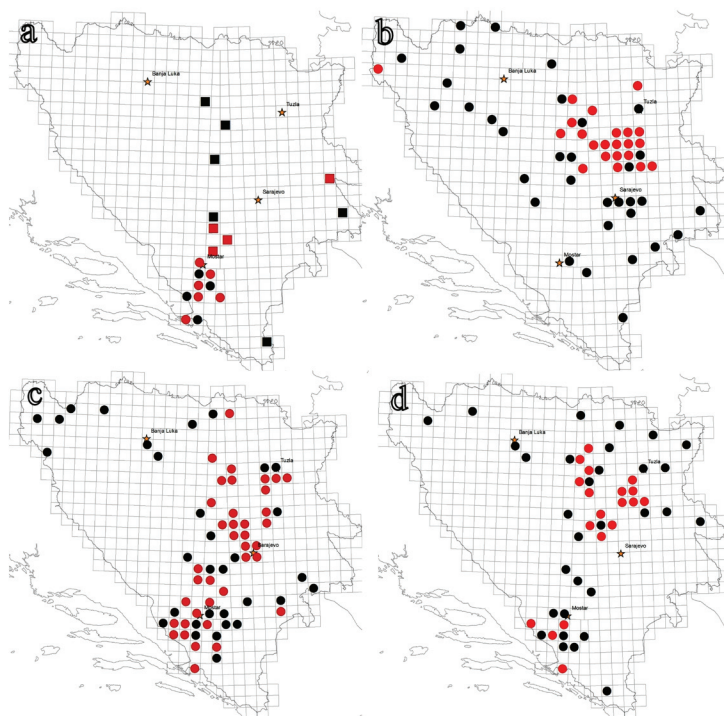
Fig. 3. Percentage of *Viscum album* L. subsp. *album* hosts, according to families.

### *V. album* subsp. *austriacum*

The pine mistletoe has been recorded in natural habitats as well as pine cultures in Bosnia and Herzegovina. Pine forests mainly occur in xerothermic habitats in central Bosnia and eastern Herzegovina. The most pine trees infested with pine mistletoe were recorded in central Bosnia and in the upper reaches of the Neretva River in the vicinity of Konjic. Just recently, there was a noticeable increase in the intensity of infestation of Austrian and Scots pine in Southeast Herzegovina (TREŠTIĆ & MUJEZINOVIĆ, 2015). It is currently known from ten grid-cell quadrants in Bosnia and Herzegovina (12 localities, 4 of which are new as well as the confirmed, see Appendix 1, Fig. 4).

*L. europaeus* is distributed in Bosnia and Herzegovina both in the continental and in the Mediterranean part of the country, from Bosanska Posavina in the north to Neum and Trebinje in the south. In the continental part of the country, the species grows mostly in natural forests of sessile oak and pedunculate oak, while in the Mediterranean part of the country it is mostly recorded on downy oak and Hungarian oak. It was found on six host species, of which five are oaks and the sixth is the sweet chestnut, which all belong to the Fagaceae family (Tab. 2). It was found on all five indigenous deciduous oak species in Bosnia and Herzegovina: *Quercus cerris* L., *Q. frainetto* Ten., *Q. petraea* (Matt.) Liebl., *Q. pubescens* Willd., and *Q. robur* L. It is currently known from 50 grid-cell quadrants in Bosnia and Herzegovina (61 localities, 25 of which are new as well as the confirmed, see Appendix 1, Fig. 4).

The biggest negative impact made by mistletoe in Bosnia and Herzegovina was recorded in *V. album* subsp. *abietis* and *V. album* subsp. *austriacum*, which are the main destabilising factors in the trees of silver fir as well as trees of Austrian pine and Scots pine in BiH (MUJEZINOVIĆ *et al.*, 2013; TREŠTIĆ & MUJEZINOVIĆ, 2015). The yellow mistletoe also has a significant negative impact, leading to the withering and death of the sessile oak stands in the continental part of the country (TREŠTIĆ *et al.*, 2006). On the other hand, *V. album* subsp. *album* does not have a large negative economic impact



**Fig. 4.** The distribution of mistletoe species in Bosnia and Herzegovina (black symbols literature records, red symbols new as well as confirmed records). a. *Arceuthobium oxycedri* (circles), *Viscum album* subsp. *austriacum* (squares) b. *Viscum album* subsp. *abietis* c. *Viscum album* subsp. *album* d. *Loranthus europaeus*.

in Bosnia and Herzegovina, nor does the dwarf mistletoe, which is a rare plant that grows on juniper trees only in southern Herzegovina.

The updated herbarium and field data presented here not only fill significant gaps in the known distributions of these mistletoe taxa, but also illustrate the urgency for the reassessment of mistletoe impact in current environmental conditions. Several taxa show patterns of expansion, possibly linked to changing climate or host dynamics. Furthermore, the discovery of numerous new localities for almost all taxa suggests that mistletoe biodiversity in Bosnia and Herzegovina has historically been underestimated.

Future work should prioritize ongoing monitoring of mistletoe-host interactions, especially in forest management zones where economically or ecologically important tree species are involved. More intensive study in poorly explored regions like SW Bosnia could uncover additional populations and clarify whether the observed absences reflect true distributional limits or research gaps. The data also provide a foundation for cross-border comparison with neighboring countries, which could help elucidate broader biogeographical trends in the Balkan Peninsula.

In sum, this study strengthens the baseline knowledge of mistletoe ecology in Bosnia and Herzegovina, offering valuable implications for conservation, forest health monitoring, and botanical documentation efforts.

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# Appendix 1. Georeferenced data on the distribution of mistletoes in Bosnia and Herzegovina (new as well as confirmed localities are marked in bold).

| Taxon                        | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number)                             | WGS coordinates              | Altitude | UTM quadrant |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------|----------|--------------|
| <i>Arceuthobium oxycedri</i> | <b>1 Lit: Buna, Murbeck 1891, Obs: Maslo 20.04.2024.</b>                                                                                         | 43°14'27"N<br>17°50'07"E     | 40 m     | YH39         |
| <i>Arceuthobium oxycedri</i> | <b>2 Lit: Žitomislići, Murbeck 1891, Obs: Maslo 20.04.2024.</b>                                                                                  | 43°11'24"N<br>17°46'51"E     | 40 m     | YH28         |
| <i>Arceuthobium oxycedri</i> | 3 Lit: Tasovčići, Fiala 1899, Pichler 1901.                                                                                                      | 43°06'44"N<br>17°43'20"E     | 41 m     | YH27         |
| <i>Arceuthobium oxycedri</i> | 4 <b>Lit:</b> Trebižat, Fiala 1899, Pichler 1901.                                                                                                | 43°07'28"N<br>17°41'15"E     | 104 m    | YH17         |
| <i>Arceuthobium oxycedri</i> | 5 <b>Lit:</b> Gradac near Neum, Fiala 1899, Pichler 1901, <b>Herb:</b> leg. Fiala 31.03. 1895 (SARA 08478, SARA 08483).                          | 42°57'03"N<br>17°43'15"E     | 122 m    | YH25         |
| <i>Arceuthobium oxycedri</i> | 6 <b>Lit:</b> Kručevići, Malý 1900, <b>Herb:</b> leg. Reiser 30.11. 1899 (SARA 08484).                                                           | 43°10'24"N<br>17°45'31"E     | 175 m    | YH28         |
| <i>Arceuthobium oxycedri</i> | <b>7 Lit: Mostar, Pichler 1901, Maslo 2014, Obs: Maslo 20.04.2024</b>                                                                            | 43°20'10"N<br>17°48'39"E     | 77 m     | YJ20         |
| <i>Arceuthobium oxycedri</i> | 8 <b>Lit:</b> Hotanj Čapljina, Pichler 1901, Malý 1910.                                                                                          | 43°06'39"N<br>17°45'01"E     | 118 m    | YH27         |
| <i>Arceuthobium oxycedri</i> | 9 <b>Lit:</b> Čitluk, Pichler 1901.                                                                                                              | 43°15'40"N<br>17°43'06"E     | 407 m    | YH29         |
| <i>Arceuthobium oxycedri</i> | <b>10 Herb: Vranjevo Selo near Neum, leg. Reiser 15.06. 1907 (SARA 08490), Obs: Maslo 30.04.2024.</b>                                            | 42°55'28"N<br>17°38'15"E     | 131 m    | YH15         |
| <i>Arceuthobium oxycedri</i> | 11 <b>Herb:</b> Hodovo near Stolac, leg. Reiser 15.12. 1909 (SARA 08476).                                                                        | 43°09'17"N<br>17°56'08"E     | 500 m    | YH38         |
| <i>Arceuthobium oxycedri</i> | 12 <b>Lit:</b> Gradina near Hutovo, Malý 1912, <b>Herb:</b> leg. Malý 17.03.1912 (SARA 08475, SARA 8479).                                        | 42°56'02"N<br>17°46'50"E     | 500 m    | YH25         |
| <i>Arceuthobium oxycedri</i> | <b>13 Lit: Neum, Klek, Kutleša &amp; Lakušić 1964, Herb: leg. Reiser 10.11. 1910 (SARA 08477), Obs: Maslo 30.04.2016</b>                         | 42°54'40.7"N<br>17°37'42.7"E | 39 m     | YH15         |
| <i>Arceuthobium oxycedri</i> | 14 <b>Herb:</b> Selo Duži near Neum, leg. Šilić 14.10. 1967 (SARA 08482).                                                                        | 42°54'59"N<br>17°40'09"E     | 115 m    | YH15         |
| <i>Arceuthobium oxycedri</i> | <b>15 Lit: Blagaj, Maslo &amp; Abadžić 2015, Obs: Maslo 20.04.2024.</b>                                                                          | 43°15'24.1"N<br>17°54'07.1"E | 61 m     | YH39         |
| <i>Arceuthobium oxycedri</i> | <b>16 Lit: Počitelj, Maslo &amp; Boškailo 2017, Obs: Maslo 20.04.2024.</b>                                                                       | 43°08'01.1"N<br>17°43'52.2"E | 27 m     | YH27         |
| <i>Arceuthobium oxycedri</i> | <b>17 Lit: Stolac, Šilić &amp; al. 2023, Obs: Maslo 20.04.2024.</b>                                                                              | 43°04'53"N<br>17°57'24"E     | 96 m     | YH47         |
| <i>Loranthus europaeus</i>   | 1 <b>Lit:</b> Kručica & Mačak, Travnik, Freyn & Brandis 1888, Pichler 1901, <b>Herb:</b> leg. Brandis 1885 (SARA 08464, SARA 08473, SARA 08474). | 44°08'03"N<br>17°47'29"E     | 437 m    | YJ29         |
| <i>Loranthus europaeus</i>   | 2 <b>Herb:</b> Fojnica leg. Schwarz 06.1893 (SARA 08472).                                                                                        | 43°57'32"N<br>17°53'43"E     | 665 m    | YJ37         |
| <i>Loranthus europaeus</i>   | 3 <b>Lit:</b> Krehin Gradac Čitluk, Pichler 1901.                                                                                                | 43°12'56"N<br>17°43'21"E     | 259 m    | YH28         |
| <i>Loranthus europaeus</i>   | 4 <b>Lit:</b> Ljubljena Stolac, Pichler 1901.                                                                                                    | 43°08'48"N<br>17°57'51"E     | 615 m    | YH48         |

| Taxon                      | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number)    | WGS coordinates          | Altitude | UTM quadrant |
|----------------------------|-------------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Loranthus europaeus</i> | 5 <b>Lit:</b> Široki Brijeg, Pichler 1901.                                                                              | 43°23'05"N<br>17°36'00"E | 327 m    | YJ10         |
| <i>Loranthus europaeus</i> | 6 <b>Lit:</b> Kruševo, Pichler 1901, <b>Obs:</b> Maslo 20.04.2017.                                                      | 43°17'09"N<br>17°45'06"E | 300 m    | YH29         |
| <i>Loranthus europaeus</i> | 7 <b>Lit:</b> Dubrave Domanovići, Pichler 1901, Malý 1912, Tubeuf 1923, <b>Herb:</b> leg. Malý 22.04.1905 (SARA 08471). | 43°05'54"N<br>17°53'44"E | 278 m    | YH37         |
| <i>Loranthus europaeus</i> | 8 <b>Lit:</b> Stolice, Majeveca Mt., Malý 1908, <b>Herb:</b> leg. Reiser 29.06.1906 (SARA 08470).                       | 44°31'20"N<br>18°53'38"E | 900 m    | CQ33         |
| <i>Loranthus europaeus</i> | 9 <b>Lit:</b> Hotanj Čapljina, Malý 1910.                                                                               | 43°06'39"N<br>17°45'01"E | 118 m    | YH27         |
| <i>Loranthus europaeus</i> | 10 <b>Lit:</b> Trstionica, Kraljeva Sutjeska, Malý 1912, <b>Herb:</b> leg. Malý 08.09.1911 (SARA 08469).                | 44°05'53"N<br>18°09'19"E | 490 m    | BP78         |
| <i>Loranthus europaeus</i> | 11 <b>Herb:</b> Hutovo Blato, leg. Apfelbeck 01.12.1913 (SARA 08468).                                                   | 43°04'14"N<br>17°48'11"E | 24 m     | YH27         |
| <i>Loranthus europaeus</i> | 12 <b>Lit:</b> Bijela Valley near Konjic, Malý 1920.                                                                    | 43°36'52"N<br>17°57'17"E | 424 m    | YJ33         |
| <i>Loranthus europaeus</i> | 13 <b>Lit:</b> Banja Luka, Tubeuf 1923.                                                                                 | 44°45'08"N<br>17°11'22"E | 220 m    | XK75         |
| <i>Loranthus europaeus</i> | 14 <b>Lit:</b> Bijeljina, Tubeuf 1923.                                                                                  | 44°44'38"N<br>19°10'54"E | 89 m     | CQ55         |
| <i>Loranthus europaeus</i> | 15 <b>Lit:</b> Brčko, Tubeuf 1923.                                                                                      | 44°49'53"N<br>18°46'15"E | 111 m    | CQ26         |
| <i>Loranthus europaeus</i> | 16 <b>Lit:</b> Derventa, Tubeuf 1923.                                                                                   | 44°57'40"N<br>17°55'18"E | 189 m    | YK38         |
| <i>Loranthus europaeus</i> | 17 <b>Lit:</b> Gračanica, Tubeuf 1923.                                                                                  | 44°41'32"N<br>18°18'50"E | 294 m    | BQ85         |
| <i>Loranthus europaeus</i> | 18 <b>Lit:</b> Gradačac, Tubeuf 1923.                                                                                   | 44°52'58"N<br>18°27'02"E | 193 m    | BQ97         |
| <i>Loranthus europaeus</i> | 19 <b>Lit:</b> Ljubuški, Tubeuf 1923.                                                                                   | 43°11'45"N<br>17°34'06"E | 207 m    | YH08         |
| <i>Loranthus europaeus</i> | 20 <b>Lit:</b> Kotor Varoš, Tubeuf 1923.                                                                                | 44°36'05"N<br>17°22'27"E | 569 m    | XK84         |
| <i>Loranthus europaeus</i> | 21 <b>Lit:</b> Kladanj, Tubeuf 1923.                                                                                    | 44°13'34"N<br>18°42'11"E | 638 m    | CP19         |
| <i>Loranthus europaeus</i> | 22 <b>Lit:</b> Bosanska Krupa, Tubeuf 1923.                                                                             | 44°53'23"N<br>16°09'50"E | 222 m    | WK97         |
| <i>Loranthus europaeus</i> | 23 <b>Lit:</b> Maglaj, Tubeuf 1923.                                                                                     | 44°33'04"N<br>18°06'27"E | 253 m    | BQ73         |
| <i>Loranthus europaeus</i> | 24 <b>Lit:</b> Mostar, Tubeuf 1923.                                                                                     | 43°20'24"N<br>17°47'18"E | 115 m    | YJ20         |
| <i>Loranthus europaeus</i> | 25 <b>Lit:</b> Prijedor, Tubeuf 1923.                                                                                   | 44°59'22"N<br>16°40'04"E | 147 m    | XK38         |
| <i>Loranthus europaeus</i> | 26 <b>Lit:</b> Srebrenica, Tubeuf 1923.                                                                                 | 44°06'37"N<br>19°17'29"E | 432 m    | CP68         |
| <i>Loranthus europaeus</i> | 27 <b>Lit:</b> Tešanj, Tubeuf 1923.                                                                                     | 44°34'37"N<br>17°58'52"E | 345 m    | YK34         |
| <i>Loranthus europaeus</i> | 28 <b>Lit:</b> Teslić, Tubeuf 1923.                                                                                     | 44°36'20"N<br>17°52'20"E | 236 m    | YK24         |
| <i>Loranthus europaeus</i> | 29 <b>Lit:</b> Trebinje, Tubeuf 1923.                                                                                   | 42°42'49"N<br>18°17'05"E | 287 m    | BN73         |

| Taxon                      | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number)     | WGS coordinates          | Altitude | UTM quadrant |
|----------------------------|--------------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Loranthus europaeus</i> | 30 <b>Lit:</b> Tuzla, Tubeuf 1923.                                                                                       | 44°33'15"N<br>18°42'11"E | 438 m    | CQ13         |
| <i>Loranthus europaeus</i> | 31 <b>Lit:</b> Vlasenica, Tubeuf 1923.                                                                                   | 44°10'29"N<br>18°57'19"E | 728 m    | CP39         |
| <i>Loranthus europaeus</i> | 32 <b>Lit:</b> Žepče, Tubeuf 1923, <b>Herb:</b> leg. Ritter-Studnička 28.07.1957 (SARA 49150).                           | 44°25'57"N<br>18°01'37"E | 307 m    | BQ62         |
| <i>Loranthus europaeus</i> | 33 <b>Lit:</b> Stipin Han, Malý 1928.                                                                                    | 44°18'58"N<br>18°25'01"E | 354 m    | BQ91         |
| <i>Loranthus europaeus</i> | 34 <b>Lit:</b> Bivolje Brdo, Malý 1928.                                                                                  | 43°09'01"N<br>17°47'02"E | 212 m    | YH28         |
| <i>Loranthus europaeus</i> | 35 <b>Herb:</b> Šuplja Stijena (Kondžilo) Visoko, leg. Plavšić 03.06.1939 (SARA 08467).                                  | 44°03'45"N<br>18°02'08"E | 619 m    | BP68         |
| <i>Loranthus europaeus</i> | 36 <b>Lit:</b> Seonica near Ostrožac, Ritter-Studnička 1958, <b>Herb:</b> leg. Ritter-Studnička 24.05.1955 (SARA 08466). | 43°44'37"N<br>17°50'31"E | 465 m    | YJ24         |
| <i>Loranthus europaeus</i> | 37 <b>Herb:</b> The slopes of Košuta above Šištica, Prenj Mt., leg. Šilić 29.05.1970 (SARA 08465).                       | 43°32'44"N<br>18°03'44"E | 471 m    | BN62         |
| <i>Loranthus europaeus</i> | 38 Blatnica, Čitluk, Obs: Maslo 20.04.2017.                                                                              | 43°15'40"N<br>17°43'06"E | 407 m    | YH29         |
| <i>Loranthus europaeus</i> | 39 Broćanac, Neum, Obs: Maslo 20.04.2023.                                                                                | 42°57'11"N<br>17°44'52"E | 223 m    | YH25         |
| <i>Loranthus europaeus</i> | 40 Međugorje, Obs: Maslo 20.04.2023.                                                                                     | 43°11'17"N<br>17°38'49"E | 145 m    | YH18         |
| <i>Loranthus europaeus</i> | 41 Tihaljina, Obs: Maslo 22.04.2023.                                                                                     | 43°18'41"N<br>17°23'38"E | 169 m    | XH99         |
| <i>Loranthus europaeus</i> | 42 <b>Lit:</b> Stolac, Šilić & al. 2023                                                                                  | 43°04'53"N<br>17°57'24"E | 96 m     | YH47         |
| <i>Loranthus europaeus</i> | 43 Gornja Breza, Obs: Šarić 30.04.2017.                                                                                  | 44°02'25"N<br>18°14'44"E | 703 m    | BP77         |
| <i>Loranthus europaeus</i> | 44 Tešanjka Tešanj, Obs: Šarić 20.10.2015.                                                                               | 44°40'35"N<br>18°01'20"E | 215 m    | BQ65         |
| <i>Loranthus europaeus</i> | 45 Mekiš Tešanj, Obs: Šarić 20.10.2015.                                                                                  | 44°34'37"N<br>17°58'52"E | 345 m    | YK34         |
| <i>Loranthus europaeus</i> | 46 Maglaj Jablanica, Obs: Šarić 30.10.2018.                                                                              | 44°33'03"N<br>18°09'47"E | 455 m    | BQ63         |
| <i>Loranthus europaeus</i> | 47 Oskova Banovići, Obs: Šarić 16.04.2019.                                                                               | 44°24'37"N<br>18°33'14"E | 350 m    | CQ02         |
| <i>Loranthus europaeus</i> | 48 Pepelari Zenica, Obs: Šarić 16.04.2011.                                                                               | 44°18'05"N<br>18°02'07"E | 640 m    | BQ61         |
| <i>Loranthus europaeus</i> | 49 Kamensko Olovo, Obs: Šarić 13.09.2014.                                                                                | 44°14'45"N<br>18°27'14"E | 815 m    | BQ90         |
| <i>Loranthus europaeus</i> | 50 Rijeka Olovo, Obs: Šarić 13.09.2014.                                                                                  | 44°23'03"N<br>18°30'59"E | 455 m    | BQ90         |
| <i>Loranthus europaeus</i> | 51 Bečići Banovići, Obs: Šarić 21.01.2016.                                                                               | 44°15'17"N<br>18°25'22"E | 325 m    | CQ01         |
| <i>Loranthus europaeus</i> | 52 Olovci Kladanj, Obs: Šarić 14.09.2018.                                                                                | 44°17'15"N<br>18°39'41"E | 765 m    | CQ10         |
| <i>Loranthus europaeus</i> | 53 Gornja Papratnica Žepče, Obs: Šarić 16.11.2017.                                                                       | 44°25'48"N<br>17°58'14"E | 655 m    | YK32         |

| Taxon                                     | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number) | WGS coordinates           | Altitude | UTM quadrant |
|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------|---------------------------|----------|--------------|
| <i>Loranthus europaeus</i>                | 54 Podgorje Banovići, Obs: Šarić 16.04.2015.                                                                         | 44°24'41"N<br>18°27'28"E  | 355 m    | BQ91         |
| <i>Loranthus europaeus</i>                | 55 Breštica Banovići, Obs: Šarić 16.04.2015.                                                                         | 44°23'03"N<br>18°30'59"E  | 329 m    | CQ01         |
| <i>Loranthus europaeus</i>                | 56 Jelaške Olovo, Obs: Šarić 13.09.2012.                                                                             | 44°16'57"N<br>18°24'42"E  | 500 m    | BQ90         |
| <i>Loranthus europaeus</i>                | 57 Jelaške Olovo, Obs: Šarić 13.09.2012.                                                                             | 44°17'30"N<br>18°24'01"E  | 515 m    | BQ90         |
| <i>Loranthus europaeus</i>                | 58 Stipin Han Zavidovići, Obs: Šarić 18.03.2012.                                                                     | 44°19'32"N<br>18°30'59"E  | 355 m    | BQ91         |
| <i>Loranthus europaeus</i>                | 59 Kopijari Vareš, Obs: Šarić 22.01.2016.                                                                            | 44°08'48"N<br>18°13'42"E  | 1022 m   | BP79         |
| <i>Loranthus europaeus</i>                | 60 Striježovo Vareš, Obs: Šarić 22.01.2011.                                                                          | 44°05'12"N<br>18°17'18"E  | 935 m    | BP88         |
| <i>Loranthus europaeus</i>                | 61 Kondžilo Visoko, Obs: Šarić 20.02.2014.                                                                           | 44°03'15"N<br>18°03'30"E  | 615 m    | BP68         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 1 Herb: Kruščica, Travnik, leg. Brandis 02.1891(SARA 08485).                                                         | 44°08'03"N<br>17°47'29"E  | 437 m    | YJ29         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 2 Lit: Dubočtica near Vareš, Protić 1898, Đokić 1899.                                                                | 44°14'27"N<br>18°19'01"E  | 665 m    | BP79         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 3 Lit: Čajniče, Đokić 1899.                                                                                          | 43°33'28"N<br>19°04'23"E  | 799 m    | CP42         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 4 Lit: Kruščica near Vitez, Đokić 1899.                                                                              | 44°08'04"N<br>17°47'21"E  | 450 m    | YJ29         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 5 Lit: Zelengora Mt., Protić 1902.                                                                                   | 43°20'50"N<br>18°35'34"E  | 1246 m   | CP00         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 6 Lit: Smrčanj, Donje Zijemlje, Velež Mt., Pichler 1901.                                                             | 43°22'26"N,<br>17°59'31"E | 1024 m   | YJ30         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 7 Lit: Igman Mt. Puhalovići near Sarajevo, Malý 1908, Herb: leg. Malý 08.08.1905 (SARA 08500).                       | 43°49'02"N<br>18°16'16"E  | 534 m    | BP85         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 8 Lit: Ravna Mt. Stambolčić, Malý 1912.                                                                              | 43°47'24"N<br>18°38'07"E  | 980 m    | CP05         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 9 Herb: Igman Mt., Vrelo Bosne near Sarajevo, leg. Malý 14.11.1912 (SARA 08508).                                     | 43°49'01"N<br>18°16'15"E  | 542 m    | BP85         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 10 Lit: Bosanska Krupa, Tubeuf 1923.                                                                                 | 44°53'14"N<br>16°06'46"E  | 431 m    | WK87         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 11 Lit: Kladanj, Tubeuf 1923.                                                                                        | 44°14'16"N<br>18°40'45"E  | 918 m    | CQ10         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 12 Lit: Bileća, Tubeuf 1923.                                                                                         | 42°52'41"N<br>18°26'48"E  | 731 m    | BN95         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 13 Lit: Nevesinje, Tubeuf 1923.                                                                                      | 43°15'34"N<br>18°06'13"E  | 951 m    | BN69         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 14 Lit: Fojnica, Tubeuf 1923.                                                                                        | 43°57'32"N<br>17°53'43"E  | 665 m    | YJ37         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 15 Lit: Ključ, Tubeuf 1923.                                                                                          | 44°31'37"N<br>16°46'48"E  | 448 m    | XK43         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 16 Lit: Sanski Most, Tubeuf 1923.                                                                                    | 44°42'06"N<br>16°37'21"E  | 664 m    | XK25         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 17 Lit: Teslić, Tubeuf 1923.                                                                                         | 44°36'20"N<br>17°52'20"E  | 236 m    | YK24         |

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|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>abietis</i> | 18 <b>Lit:</b> Bosanska Gradiška, Tubeuf 1923.                                                                       | 45°08'31"N<br>17°05'51"E | 331 m    | XL60         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 19 <b>Lit:</b> Kotor Varoš, Tubeuf 1923.                                                                             | 44°13'34"N<br>18°42'11"E | 638 m    | CP19         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 20 <b>Lit:</b> Prijedor, Tubeuf 1923.                                                                                | 44°59'22"N<br>16°40'04"E | 247 m    | XK38         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 21 <b>Lit:</b> Prnjavor, Tubeuf 1923.                                                                                | 44°53'00"N<br>17°40'02"E | 233 m    | YK17         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 22 <b>Lit:</b> Jajce, Tubeuf 1923.                                                                                   | 44°20'34"N<br>17°15'05"E | 536 m    | XK71         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 23 <b>Lit:</b> Bugojno, Tubeuf 1923.                                                                                 | 44°02'39"N<br>17°24'23"E | 764 m    | XJ97         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 24 <b>Lit:</b> Zenica, Tubeuf 1923.                                                                                  | 44°12'53"N<br>17°57'50"E | 682 m    | YJ39         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 25 <b>Lit:</b> Mrkonjić Grad Tubeuf 1923.                                                                            | 44°25'45"N<br>17°05'28"E | 701 m    | XK62         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 26 <b>Lit:</b> Prozor, Tubeuf 1923.                                                                                  | 43°50'09"N<br>17°36'30"E | 956 m    | YJ05         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 27 <b>Lit:</b> Sarajevo, Tubeuf 1923.                                                                                | 43°49'53"N<br>18°27'09"E | 1194 m   | BP95         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 28 <b>Lit:</b> Bihać, Tubeuf 1923.                                                                                   | 44°47'58"N<br>15°52'46"E | 362 m    | WK66         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 29 <b>Lit:</b> Bosanski Petrovac, Tubeuf 1923.                                                                       | 44°33'06"N<br>16°23'40"E | 775 m    | XK13         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 30 <b>Lit:</b> Prača, Tubeuf 1923.                                                                                   | 43°47'05"N<br>18°44'26"E | 870 m    | CP15         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 31 <b>Lit:</b> Maglaj, Tubeuf 1923.                                                                                  | 44°33'00"N<br>18°06'57"E | 314 m    | BQ73         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 32 <b>Lit:</b> Tuzla, Tubeuf 1923.                                                                                   | 44°33'23"N<br>18°42'08"E | 417 m    | CQ13         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 33 <b>Lit:</b> Foča, Tubeuf 1923.                                                                                    | 43°29'38"N<br>18°46'31"E | 665 m    | CP21         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 34 <b>Lit:</b> Višegrad, Tubeuf 1923.                                                                                | 43°47'02"N<br>19°18'11"E | 399 m    | CP64         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 35 <b>Lit:</b> Bosanska Dubica, Tubeuf 1923.                                                                         | 45°10'00"N<br>16°46'47"E | 200 m    | XL30         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 36 <b>Lit:</b> Žepče, Tubeuf 1923.                                                                                   | 44°25'57"N<br>18°01'37"E | 307 m    | BQ62         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 37 <b>Herb:</b> Igman Mt. near Hrasnica leg. Loschingg 05.12.1934 (SARA 08496).                                      | 43°46'58"N<br>18°17'16"E | 1200 m   | BP85         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 38 <b>Herb:</b> Koran near Begovina, Pale, leg. Malý 09.11.1937 (SARA 08493, SARA 08494).                            | 43°48'31"N<br>18°33'56"E | 980 m    | CP05         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 39 <b>Herb:</b> Jahorina Mt., leg. Lažetić 30.08.1948 (SARA 08491).                                                  | 43°46'28"N<br>18°30'57"E | 1300 m   | CP04         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 40 <b>Herb:</b> Bjelašnica Mt., leg. Popović 11.10.1950 (SARA 08565).                                                | 43°39'12"N<br>18°17'20"E | 1275 m   | BP83         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 41 <b>Herb:</b> Ajdinovići near Olovo., leg. Šilić 10.10.1971 (SARA 53214).                                          | 44°04'00"N<br>18°34'15"E | 880 m    | CP08         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 42 <b>Jelaške Olovo, Obs:</b> Šarić 13.09.2016.                                                                      | 44°16'51"N<br>18°24'41"E | 587 m    | BQ90         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 43 <b>Butkovice Olovo, Obs:</b> Šarić 13.09.2016.                                                                    | 44°15'37"N<br>18°20'03"E | 1066 m   | BQ80         |

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|-------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>abietis</i> | 44 Dištica Zavidovići, Obs: Šarić 15.10.2010                                                                         | 44°18'21"N<br>18°22'02"E | 820 m    | BQ90         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 45 Runješ Zavidovići, Obs: Šarić 15.10.2010                                                                          | 44°19'05"N<br>18°23'08"E | 611 m    | BQ91         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 46 Zvijezda Vareš, Obs: Šarić 04.05.2015                                                                             | 44°10'40"N<br>18°24'56"E | 1203 m   | BP99         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 47 Osredak Vareš, Obs: Šarić 04.05.2015                                                                              | 44°11'47"N<br>18°15'34"E | 1212 m   | BP89         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 48 Mižnovići Vareš, Obs: Šarić 04.05.2015                                                                            | 44°10'44"N<br>18°29'37"E | 1057 m   | BP99         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 49 Stolac brdo Zenica, Obs: Šarić 13.09.2016                                                                         | 44°23'28"N<br>17°48'45"E | 1096 m   | YK21         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 50 Mekić Tešanj, Obs: Šarić 23.08.2013                                                                               | 44°34'36"N<br>17°59'19"E | 428 m    | YK34         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 51 Papratnica Žepče, Obs: Šarić 23.08.2013                                                                           | 44°26'38"N<br>17°57'37"E | 777 m    | YK32         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 52 Tuholj Kladanj, Obs: Šarić 10.09.2018                                                                             | 44°15'38"N<br>18°37'47"E | 885 m    | CQ10         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 53 Jablanica Maglaj, Obs: Šarić 09.08.2015                                                                           | 44°32'43"N<br>18°10'03"E | 299 m    | BQ73         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 54 Kondžilo Visoko, Obs: Šarić 12.05.2014                                                                            | 44°03'11"N<br>18°02'56"E | 597 m    | BP68         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 55 Nišići Ilijaš, Obs: Šarić 08.06.2017                                                                              | 44°03'46"N<br>18°29'08"E | 1146 m   | BP98         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 56 Mačkovac, Banovići, Obs: Šarić 24.06.2016                                                                         | 44°21'24"N<br>18°33'57"E | 487 m    | CQ01         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 57 Drenik, Živinice, Obs: Šarić 13.04.2017                                                                           | 44°22'09"N<br>18°37'00"E | 627 m    | CQ11         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 58 Čuništa Olovo, Obs: Šarić 09.09.2015                                                                              | 44°11'42"N<br>18°30'31"E | 639 m    | CP09         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 59 Maoča.Srebrenik, Obs: Šarić 12.09.2017                                                                            | 44°43'7"N<br>18°37'34"E  | 457 m    | CQ15         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 60 Sađevica Zavidovići, Obs: Šarić 11.12.2016                                                                        | 44°17'11"N<br>18°19'53"E | 1175 m   | BQ80         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 61 Bistričak Zenica, Obs: Šarić 20.02.2011                                                                           | 44°22'50"N<br>17°50'07"E | 751 m    | YK21         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 62 Ponijeri Kakanj, Obs: Šarić 12.05.2014                                                                            | 44°15'28"N<br>18°10'54"E | 1245 m   | BQ70         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 63 Župeljeva Olovo, Obs: Šarić 09.08.2010                                                                            | 44°17'13"N<br>18°30'42"E | 855 m    | CQ00         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 64 Mašica Zavidovići, Obs: Šarić 11.12.2016                                                                          | 44°19'01"N<br>18°06'32"E | 809 m    | BQ61         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 65 Žeravice Olovo, Obs: Šarić 18.07.2021                                                                             | 44°08'11"N<br>18°45'15"E | 949 m    | CP28         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 66 Mehorić Kakanj, Obs: Šarić 12.05.2014                                                                             | 44°14'23"N<br>18°13'56"E | 1046 m   | BQ70         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 67 Pjenovac, Han Pijesak, Obs: Šarić 18.07.2021                                                                      | 44°05'17"N<br>18°51'10"E | 1105 m   | CP28         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 68 Bečari Sokolac, Obs: Šarić 10.09.2021                                                                             | 44°04'22"N<br>18°42'40"E | 962 m    | CP18         |
| <i>Viscum album</i> subsp. <i>abietis</i> | 69 Žegar, Plješevica, Obs: Dejanović 10.09.2023                                                                      | 44°47'36"N<br>15°51'45"E | 350 m    | WK66         |

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|--------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|--------------|
| <i>Viscum album</i><br><i>subsp. album</i> | 1 <b>Lit:</b> Blagaj, Struschka, 1880, host: <i>Malus pumila</i> Mill.                                                                                           | 43°15'20"N<br>17°54'14"E  | 82 m     | YH39         |
| <i>Viscum album</i><br><i>subsp. album</i> | 2 <b>Lit:</b> Banja Luka, Hofmann, 1882, Đokić 1899, host: <i>Malus pumila</i> Mill.                                                                             | 44°45'08"N<br>17°11'22"E  | 220 m    | XK75         |
| <i>Viscum album</i><br><i>subsp. album</i> | 3 <b>Lit:</b> Sarajevo, Hofmann, 1882, Đokić, 1899, host: <i>Malus pumila</i> Mill.                                                                              | 43°53'10"N<br>18°17'42"E  | 641 m    | BP86         |
| <i>Viscum album</i><br><i>subsp. album</i> | 4 <b>Lit:</b> Solakova Kula near Kruščica, Travnik, Freyn & Brandis, 1888, <b>Herb:</b> leg. Freyn 1885 (SARA 08503), host: <i>Sorbus torminalis</i> (L.) Crantz | 44°08'03"N<br>17°47'29"E  | 437 m    | YJ29         |
| <i>Viscum album</i><br><i>subsp. album</i> | 5 <b>Herb:</b> Fojnica, leg. Schwarz 08.1893 (SARA 08502).                                                                                                       | 43°57'40"N<br>17°53'44"E  | 614 m    | YJ37         |
| <i>Viscum album</i><br><i>subsp. album</i> | 6 <b>Lit:</b> Visoko, Formanek, 1890, host: <i>Malus pumila</i> Mill.                                                                                            | 43°59'37"N<br>18°10'12"E  | 433 m    | BP77         |
| <i>Viscum album</i><br><i>subsp. album</i> | 7 <b>Lit:</b> Goražde, Đokić 1899, host: <i>Prunus domestica</i> L.                                                                                              | 43°40'16"N<br>18°58'26"E  | 375 m    | CP33         |
| <i>Viscum album</i><br><i>subsp. album</i> | 8 <b>Lit:</b> Goražde, Đokić 1899, host: <i>Malus pumila</i> Mill.                                                                                               | 43°40'16"N<br>18°58'26"E  | 375 m    | CP33         |
| <i>Viscum album</i><br><i>subsp. album</i> | 9 <b>Lit:</b> Čajniče, Đokić 1899, host: <i>Malus pumila</i> Mill.                                                                                               | 43°33'28"N<br>19°04'23"E  | 799 m    | CP42         |
| <i>Viscum album</i><br><i>subsp. album</i> | 10 <b>Lit:</b> Tuzla, Đokić 1899, host: <i>Malus pumila</i> Mill.                                                                                                | 44°32'11"N<br>18°40'04"E  | 244 m    | CQ13         |
| <i>Viscum album</i><br><i>subsp. album</i> | 11 <b>Lit:</b> Koševo, Sarajevo, Đokić 1899, host: <i>Pyrus communis</i> L.                                                                                      | 43°52'08"N<br>18°24'59"E  | 605 m    | BP96         |
| <i>Viscum album</i><br><i>subsp. album</i> | 12 <b>Lit:</b> Bjelave, Sarajevo, Đokić 1899, host: <i>Pyrus communis</i> L.                                                                                     | 43°51'41"N<br>18°25'25"E  | 571 m    | BP95         |
| <i>Viscum album</i><br><i>subsp. album</i> | 13 <b>Lit:</b> Bosanski Novi, Đokić 1899, host: <i>Juglans regia</i> L.                                                                                          | 45°02'50"N<br>16°22'59"E  | 122 m    | XK08         |
| <i>Viscum album</i><br><i>subsp. album</i> | 14 <b>Lit:</b> Smrčanj, Donje Zijemlje, Velež Mt., Pichler 1901, host: <i>Fagus sylvatica</i> L.                                                                 | 43°22'26"N,<br>17°59'31"E | 1024 m   | YJ30         |
| <i>Viscum album</i><br><i>subsp. album</i> | 15 <b>Lit:</b> Bišina, Pichler 1901, Tubeuf 1923, host: <i>Fagus sylvatica</i> L.                                                                                | 43°14'51"N<br>18°05'24"E  | 1030 m   | BN69         |
| <i>Viscum album</i><br><i>subsp. album</i> | 16 <b>Lit:</b> Ivan Mt., Pichler 1901, host: <i>Fagus sylvatica</i> L.                                                                                           | 43°44'51"N<br>18°02'19"E  | 980 m    | BP64         |
| <i>Viscum album</i><br><i>subsp. album</i> | 17 <b>Lit:</b> Lisičići, Pichler 1901, Tubeuf 1923, host: <i>Populus nigra</i> L.                                                                                | 43°41'54"N<br>17°53'07"E  | 307 m    | YJ34         |
| <i>Viscum album</i><br><i>subsp. album</i> | 18 <b>Lit:</b> Konjic, Pichler 1901, Tubeuf 1923, host: <i>Salix alba</i> L.                                                                                     | 43°39'39"N<br>17°56'43"E  | 268 m    | YJ33         |
| <i>Viscum album</i><br><i>subsp. album</i> | 19 <b>Lit:</b> Nevesinje, Pichler 1901, Tubeuf 1923, host: <i>Salix alba</i> L.                                                                                  | 43°09'11"N<br>18°00'59"E  | 413 m    | YH48         |
| <i>Viscum album</i><br><i>subsp. album</i> | 20 <b>Lit:</b> Lukavac, Pichler 1901, Tubeuf 1923, host: <i>Salix alba</i> L.                                                                                    | 44°30'39"N<br>18°30'34"E  | 191 m    | CQ03         |
| <i>Viscum album</i><br><i>subsp. album</i> | 21 <b>Lit:</b> Sarajevo, Pichler 1901, Tubeuf 1923, host: <i>Salix alba</i> L.                                                                                   | 43°51'23"N<br>18°25'14"E  | 542 m    | BP95         |
| <i>Viscum album</i><br><i>subsp. album</i> | 22 <b>Lit:</b> Blažuj, Pichler 1901, Tubeuf 1923, host: <i>Fraxinus excelsior</i> L.                                                                             | 43°50'09"N<br>18°15'44"E  | 557 m    | BP75         |
| <i>Viscum album</i><br><i>subsp. album</i> | 23 <b>Lit:</b> Hadžići, Pichler 1901, Tubeuf 1923, host: <i>Fraxinus excelsior</i> L.                                                                            | 43°49'24"N<br>18°12'05"E  | 555 m    | BP75         |
| <i>Viscum album</i><br><i>subsp. album</i> | 24 <b>Lit:</b> Pazarić, Pichler 1901, Tubeuf 1923, host: <i>Tilia cordata</i> Mill.                                                                              | 43°47'14"N<br>18°09'16"E  | 640 m    | BP75         |
| <i>Viscum album</i><br><i>subsp. album</i> | 25 <b>Lit:</b> Jablanica, Pichler 1901, Tubeuf 1923, host: <i>Prunus domestica</i> L.                                                                            | 43°39'41"N<br>17°45'42"E  | 204 m    | YJ23         |

| Taxon                                   | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number) | WGS coordinates          | Altitude | UTM quadrant |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>album</i> | 26 <b>Lit:</b> Konjic, Pichler 1901, Tubeuf 1923, host: <i>Prunus domestica</i> L.                                   | 43°39'39"N<br>17°56'43"E | 268 m    | YJ33         |
| <i>Viscum album</i> subsp. <i>album</i> | 27 <b>Lit:</b> Ostrožac, Pichler 1901, Tubeuf 1923, host: <i>Prunus avium</i> (L.) L.                                | 43°41'07"N<br>17°49'48"E | 272 m    | YJ24         |
| <i>Viscum album</i> subsp. <i>album</i> | 28 <b>Lit:</b> Bišina, Pichler 1901, Tubeuf 1923, host: <i>Prunus spinosa</i> L.                                     | 43°14'50"N<br>18°04'57"E | 1030 m   | BN69         |
| <i>Viscum album</i> subsp. <i>album</i> | 29 <b>Lit:</b> Porim near Suha Česma Pichler 1901, Tubeuf 1923, host: <i>Crataegus rhipidophylla</i> Gand.           | 43°27'34"N<br>17°56'50"E | 1096 m   | YJ31         |
| <i>Viscum album</i> subsp. <i>album</i> | 30 <b>Lit:</b> Bišina, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                     | 43°14'50"N<br>18°04'57"E | 1030 m   | BN69         |
| <i>Viscum album</i> subsp. <i>album</i> | 31 <b>Lit:</b> Ostrožac, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                   | 43°41'07"N<br>17°49'48"E | 272 m    | YJ24         |
| <i>Viscum album</i> subsp. <i>album</i> | 32 <b>Lit:</b> Prozor, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                     | 43°17'17"N<br>17°55'22"E | 705 m    | YH39         |
| <i>Viscum album</i> subsp. <i>album</i> | 33 <b>Lit:</b> Kifino Selo, Nevesinje, Pichler 1901, host: <i>Pyrus communis</i> L.                                  | 43°17'24"N<br>18°12'55"E | 885 m    | BN79         |
| <i>Viscum album</i> subsp. <i>album</i> | 34 <b>Lit:</b> Šumarci, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                    | 43°10'24"N<br>17°43'57"E | 164 m    | YH28         |
| <i>Viscum album</i> subsp. <i>album</i> | 35 <b>Lit:</b> Hamzići, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                    | 43°16'38"N<br>17°36'31"E | 256 m    | YH19         |
| <i>Viscum album</i> subsp. <i>album</i> | 36 <b>Lit:</b> Humilišani, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                 | 43°26'30"N<br>17°54'08"E | 285 m    | YJ31         |
| <i>Viscum album</i> subsp. <i>album</i> | 37 <b>Lit:</b> Bijelo Polje, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                               | 43°22'15"N<br>17°51'24"E | 99 m     | YJ30         |
| <i>Viscum album</i> subsp. <i>album</i> | 38 <b>Lit:</b> Rama, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                       | 43°47'14"N<br>17°37'37"E | 392 m    | YJ15         |
| <i>Viscum album</i> subsp. <i>album</i> | 39 <b>Lit:</b> Lisičići, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                   | 43°41'54"N<br>17°53'07"E | 307 m    | YJ34         |
| <i>Viscum album</i> subsp. <i>album</i> | 40 <b>Lit:</b> Hadžići, Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                    | 43°49'24"N<br>18°12'05"E | 555 m    | BP75         |
| <i>Viscum album</i> subsp. <i>album</i> | 41 <b>Lit:</b> Ivan Mt., Pichler 1901, Tubeuf 1923, host: <i>Pyrus communis</i> L.                                   | 43°44'51"N<br>18°02'19"E | 980 m    | BP64         |
| <i>Viscum album</i> subsp. <i>album</i> | 42 <b>Lit:</b> Ostrožac, Pichler 1901, Tubeuf, 1923, host: <i>Malus pumila</i> Mill.                                 | 43°41'07"N<br>17°49'48"E | 272 m    | YJ24         |
| <i>Viscum album</i> subsp. <i>album</i> | 43 <b>Lit:</b> Bišina, Pichler 1901, Tubeuf 1923, host: <i>Malus pumila</i> Mill.                                    | 43°14'50"N<br>18°04'57"E | 1030 m   | BN69         |
| <i>Viscum album</i> subsp. <i>album</i> | 44 <b>Lit:</b> Prozor, Pichler 1901, Tubeuf 1923, host: <i>Malus pumila</i> Mill.                                    | 43°17'17"N<br>17°55'22"E | 705 m    | YH39         |
| <i>Viscum album</i> subsp. <i>album</i> | 45 <b>Lit:</b> Ivan Mt., Pichler 1901, Tubeuf 1923, host: <i>Malus pumila</i> Mill.                                  | 43°44'51"N<br>18°02'19"E | 980 m    | BP64         |
| <i>Viscum album</i> subsp. <i>album</i> | 46 <b>Lit:</b> Prozor, Pichler 1901, Tubeuf 1923, host: <i>Sorbus aucuparia</i> L.                                   | 43°17'17"N<br>17°55'22"E | 705 m    | YH39         |
| <i>Viscum album</i> subsp. <i>album</i> | 47 <b>Lit:</b> Ljubuški, Pichler 1901, host: <i>Acer campestre</i> L.                                                | 43°12'02"N<br>17°33'30"E | 314 m    | YH08         |
| <i>Viscum album</i> subsp. <i>album</i> | 48 <b>Lit:</b> Ljubuški, Pichler 1901, Tubeuf 1923, host: <i>Juglans regia</i> L.                                    | 43°12'02"N<br>17°33'30"E | 314 m    | YH08         |
| <i>Viscum album</i> subsp. <i>album</i> | 49 <b>Lit:</b> Medine, Pichler 1901, host: <i>Prunus mahaleb</i> L.                                                  | 43°20'04"N<br>17°43'25"E | 251 m    | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 50 <b>Lit:</b> Goranci, Pichler 1901, Tubeuf 1923, host: <i>Prunus mahaleb</i> L.                                    | 43°24'01"N<br>17°45'01"E | 659 m    | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 51 <b>Lit:</b> Bišina, Pichler 1901, Tubeuf 1923, host: <i>Acer pseudoplatanus</i> L.                                | 43°14'50"N<br>18°04'57"E | 1030 m   | BN69         |

| Taxon                                   | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number)      | WGS coordinates           | Altitude | UTM quadrant |
|-----------------------------------------|---------------------------------------------------------------------------------------------------------------------------|---------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>album</i> | 52 Lit: Porim Mt., Pichler 1901, Tubeuf 1923, host: <i>Acer pseudoplatanus</i> L.                                         | 43°27'29"N<br>17°56'54"E  | 977 m    | YJ31         |
| <i>Viscum album</i> subsp. <i>album</i> | 53 Lit: Porim Mt., Pichler 1901, Tubeuf 1923, host: <i>Sorbus aria</i> (L.) Crantz                                        | 43°27'29"N<br>17°56'54"E  | 977 m    | YJ31         |
| <i>Viscum album</i> subsp. <i>album</i> | 54 Lit: Velež Mt., Dobro Dublje, Pichler 1901, Tubeuf 1923, host: <i>Sorbus aria</i> (L.) Crantz                          | 43°22'26"N,<br>17°59'31"E | 1024 m   | YJ30         |
| <i>Viscum album</i> subsp. <i>album</i> | 55 Lit: Bišina, Pichler 1901, Tubeuf 1923, host: <i>Sorbus aria</i> (L.) Crantz                                           | 43°14'50"N<br>18°04'57"E  | 1030 m   | BN69         |
| <i>Viscum album</i> subsp. <i>album</i> | 56 Lit: Velež Mt., Crna Gora, Pichler 1901, Tubeuf 1923, host: <i>Sorbus torminalis</i> (L.) Crantz                       | 43°22'43"N<br>18°04'00"E  | 891 m    | BP60         |
| <i>Viscum album</i> subsp. <i>album</i> | 57 Lit: Velež Mt., Crna Gora, Pichler 1901, Tubeuf 1923, host: <i>Corylus colurna</i> L.                                  | 43°22'43"N<br>18°04'00"E  | 891 m    | BP60         |
| <i>Viscum album</i> subsp. <i>album</i> | 58 Lit: Goranci, Pichler 1901, host: <i>Corylus colurna</i> L.                                                            | 43°24'01"N<br>17°45'01"E  | 659 m    | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 59 Lit: Medine, Pichler 1901, host: <i>Corylus colurna</i> L.                                                             | 43°20'04"N<br>17°43'25"E  | 251 m    | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 60 Lit: Planinica, Pichler 1901, Tubeuf 1923, host: <i>Pyrus spinosa</i> Forssk.                                          | 43°22'44"N<br>17°47'16"E  | 715 m    | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 61 Lit: Planinica, Pichler 1901, Tubeuf 1923, host: <i>Prunus domestica</i> subsp. <i>insititia</i> (L.) Bonnier & Layens | 43°22'44"N<br>17°47'16"E  | 715 m    | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 62 Lit: Goranci, Pichler 1901, Tubeuf 1923, host: <i>Acer monspessulanum</i> L.                                           | 43°24'01"N<br>17°45'01"E  | 659 m    | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 63 Lit: Gradnići, Pichler 1901, Tubeuf 1923, host: <i>Quercus frainetto</i> Ten.                                          | 43°14'15"N<br>17°42'58"E  | 271 m    | YH29         |
| <i>Viscum album</i> subsp. <i>album</i> | 64 Lit: Široki Brijeg, Pichler 1901, host: <i>Quercus frainetto</i> Ten.                                                  | 43°22'21"N<br>17°35'17"E  | 333 m    | YJ00         |
| <i>Viscum album</i> subsp. <i>album</i> | 65 Lit: Jasena, Nevesinje, Pichler 1901, Tubeuf 1923, host: <i>Quercus pubescens</i> Willd.                               | 43°11'36"N<br>18°01'27"E  | 889 m    | YH48         |
| <i>Viscum album</i> subsp. <i>album</i> | 66 Lit: Klobuk, Pichler 1901, Tubeuf 1923, host: <i>Quercus cerris</i> L.                                                 | 43°16'31"N<br>17°26'43"E  | 131 m    | XH99         |
| <i>Viscum album</i> subsp. <i>album</i> | 67 Lit: Orašac near Kulen Vakuf, Schiller, 1903, host: <i>Pyrus communis</i> L.                                           | 44°37'31"N<br>16°04'18"E  | 324 m    | WK84         |
| <i>Viscum album</i> subsp. <i>album</i> | 68 Lit: Sarajevo, Đokić 1899, Malý, 1904, Herb: leg. Malý 05.10.1901 (SARA 08501), host: <i>Pyrus communis</i> L.         | 43°51'23"N<br>18°25'14"E  | 542 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 69 Lit: Prenj Mt., Rujište, Malý, 1908, host: <i>Acer obtusatum</i> Willd.                                                | 43°27'51"N<br>17°57'39"E  | 1056 m   | YJ31         |
| <i>Viscum album</i> subsp. <i>album</i> | 70 Lit: Banja Luka, Đokić 1899, Malý, 1908, host: <i>Tilia tomentosa</i> Moench                                           | 44°45'08"N<br>17°11'22"E  | 220 m    | XK75         |
| <i>Viscum album</i> subsp. <i>album</i> | 71 Lit: Hum, Sarajevo, Malý, 1908, host: <i>Crataegus monogyna</i> Jacq.                                                  | 43°52'18"N<br>18°23'10"E  | 803 m    | BP86         |
| <i>Viscum album</i> subsp. <i>album</i> | 72 Lit: Trebević, Sarajevo, Malý, 1908, host: <i>Salix × fragilis</i> L.                                                  | 43°50'49"N<br>18°24'51"E  | 816 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 73 Lit: Grdonj, Sarajevo, Malý, 1910, host: <i>Crataegus monogyna</i> Jacq.                                               | 43°52'47"N<br>18°25'36"E  | 751 m    | BP96         |
| <i>Viscum album</i> subsp. <i>album</i> | 74 Lit: Piljevići near Lukavica, Malý, 1910, host: <i>Crataegus monogyna</i> Jacq.                                        | 43°49'18"N<br>18°23'04"E  | 583 m    | BP85         |

| Taxon                                   | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number) | WGS coordinates          | Altitude | UTM quadrant |
|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>album</i> | 75 Lit: Pofalići, Sarajevo, Malý, 1912, host: <i>Populus tremula</i> L.                                              | 43°51'39"N<br>18°23'05"E | 588 m    | BP85         |
| <i>Viscum album</i> subsp. <i>album</i> | 76 Lit: Koševo, Sarajevo, Malý, 1912, 1928, host: <i>Robinia pseudoacacia</i> L.                                     | 43°52'08"N<br>18°24'59"E | 605 m    | BP96         |
| <i>Viscum album</i> subsp. <i>album</i> | 77 Lit: Stanojevići, Sarajevo, Malý, 1919, host: <i>Acer campestre</i> L.                                            | 43°49'25"N<br>18°25'01"E | 757 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 78 Lit: Stanojevići, Sarajevo, Malý, 1919, host: <i>Tilia cordata</i> Mill.                                          | 43°49'25"N<br>18°25'01"E | 757 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 79 Lit: Višegradaska vrata, Sarajevo, Malý, 1923, 1928, host: <i>Tilia cordata</i> Mill.                             | 43°51'44"N<br>18°26'46"E | 682 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 80 Lit: Pocrnje, Ljubinje, Tubeuf 1923, host: <i>Acer campestre</i> L.                                               | 42°59'23"N<br>18°02'59"E | 524 m    | YH46         |
| <i>Viscum album</i> subsp. <i>album</i> | 81 Lit: Konjic, Tubeuf 1923, host: <i>Alnus glutinosa</i> (L.) Gaertn                                                | 43°39'39"N<br>17°56'43"E | 268 m    | YJ33         |
| <i>Viscum album</i> subsp. <i>album</i> | 82 Lit: Kotor Varoš, Tubeuf 1923, host: <i>Alnus glutinosa</i> (L.) Gaertn                                           | 44°36'05"N<br>17°22'27"E | 569 m    | XK84         |
| <i>Viscum album</i> subsp. <i>album</i> | 83 Lit: Prijedor, Tubeuf 1923, host: <i>Alnus glutinosa</i> (L.) Gaertn                                              | 44°59'22"N<br>16°40'04"E | 147 m    | XK38         |
| <i>Viscum album</i> subsp. <i>album</i> | 84 Lit: Prnjavor, Tubeuf 1923, host: <i>Alnus glutinosa</i> (L.) Gaertn                                              | 44°51'50"N<br>17°39'44"E | 156 m    | YK17         |
| <i>Viscum album</i> subsp. <i>album</i> | 85 Lit: Bosanska Krupa, Tubeuf 1923, host: <i>Alnus glutinosa</i> (L.) Gaertn                                        | 44°53'23"N<br>16°09'50"E | 222 m    | WK97         |
| <i>Viscum album</i> subsp. <i>album</i> | 86 Lit: Bosanska Krupa, Tubeuf 1923, host: <i>Carpinus betulus</i> L.                                                | 44°53'23"N<br>16°09'50"E | 222 m    | WK97         |
| <i>Viscum album</i> subsp. <i>album</i> | 87 Lit: Bosanska Krupa, Tubeuf 1923, host: <i>Corylus avellana</i> L.                                                | 44°53'23"N<br>16°09'50"E | 222 m    | WK97         |
| <i>Viscum album</i> subsp. <i>album</i> | 88 Lit: Bosanska Krupa, Tubeuf 1923, host: <i>Cornus mas</i> L.                                                      | 44°53'23"N<br>16°09'50"E | 222 m    | WK97         |
| <i>Viscum album</i> subsp. <i>album</i> | 89 Lit: Cazin, Tubeuf 1923, host: <i>Betula pendula</i> Roth                                                         | 44°58'00"N<br>15°57'06"E | 445 m    | WK77         |
| <i>Viscum album</i> subsp. <i>album</i> | 90 Lit: Foča, Tubeuf 1923, host: <i>Betula pendula</i> Roth                                                          | 43°29'38"N<br>18°46'31"E | 665 m    | CP11         |
| <i>Viscum album</i> subsp. <i>album</i> | 91 Lit: Derventa, Tubeuf 1923, host: <i>Betula pendula</i> Roth                                                      | 44°57'40"N<br>17°55'18"E | 189 m    | YK38         |
| <i>Viscum album</i> subsp. <i>album</i> | 92 Lit: Kladanj, Tubeuf 1923, host: <i>Sambucus nigra</i> L.                                                         | 44°13'34"N<br>18°42'11"E | 638 m    | CP19         |
| <i>Viscum album</i> subsp. <i>album</i> | 93 Lit: Maglaj, Malý, 1928, host: <i>Acer campestre</i> L.                                                           | 44°33'04"N<br>18°06'27"E | 253 m    | BQ73         |
| <i>Viscum album</i> subsp. <i>album</i> | 94 Lit: Trebević, Malý, 1928, host: <i>Acer campestre</i> L.                                                         | 43°50'12"N<br>18°26'12"E | 1023 m   | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 95 Lit: Miljevići, Sarajevo, Malý, 1928, host: <i>Acer campestre</i> L.                                              | 43°50'18"N<br>18°24'45"E | 721 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 96 Lit: Kovačići, Sarajevo, Malý, 1928, host: <i>Acer campestre</i> L.                                               | 43°50'47"N<br>18°24'14"E | 604 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 97 Lit: Bakija, Sarajevo, Malý, 1928, host: <i>Acer campestre</i> L.                                                 | 43°51'36"N<br>18°26'03"E | 565 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 98 Lit: Grdonj, Sarajevo, Malý, 1928, host: <i>Cydonia oblonga</i> Mill.                                             | 43°52'47"N<br>18°25'36"E | 751 m    | BP96         |
| <i>Viscum album</i> subsp. <i>album</i> | 99 Lit: Trebević, Sarajevo, Malý, 1928, host: <i>Populus tremula</i> L.                                              | 43°50'49"N<br>18°24'51"E | 816 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 100 Lit: Trebević, Sarajevo, Malý, 1928, host: <i>Prunus cerasifera</i> Ehrh.                                        | 43°50'49"N<br>18°24'51"E | 816 m    | BP95         |

| Taxon                                                | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number)    | WGS coordinates                  | Altitude     | UTM quadrant |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------|----------------------------------|--------------|--------------|
| <i>Viscum album</i><br><i>subsp. album</i>           | 101 <b>Lit:</b> Dolac, Sarajevo, Malý, 1928, host: <i>Prunus domestica</i> L.                                           | 43°51'24"N<br>18°22'25"E         | 579 m        | BP95         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 102 <b>Lit:</b> Sarajevo, Malý, 1928, host: <i>Quercus robur</i> L.                                                     | 43°51'23"N<br>18°25'14"E         | 542 m        | BP95         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 103 <b>Lit:</b> Grdonj, Sarajevo, Malý, 1928, host: <i>Rosa canina</i> L.                                               | 43°52'47"N<br>18°25'36"E         | 751 m        | BP96         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 104 <b>Lit:</b> Sokolje near Rajlovac, Sarajevo, Malý, 1933, host: <i>Acer tataricum</i> L.                             | 43°52'01"N<br>18°19'46"E         | 609 m        | BP96         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 105 <b>Herb:</b> Džamija near Hotovlje, leg. Reiser 14.08.1909 (SARA 08499).                                            | 43°29'50"N<br>18°20'07"E         | 834 m        | BP81         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 106 <b>Herb:</b> Miljevići near Sarajevo, leg. Malý 18.02.1911 (SARA 08498), host: <i>Pyrus communis</i> L.             | 43°52'01"N<br>18°19'46"E         | 680 m        | BP86         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 107 <b>Herb:</b> Zovik near Pazarić, leg. Ritter-Studnička 23.06.1935 (SARA 08490), host: <i>Acer pseudoplatanus</i> L. | 43°46'39"N<br>18°09'54"E         | 707 m        | BP75         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 108 <b>Herb:</b> Visoko, leg. Plavšić 05.06.1939 (SARA 08492).                                                          | 43°59'15"N<br>18°10'03"E         | 531 m        | BP77         |
| <b><i>Viscum album</i><br/><i>subsp. abietis</i></b> | <b>109 Herb: Prenj, Podporim, leg. Maslo 30.03.2010 (SARA 52887), host: <i>Acer obtusatum</i> Willd.</b>                | <b>43°27'16"N<br/>17°56'41"E</b> | <b>775 m</b> | <b>YJ31</b>  |
| <i>Viscum album</i><br><i>subsp. album</i>           | 110 <b>Herb:</b> Prenj, Rujište, V. Kuk leg. Šilić 17.10.1968 (SARA 08488), host: <i>Sorbus aria</i> (L.) Crantz        | 43°27'29"N<br>17°56'57"E         | 971 m        | YJ31         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 111 <b>Lit:</b> Vogošća, Treštic 2015, host: <i>Acer heldreichii</i> Orph.                                              | 43°54'17"N<br>18°20'49"E         | 564 m        | BP86         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 112 <b>Lit:</b> Sarajevo Treštic 2015, host: <i>Quercus rubra</i> L.                                                    | 43°51'23"N<br>18°25'14"E         | 542 m        | BP95         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 113 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Acer platanoides</i> L.                                     | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 114 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Acer pseudoplatanus</i> L.                                  | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 115 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Acer saccharinum</i> L.                                     | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 116 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Robinia pseudoacacia</i> L.                                 | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 117 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Malus pumila</i> Mill.                                      | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 118 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Sorbus aucuparia</i> L.                                     | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 119 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Populus alba</i> L.                                         | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 120 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Populus nigra</i> L.                                        | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 121 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Salix × pendulina</i> Wender.                               | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 122 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Tilia platyphyllos</i> Scop.                                | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 123 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Tilia cordata</i> Mill.                                     | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |
| <i>Viscum album</i><br><i>subsp. album</i>           | 124 <b>Lit:</b> Novo Sarajevo, Treštic & al. 2012, host: <i>Tilia tomentosa</i> Moench                                  | 43°50'41"N<br>18°21'34"E         | 540 m        | BP85         |

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|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>album</i> | 125 Lit: Mostar, Maslo 2014, Obs: Maslo 20.04.2024, host: <i>Prunus mahaleb</i> L.                                   | 43°20'10"N<br>17°48'39"E | 77 m     | YJ20         |
| <i>Viscum album</i> subsp. <i>album</i> | 126 Lit: Blagaj, Maslo & Abadžić 2015, Obs: Maslo 20.04.2024, host: <i>Prunus mahaleb</i> L.                         | 43°15'24"N<br>17°54'07"E | 61 m     | YH39         |
| <i>Viscum album</i> subsp. <i>album</i> | 127 Lit: Počitelj, Maslo & Boškailo 2017, Obs: Maslo 20.04.2024, host: <i>Prunus mahaleb</i> L.                      | 43°08'01"N<br>17°43'52"E | 27 m     | YH27         |
| <i>Viscum album</i> subsp. <i>album</i> | 128 Lit: Stolac, Šilić & al. 2023, Obs: Maslo 20.04.2024, host: <i>Prunus mahaleb</i> L.                             | 43°04'53"N<br>17°57'24"E | 96 m     | YH47         |
| <i>Viscum album</i> subsp. <i>album</i> | 129 Hutovo Blato, Koščela, Obs: Maslo 25.06.2020, host: <i>Prunus mahaleb</i> L.                                     | 43°04'19"N<br>17°48'54"E | 90 m     | YH27         |
| <i>Viscum album</i> subsp. <i>album</i> | 130 Ljubuški, Buturovica hill, Obs: Maslo 25.06.2020, host: <i>Prunus mahaleb</i> L.                                 | 43°12'02"N<br>17°33'30"E | 314 m    | YH08         |
| <i>Viscum album</i> subsp. <i>album</i> | 131 Vitina, Obs: Maslo 25.06.2020, host: <i>Quercus pubescens</i> Willd.                                             | 43°14'50"N<br>17°28'30"E | 234 m    | YH09         |
| <i>Viscum album</i> subsp. <i>album</i> | 132 Međugorje, Obs: Maslo 25.06.2020, host: <i>Quercus pubescens</i> Willd.                                          | 43°12'03"N<br>17°39'33"E | 171 m    | YH18         |
| <i>Viscum album</i> subsp. <i>album</i> | 133 Blatnica, Čitluk, Obs: Maslo 25.06.2020, host: <i>Quercus pubescens</i> Willd.                                   | 43°16'03"N<br>17°42'36"E | 409 m    | YH19         |
| <i>Viscum album</i> subsp. <i>album</i> | 134 Bročanac, Neum, Obs: Maslo 20.04.2023, host: <i>Quercus pubescens</i> Willd.                                     | 42°57'11"N<br>17°44'52"E | 223 m    | YH25         |
| <i>Viscum album</i> subsp. <i>album</i> | 135 Bogodol, Obs: Maslo 22.04.2020, host: <i>Prunus mahaleb</i> L.                                                   | 43°27'22"N<br>17°38'00"E | 898 m    | YJ11         |
| <i>Viscum album</i> subsp. <i>album</i> | 136 Bogodol, Obs: Maslo 22.04.2020, host: <i>Acer campestre</i> L.                                                   | 43°27'22"N<br>17°38'00"E | 898 m    | YJ11         |
| <i>Viscum album</i> subsp. <i>album</i> | 137 Podveležje, Obs: Maslo 21.04.2020, host: <i>Prunus mahaleb</i> L.                                                | 43°18'15"N<br>17°54'31"E | 707 m    | YH39         |
| <i>Viscum album</i> subsp. <i>album</i> | 138 Prenj Mt., Veliko Rujište, Stogovi, Obs: Maslo 15.06.2016, host: <i>Fagus sylvatica</i> L.                       | 43°27'15"N<br>17°57'09"E | 832 m    | YJ31         |
| <i>Viscum album</i> subsp. <i>album</i> | 139 Prenj, Podporim, Obs: Maslo 30.03.2010, host: <i>Tilia tomentosa</i> Moench                                      | 43°27'16"N<br>17°56'41"E | 775 m    | YJ31         |
| <i>Viscum album</i> subsp. <i>album</i> | 140 Glavatičevo, Obs: Maslo 01.04.2010, host: <i>Malus pumila</i> Mill.                                              | 43°29'58"N<br>18°05'57"E | 456 m    | BP62         |
| <i>Viscum album</i> subsp. <i>album</i> | 141 Boračko jezero, Obs: Maslo 01.04.2010, host: <i>Malus pumila</i> Mill.                                           | 43°33'21"N<br>18°01'36"E | 405 m    | BP62         |
| <i>Viscum album</i> subsp. <i>album</i> | 142 Konjic, Obs: Maslo 30.06.2010, host: <i>Populus nigra</i> L.                                                     | 43°38'21"N<br>17°58'39"E | 285 m    | YJ33         |
| <i>Viscum album</i> subsp. <i>album</i> | 143 Ostrožac, Obs: Maslo 30.06.2010, host: <i>Populus nigra</i> L.                                                   | 43°41'16"N<br>17°49'46"E | 273 m    | YJ24         |
| <i>Viscum album</i> subsp. <i>album</i> | 144 Jablanica, Obs: Maslo 30.06.2010, host: <i>Populus nigra</i> L.                                                  | 43°39'11"N<br>17°45'37"E | 179 m    | YJ23         |
| <i>Viscum album</i> subsp. <i>album</i> | 145 Striježevo, Vareš, Obs: Šarić 12.09.2011, host: <i>Crataegus monogyna</i> Jacq.                                  | 44°05'41"N<br>18°17'43"E | 1060 m   | BP88         |

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| <i>Viscum album</i> subsp. <i>album</i> | 146 Striježevo, Vareš, Obs: Šarić 12.09.2011, host: <i>Pyrus communis</i> L.                                         | 44°05'41"N<br>18°17'43"E | 1060 m   | BP88         |
| <i>Viscum album</i> subsp. <i>album</i> | 147 Ligatići, Vareš, Obs: Šarić 04.05.2010, host: <i>Malus pumila</i> Mill.                                          | 44°10'05"N<br>18°30'23"E | 874 m    | CP09         |
| <i>Viscum album</i> subsp. <i>album</i> | 148 Ligatići, Vareš, Obs: Šarić 04.05.2010, host: <i>Pyrus communis</i> L.                                           | 44°10'07"N<br>18°30'22"E | 888 m    | CP09         |
| <i>Viscum album</i> subsp. <i>album</i> | 149 Milanovci, Kalesija, Obs: Šarić 16.06.2011, host: <i>Malus pumila</i> Mill.                                      | 44°27'41"N<br>18°50'45"E | 320 m    | CQ22         |
| <i>Viscum album</i> subsp. <i>album</i> | 150 Kakanj, Obs: Šarić 11.04.2012, host: <i>Malus pumila</i> Mill.                                                   | 44°07'22"N<br>18°05'45"E | 476 m    | BP68         |
| <i>Viscum album</i> subsp. <i>album</i> | 151 Kakanj, Obs: Šarić 11.04.2012, host: <i>Pyrus communis</i> L.                                                    | 44°07'22"N<br>18°05'45"E | 476 m    | BP68         |
| <i>Viscum album</i> subsp. <i>album</i> | 152 Tešanj, Obs: Šarić 11.08.2013, host: <i>Pyrus communis</i> L.                                                    | 44°36'50"N<br>17°59'54"E | 320 m    | YK34         |
| <i>Viscum album</i> subsp. <i>album</i> | 153 Tešanj, Obs: Šarić 11.08.2013, host: <i>Malus pumila</i> Mill.                                                   | 44°36'50"N<br>17°59'54"E | 320 m    | YK34         |
| <i>Viscum album</i> subsp. <i>album</i> | 154 Jablanica, Maglaj, Obs: Šarić 19.10.2015, host: <i>Malus pumila</i> Mill.                                        | 44°33'33"N<br>18°06'57"E | 199 m    | BQ73         |
| <i>Viscum album</i> subsp. <i>album</i> | 155 Jablanica, Maglaj, Obs: Šarić 19.10.2015, host: <i>Pyrus communis</i> L.                                         | 44°33'33"N<br>18°06'57"E | 199 m    | BQ73         |
| <i>Viscum album</i> subsp. <i>album</i> | 156 Bijela Ploča, Maglaj, Obs: Šarić 19.10.2015, host: <i>Populus nigra</i> L.                                       | 44°33'39"N<br>18°06'20"E | 188 m    | BQ73         |
| <i>Viscum album</i> subsp. <i>album</i> | 157 Bijela Ploča, Maglaj, Obs: Šarić 19.10.2015, host: <i>Robinia pseudoacacia</i> L.                                | 44°33'39"N<br>18°06'20"E | 188 m    | BQ73         |
| <i>Viscum album</i> subsp. <i>album</i> | 158 Dolac, Zavidovići, Obs: Šarić 19.10.2015, host: <i>Malus pumila</i> Mill.                                        | 44°29'02"N<br>18°08'46"E | 254 m    | BQ72         |
| <i>Viscum album</i> subsp. <i>album</i> | 159 Dolac, Zavidovići, Obs: Šarić 19.10.2015, host: <i>Pyrus communis</i> L.                                         | 44°29'02"N<br>18°08'46"E | 254 m    | BQ72         |
| <i>Viscum album</i> subsp. <i>album</i> | 160 Visoko, Obs: Šarić 09.11.2015, host: <i>Pyrus communis</i> L.                                                    | 44°59'24"N<br>18°11'04"E | 461 m    | BQ78         |
| <i>Viscum album</i> subsp. <i>album</i> | 161 Visoko, Obs: Šarić 09.11.2015, host: <i>Malus pumila</i> Mill.                                                   | 44°59'24"N<br>18°11'04"E | 461 m    | BQ78         |
| <i>Viscum album</i> subsp. <i>album</i> | 162 Visoko, Obs: Šarić 09.11.2015, host: <i>Populus nigra</i> L.                                                     | 44°59'24"N<br>18°11'04"E | 461 m    | BQ78         |
| <i>Viscum album</i> subsp. <i>album</i> | 163 Vranduk, Zenica, Obs: Šarić 21.07.2016, host: <i>Pyrus communis</i> L.                                           | 44°17'38"N<br>17°53'52"E | 335 m    | YK30         |
| <i>Viscum album</i> subsp. <i>album</i> | 164 Vranduk, Zenica, Obs: Šarić 21.07.2016, host: <i>Malus pumila</i> Mill.                                          | 44°17'38"N<br>17°53'52"E | 335 m    | YK30         |
| <i>Viscum album</i> subsp. <i>album</i> | 165 Vranduk, Zenica, Obs: Šarić 21.07.2016, host: <i>Populus nigra</i> L.                                            | 44°17'35"N<br>17°53'48"E | 330 m    | YK30         |
| <i>Viscum album</i> subsp. <i>album</i> | 166 Žepče, Obs: Šarić 21.07.2016, host: <i>Pyrus communis</i> L.                                                     | 44°25'55"N<br>18°02'05"E | 276 m    | BQ62         |
| <i>Viscum album</i> subsp. <i>album</i> | 167 Žepče, Obs: Šarić 21.07.2016, host: <i>Malus pumila</i> Mill.                                                    | 44°25'26"N<br>18°01'23"E | 252 m    | BQ62         |
| <i>Viscum album</i> subsp. <i>album</i> | 168 Žepče, Obs: Šarić 21.07.2016, host: <i>Populus nigra</i> L.                                                      | 44°25'55"N<br>18°02'05"E | 276 m    | BQ62         |
| <i>Viscum album</i> subsp. <i>album</i> | 169 Vranduk, Zenica, Obs: Šarić 21.07.2016, host: <i>Acer saccharinum</i> L.                                         | 44°17'35"N<br>17°53'48"E | 330 m    | YK30         |
| <i>Viscum album</i> subsp. <i>album</i> | 170 Musići Olovo, Obs: Šarić 09.09.2011, host: <i>Pyrus communis</i> L.                                              | 44°06'51"N<br>18°31'25"E | 989 m    | CP08         |
| <i>Viscum album</i> subsp. <i>album</i> | 171 Olovo, Obs: Šarić 09.09.2011, host: <i>Malus pumila</i> Mill.                                                    | 44°07'20"N<br>18°34'25"E | 704 m    | CP08         |

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|-----------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>album</i> | 172 Banovići, Obs: Šarić 09.05.2014, host: <i>Pyrus communis</i> L.                                                  | 44°25'01"N<br>18°31'52"E | 360 m    | CQ02         |
| <i>Viscum album</i> subsp. <i>album</i> | 173 Banovići, Obs: Šarić 09.05.2014, host: <i>Malus pumila</i> Mill.                                                 | 44°25'01"N<br>18°31'52"E | 360 m    | CQ02         |
| <i>Viscum album</i> subsp. <i>album</i> | 174 Gornja Breza, Obs: Šarić 29.05.2017, host: <i>Pyrus communis</i> L.                                              | 44°01'58"N<br>18°14'35"E | 675 m    | BP77         |
| <i>Viscum album</i> subsp. <i>album</i> | 175 Gornja Breza, Obs: Šarić 29.05.2017, host: <i>Malus pumila</i> Mill.                                             | 44°01'58"N<br>18°14'35"E | 675 m    | BP77         |
| <i>Viscum album</i> subsp. <i>album</i> | 176 Koševo, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Malus</i> × <i>zumi</i> (Matsum.) Rehder                      | 43°52'06"N<br>18°25'03"E | 655 m    | BP96         |
| <i>Viscum album</i> subsp. <i>album</i> | 177 Grbavica, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Populus nigra</i> L.                                        | 43°51'05"N<br>18°23'23"E | 576 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 178 Grbavica, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Acer negundo</i> L.                                         | 43°51'05"N<br>18°23'23"E | 576 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 179 Grbavica, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Populus alba</i> L.                                         | 43°51'05"N<br>18°23'23"E | 576 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 180 Grbavica, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Acer platanoides</i> L.                                     | 43°51'05"N<br>18°23'23"E | 576 m    | BP95         |
| <i>Viscum album</i> subsp. <i>album</i> | 181 Vogošća, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Malus pumila</i> Mill.                                       | 43°54'07"N<br>18°20'05"E | 530 m    | BP86         |
| <i>Viscum album</i> subsp. <i>album</i> | 182 Vogošća, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Salix</i> × <i>pendulina</i> Wender.                         | 43°53'54"N<br>18°21'32"E | 566 m    | BP86         |
| <i>Viscum album</i> subsp. <i>album</i> | 183 Semizovac, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Robinia pseudoacacia</i> L.                                | 43°55'07"N<br>18°19'05"E | 523 m    | BP86         |
| <i>Viscum album</i> subsp. <i>album</i> | 184 Semizovac, Sarajevo, Obs: Šarić: 22.07.2015, host: <i>Malus pumila</i> Mill.                                     | 43°55'07"N<br>18°19'05"E | 523 m    | BP86         |
| <i>Viscum album</i> subsp. <i>album</i> | 185 Ljubetovo, Zenica, Obs: Šarić: 21.07.2016, host: <i>Prunus domestica</i> L.                                      | 44°17'37"N<br>17°53'26"E | 463 m    | YK30         |
| <i>Viscum album</i> subsp. <i>album</i> | 186 Kopijari Vareš, Obs: Šarić: 10.09.2015, host: <i>Salix</i> × <i>fragilis</i> L.                                  | 44°08'50"N<br>18°13'40"E | 1031 m   | BP79         |
| <i>Viscum album</i> subsp. <i>album</i> | 187 Kopijari Vareš, Obs: Šarić: 10.09.2015, host: <i>Populus tremula</i> L.                                          | 44°08'50"N<br>18°13'40"E | 1031 m   | BP79         |
| <i>Viscum album</i> subsp. <i>album</i> | 188 Kopijari Vareš, Obs: Šarić: 10.09.2015, host: <i>Rosa canina</i> L.                                              | 44°08'50"N<br>18°13'40"E | 1031 m   | BP79         |
| <i>Viscum album</i> subsp. <i>album</i> | 189 Kopijari Vareš, Obs: Šarić: 10.09.2015, host: <i>Crataegus monogyna</i> Jacq.                                    | 44°08'50"N<br>18°13'40"E | 1031 m   | BP79         |
| <i>Viscum album</i> subsp. <i>album</i> | 190 Kopijari Vareš, Obs: Šarić: 10.09.2015, host: <i>Pyrus communis</i> L.                                           | 44°08'50"N<br>18°13'40"E | 1031 m   | BP79         |
| <i>Viscum album</i> subsp. <i>album</i> | 191 Kopijari Vareš, Obs: Šarić: 10.09.2015, host: <i>Malus pumila</i> Mill.                                          | 44°08'50"N<br>18°13'40"E | 1031 m   | BP79         |
| <i>Viscum album</i> subsp. <i>album</i> | 192 Kopijari Vareš, Obs: Šarić: 10.09.2015, host: <i>Robinia pseudoacacia</i> L.                                     | 44°08'50"N<br>18°13'40"E | 1031 m   | BP79         |
| <i>Viscum album</i> subsp. <i>album</i> | 193 Kraljeva Sutjeska, Kakanj, Obs: Šarić: 10.09.2015, host: <i>Salix caprea</i> L.                                  | 44°06'35"N<br>18°11'36"E | 513 m    | BP78         |
| <i>Viscum album</i> subsp. <i>album</i> | 194 Kraljeva Sutjeska, Kakanj, Obs: Šarić: 10.09.2015, host: <i>Tilia platyphyllos</i> Scop.                         | 44°06'35"N<br>18°11'36"E | 513 m    | BP78         |

| Taxon                                        | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number) | WGS coordinates                   | Altitude | UTM quadrant |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>album</i>      | 195 Kraljeva Sutjeska, Kakanj, Obs: Šarić: 10.09.2015, host: <i>Acer pseudoalpinus</i> L.                            | 44°06'35"N<br>18°11'36"E          | 513 m    | BP78         |
| <i>Viscum album</i> subsp. <i>album</i>      | 196 Kraljeva Sutjeska, Kakanj, Obs: Šarić: 10.09.2015, host: <i>Acer tataricum</i> L.                                | 44°06'35"N<br>18°11'36"E          | 513 m    | BP78         |
| <i>Viscum album</i> subsp. <i>album</i>      | 197 Živinice Kupjerusi. Obs: Šarić 22.10.2015, host: <i>Tilia cordata</i> Mill.                                      | 44°24'03"N<br>18°36'25"E          | 360 m    | CQ01         |
| <i>Viscum album</i> subsp. <i>album</i>      | 198 Živinice Kupjerusi., Obs: Šarić: 22.10.2015, host: <i>Robinia pseudoacacia</i> L.                                | 44°24'03"N<br>18°36'25"E          | 360 m    | CQ01         |
| <i>Viscum album</i> subsp. <i>album</i>      | 199 Živinice Golubinjak, Obs: Šarić: 22.10.2015, host: <i>Robinia pseudoacacia</i> L.                                | 44°25'57"N<br>18°39'05"E          | 243 m    | CQ12         |
| <i>Viscum album</i> subsp. <i>album</i>      | 200 Živinice. Gornja Višća, Obs: Šarić: 22.10.2015, host: <i>Salix × fragilis</i> L.                                 | 44°24'43"N<br>18°36'31"E          | 280 m    | CQ02         |
| <i>Viscum album</i> subsp. <i>album</i>      | 201 Koševo, Sarajevo, Obs: Šarić: 23.07.2014, host: <i>Sorbus aucuparia</i> L.                                       | 43°52'14"N<br>18°24'47"E<br>655 m | 646 m    | BP96         |
| <i>Viscum album</i> subsp. <i>album</i>      | 202 Živinice Đurđevik, Obs: Šarić: 03.05.2012, host: <i>Malus pumila</i> Mill.                                       | 43°24'44"N<br>18°39'48"E<br>655 m | 270 m    | CP10         |
| <i>Viscum album</i> subsp. <i>album</i>      | 203 Živinice Beširovići, Obs: Šarić: 03.05.2012, host: <i>Malus pumila</i> Mill.                                     | 43°23'46"N<br>18°39'56"E<br>655 m | 291 m    | CP10         |
| <i>Viscum album</i> subsp. <i>album</i>      | 204 Živinice Beširovići, Obs: Šarić: 03.05.2012, host: <i>Populus tremula</i> L.                                     | 43°23'46"N<br>18°39'56"E<br>655 m | 291 m    | CP10         |
| <i>Viscum album</i> subsp. <i>album</i>      | 205 Kakanj, Obs: Šarić: 03.05.2012, host: <i>Populus nigra</i> L.                                                    | 44°07'22"N<br>18°05'45"E          | 476 m    | BP68         |
| <i>Viscum album</i> subsp. <i>album</i>      | 206 Breštica, Banovići, Obs: Šarić: 03.05.2012, host: <i>Malus pumila</i> Mill.                                      | 44°23'10"N<br>18°31'05"E          | 462 m    | CQ01         |
| <i>Viscum album</i> subsp. <i>album</i>      | 207 Ljubina Ilijaš, Obs: Šarić: 20.08.2014, host: <i>Crataegus monogyna</i> Jacq.                                    | 43°57'27"N<br>18°21'15"E          | 608 m    | BP87         |
| <i>Viscum album</i> subsp. <i>album</i>      | 208 Kobilja Glava, Sarajevo, Obs: Šarić: 22.08.2010, host: <i>Malus pumila</i> Mill.                                 | 43°53'10"N<br>18°23'14"E          | 692 m    | BP96         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 1 Lit: Vrtaljica, Konjic, Pichler 1901, Obs: Maslo 15.06.2016.                                                       | 43°39'17"N<br>17°57'54"E          | 347 m    | YJ33         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 2 Lit: Prenj, Porim Mt., Pichler 1901, host: <i>Pinus heldreichii</i> Christ                                         | 43°27'34"N<br>17°56'50"E          | 1096 m   | YJ31         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 3 Lit: Gradina near Konjic, Malý 1912, Herb: leg. Malý 08.04.1912 (SARA 08564).                                      | 43°40'52"N<br>17°59'40"E          | 750 m    | YJ34         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 4 Lit: Teslić, Tubeuf 1923.                                                                                          | 44°36'20"N<br>17°52'20"E          | 236 m    | YK24         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 5 Lit: Zenica, Tubeuf 1923.                                                                                          | 44°12'30"N<br>17°57'03"E          | 671 m    | YJ39         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 6 Lit: Žepče, Tubeuf 1923.                                                                                           | 44°24'47"N<br>18°02'29"E          | 450 m    | BQ62         |

| Taxon                                        | Number and name of the locality, observers (collectors) and dates for the observations (Herbarium/collection number) | WGS coordinates          | Altitude | UTM quadrant |
|----------------------------------------------|----------------------------------------------------------------------------------------------------------------------|--------------------------|----------|--------------|
| <i>Viscum album</i> subsp. <i>austriacum</i> | 7 Lit: Višegrad, Tubeuf 1923.                                                                                        | 43°47'03"N<br>19°18'11"E | 404 m    | CP64         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 8 Lit: Luka, Srebrenica, Tubeuf 1923, Obs: Šarić 2020.                                                               | 44°00'12"N<br>19°13'19"E | 1060 m   | CP57         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 9 Lit: Lastva, Trebinje, Pichler 1901, Ritter-Studnička 1959, Herb: leg. Ritter-Studnička 20.05.1956 (SARA 49540).   | 42°41'46"N<br>18°29'13"E | 392 m    | BN93         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 10 Herb: Ladanica near Glavatičevo, leg. Maslo 01.04.2010 (SARA 52886), Obs: Maslo 15.06.2016.                       | 43°30'16"N<br>18°08'29"E | 487 m    | BP62         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 11 Herb: Prenj Mt, Borovac near Mljetvine, leg. Šilić 29.04.1970 (SARA 58489).                                       | 43°31'32"N<br>18°04'18"E | 470 m    | BP62         |
| <i>Viscum album</i> subsp. <i>austriacum</i> | 12 Prenj Mt., Veliko Rujište, Stogovi, Obs: Maslo 15.06.2016.                                                        | 43°27'26"N<br>17°57'30"E | 1080 m   | YJ31         |