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OPHRYS ILLYRICA S.HERTEL & K.HERTEL (ORCHIDACEAE), A NEW SPECIES IN THE SLOVENIAN FLORA

Igor PAUŠIČ, Žan CENC & Branko BAKAN

Biology Department, Faculty of Natural Sciences and Mathematics, University of Maribor, Koroška c. 160, SI-2000 Maribor, Slovenia
e-mail: igor.pausic@um.si

ABSTRACT

Two late flowering specimens from the *Ophrys incubacea* group were observed, the first specimen on 11th May 2016 and the second on 19th May 2016 on limestone in the area of Veli Badin above Sočerga, SW Slovenia. Floral macro-morphological characteristics were as follows: very lax inflorescence with small flowers, dark reddish-brown, horizontally aligned lip. The lip was slightly convex, without basal swellings, and with hairless, orange-brown border of the lip (rim) curved upwards. Stigmatic cavity was concolourous with the lip, higher than broader, strongly constricted at the base. Speculum was glossy, dark bluish, edged whitish, π shaped, not branched. Due to the macro-morphological characteristics and late beginning of flowering phase, two specimens were determined as *Ophrys illyrica* S.Hertel & K.Hertel (Orchidaceae), a new bee orchid species in the Slovenian flora.

Keywords: Orchidaceae, *Ophrys illyrica*, Veli Badin, Istria, SW Slovenia

OPHRYS ILLYRICA S.HERTEL & K.HERTEL (ORCHIDACEAE), NUOVA SPECIE NELLA FLORA SLOVENA

SINTESI

Due esemplari in fioritura tardiva, appartenenti al gruppo *Ophrys incubacea*, sono stati osservati l'11 maggio e 19 maggio 2016, sulla pietra calcarea nella zona di Veli Badin, sopra Sočerga (Slovenia SO). Le caratteristiche macro-morfologiche floreali comprendevano un'infiorescenza molto molle con piccoli fiori, di colore rosso-marrone scuro, con il labello allineato orizzontalmente. Il labello era leggermente convesso, senza rigonfiamenti basali, senza peli, con il bordo arancio-marrone e ricurvo verso l'alto. La cavità stigmatica era più alta che larga e fortemente ristretta alla base. La macula era lucida, di colore bluastro scuro, con gli orli biancastri, a forma di π , non ramificata. Viste le caratteristiche macro-morfologiche e il tardo inizio della fase di fioritura, i due campioni sono stati determinati come *Ophrys illyrica* S.Hertel & K.Hertel (Orchidaceae), una nuova specie di orchidee nella flora slovena.

Parole chiave: Orchidaceae, *Ophrys illyrica*, Veli Badin, Istria, Slovenia SO

INTRODUCTION

The orchid genus *Ophrys* is known for its distinctive floral morphology and remarkable pseudocopulatory reproductive strategy (Cozzolino & Scopece, 2008; Devey *et al.*, 2008; Schiestl & Cozzolino, 2008; Cortis *et al.*, 2009).

Ophrys incubacea s.l. (*sensu lato*) is, according to Delforge (2006) a group of ten western species, and some varieties, distributed from Spain to Italy, Slovenia and Croatia, Montenegro and Albania to the southeast. Some of them are very localized, like *Ophrys sipontensis* R. Lorenz & Gembardt which is endemic to the south of mount Gargano (Siponto plain) in Italy and *Ophrys aveyronensis* (J. J. Wood) P. Delforge, endemic to the south of the French Massif Central, mainly on the Causse du Larzac (Delforge, 2006). All species of this group tend to have broad petals, their stigmatic cavities of the same dark colour as the central part of their lip, which tells them apart from those of the closely related, *Ophrys sphegodes* s.l. group which always have the stigmatic cavity lighter than the central part of the lip (Delforge, 2006).

According to Martinčič *et al.* (2007), 8 species from the genus *Ophrys* are present within the Slovenian territory, 2 of them belonging to the *Ophrys incubacea* group: *Ophrys incubacea* s.s. (*sensu stricto*) and *Ophrys tommasinii* Visiani. *Ophrys incubacea* Bianca is restricted to Istria with less than five known localities in Slovenia. For Slovenian coast (Piran and Koper) this species was already mentioned by Marchesetti (1896–1897) using the synonym *Ophrys atrata* Lindl. *Ophrys incubacea* s.s. was/is often confused with *Ophrys sphegodes* s.s. for different reasons. Its actual distribution in Slovenia is much more localized than many authors assume or claim. In Slovenia, the occurrence of the second taxa, *Ophrys tommasinii*, syn. *Ophrys aranifera* subsp. *tommasinii* (Visiani) E.G. Camus, still remains questionable.

Hertel and Hertel (2002) have presented a paper in Journal Europäischer Orchideen devoted to orchids from Croatian Istria. They report on late flowering group of *Ophrys sphegodes*-like species with relatively small flowers, but belonging to the *Ophrys incubacea* group. They flower successively and are quite easily distinguished by the numerous morphological features (Tab. 1). They consider the early, in April flowering species, as *Ophrys tommasinii*, and name the other one, flowering from early May to mid-June as *Ophrys illyrica* S. Hertel & K. Hertel, synonym *Ophrys araneola* subsp. *illyrica* (S. Hertel & K. Hertel) Kreutz. It is possible to distinguish both species according to the following morphological features (see also Tab. 1):

- The stigmatic cavity is always significantly higher for an equivalent breadth at *Ophrys illyrica* and the stigmatic head is laced stronger than that of *Ophrys tommasinii*.
- The column (gynostemium) always makes a larger angle with the lip in the case of *Ophrys illyrica*,

as it does by *Ophrys tommasinii* where they are roughly parallel.

- The lip of *Ophrys tommasinii* frequently shows small round gibbosities (swellings) usually absent in *Ophrys illyrica*, the flowers of which don't quickly fade after anthesis.
- *Ophrys illyrica* flowers almost a month later than the *Ophrys tommasinii* in the same altitudes.

According to Ravnik (2002) and Dolinar (2015), *Ophrys tommasinii* grows in Slovenian Istria (Krkač, Marežice, Sočerga). *Ophrys illyrica* on the other hand was thought to be a Croatian endemic (Delforge, 2006). *Ophrys illyrica* is the third and last flowering species of small flowered *Ophrys sphegodes*-like species in southern Istria and Kvarner archipelago. Its locus typicus being on the island of Cres. The species was already recorded from the Rijeka area, southern part of Istrian peninsula, island of Krk, Cres and Lošinj islands (Rottensteiner *et al.*, 2014). Central Istria was thought to be the northernmost border of its areal (Rottensteiner *et al.*, 2014). The other two species referred to, are *Ophrys tommasinii* and, controversial *Ophrys incantata* Devillers & Devillers-Tersch. (probably the *Ophrys tommasinii* in the Northern Adriatic). In Croatia, the flowering period of three *Ophrys* species with small flowers follow each other. It begins in central and southern Dalmatia with *Ophrys incantata* in March and early April. According to Delforge (Delforge, 2006), *Ophrys incantata* belongs to the *Ophrys axaltata* group. According to the Flora Croatia Database (Nikolić, 2015), this species is restricted to the central Dalmatia (Dalmatinska zagora, Primošten). On the other hand, Kranjčev (2005) doesn't mention the species *Ophrys incantata* for Croatia at all. The species *Ophrys tommasinii* follows in April and *Ophrys illyrica* is the last one, flowering from May to mid-June.

To summarize, Hertel and Hertel (2002) describe a small flowered species from Croatia as *Ophrys illyrica*, which is in flower in May and June, about a month later than *Ophrys tommasinii*. Its stigmatic cavity is higher and the stigmatic head is laced stronger than that of *Ophrys tommasinii*. The horizontally aligned lip is a characteristic feature of *Ophrys illyrica* (in addition to the late flowering). The colour of the labellum is a dark reddish brown, while the labellum of *Ophrys tommasinii* has a lighter yellowish brown colour.

MATERIAL AND METHODS

Two late flowering specimens from the *Ophrys incubacea* s.l. group were observed on 11th May and 19th May 2016 on limestone in the area of Veli Badin above Sočerga (Figs. 1 and 2D) in the altitude of about 330 m in dry grassland belonging to the *Satureion subspicata* alliance. Its floral macro-morphological characteristics were compared with those of the *Ophrys incubacea* group members: *Ophrys illyrica*, *Ophrys incubacea* s.s. and *Ophrys tommasinii*, but also with *Ophrys sphegodes*

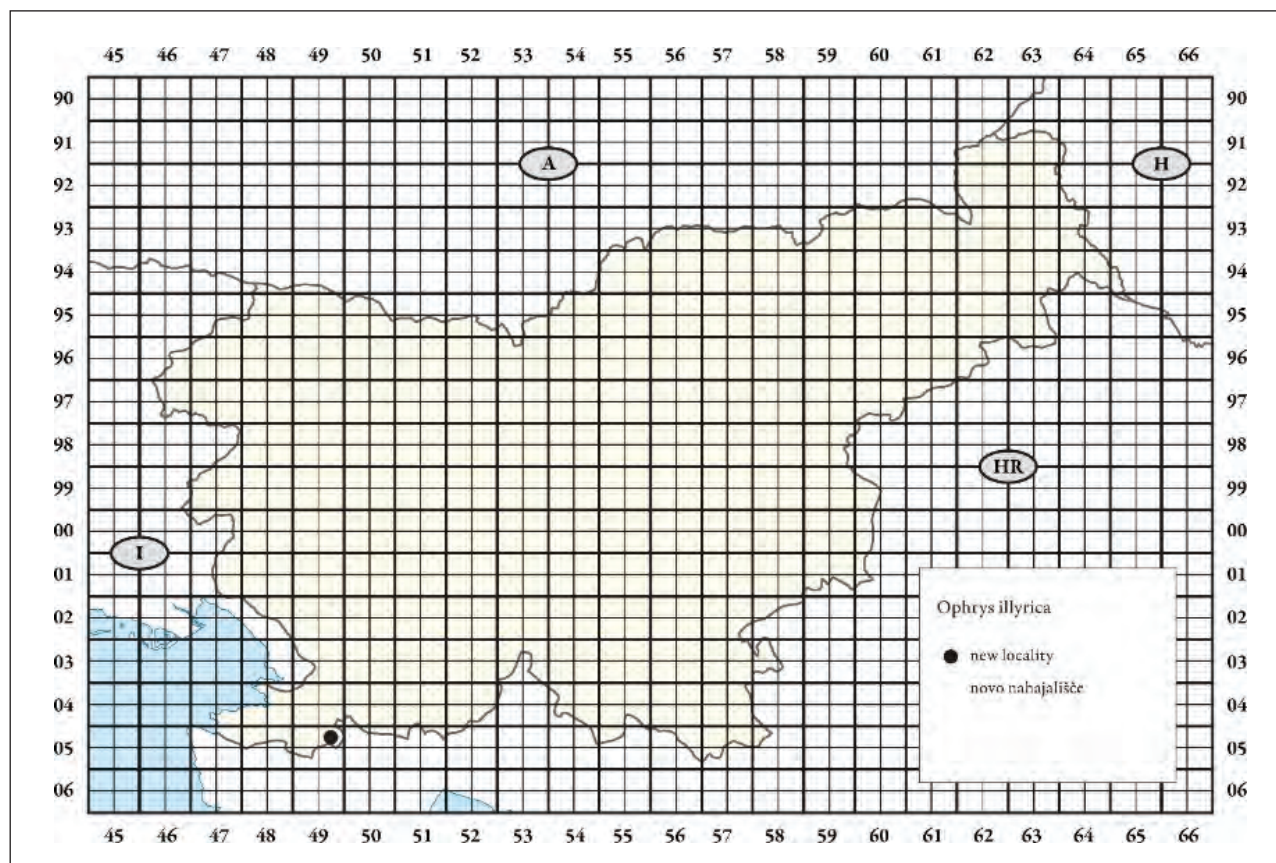


Fig. 1: Map of Slovenia with the *Ophrys illyrica* locality in Slovenian Istria.

Sl. 1: Karta Slovenije in lokacija rastišča Ilirskega mačjega ušesa (*Ophrys illyrica*) v slovenski Istri.

s.s. (*Ophrys sphegodes* group) in order to determine its taxonomic status. All photographs and measurements were done in the field.

RESULTS

The plants were 27 cm and 30.8 cm tall, with 7 flowers and 5 flowers. Only two of the flowers per each plant were fully opened at the time of observation (Figures 2A and 2C). Both inflorescences were very lax. The lip was horizontally aligned (Fig. 2B), entire, small, in average 9.8 mm long, dark reddish-brown, flat, slightly convex and without basal swellings. The border of the lip (rim) was hairless, orange-brown curved upwards. Speculum was glossy, dark bluish, edged whitish, π shaped, not branched. Stigmatic cavity was concolorous with lip, strongly constricted at its base, bluish specular stage was clearly visible. Pseudo eyes were blackish, encircled pale bluish with a whitish bridle. Petals were broadly lanceolate with the undulated rim (Fig. 2A). The column was not parallel with the lip (Fig. 2B). Due to the morphological features (Tab. 1) in addition to the late flowering, both observed specimens were determined as the *Ophrys illyrica*.

DISCUSSION

The potential occurrence of the late flowering, *Ophrys sphegodes*-like specimens from the *Ophrys incubacea* s.l. group in the Slovenian Istria was already speculated (Dolinar, 2015; Kaligarič, 1991; Ravnik, 2002). Dolinar (2015) mentions the occurrence of the *Ophrys tommasinii* in Slovenian Istria. Pospichal (1897) mentions the occurrence of the *Ophrys tommasinii* (syn. *Ophrys aranifera* Huds. Fl.), but only for central and southern Istria (Svetvinčenat, Barban, Bršiča). Also Pospichal (1897) mentions the occurrence of the *Ophrys fucifera* Sm. Brit. (*Ophrys fucifera* is a synonym of *Ophrys sphegodes* Mill.). The author distinguishes between three types: α - forma typica (*Ophrys sphegodes* s.s.), species is common in flysch (Koper, Izola), β - atrata (*Ophrys incubacea* s.s.), species restricted to limestone, terra rossa and γ - pseudospeculum (Volovica, Pazin). The pseudospeculum form flowers till June. It seem quite possible that, according to Pospichal (1897), the pseudospeculum term refers to *Ophrys illyrica* due to its late flowering. *Ophrys illyrica* specimens from Veli Badin only started flowering at the time of the observation, according to Dolinar (2015) *Ophrys tommasinii*

Tab. 1: Floral macro- morphological and other differences between members of the *Ophrys incubacea* group, native to Slovenia and *Ophrys sphegodes* s.s. according to Delforge (2006) and Rottensteiner et al. (2014).**Tab. 1: Makro- morfološke razlike cvetov ter druge razlike med, v Sloveniji samoniklimi vrstami mačjih ušes iz oblikovnega kroga *Ophrys incubacea* in *Ophrys sphegodes*. Povzeto po Delforge (2006) in Rottensteiner s sod. (2014).**

	<i>Ophrys incubacea</i> group				<i>Ophrys sphegodes</i> group
	<i>Ophrys tommasinii</i>	<i>Ophrys incubacea</i> s.s.	<i>Ophrys illyrica</i>	specimens from Veli Badin	<i>Ophrys sphegodes</i> s.s.
Inflorescence	rather dense (2-11 small flowers)	lax (3-8 relatively large flowers)	very lax (2-10 small flowers)	very lax with 7 flowers and 5 flowers	lax (3-12 flowers)
Sepals	spreading, whitish-green, lanceolate	green (slightly whitish), rarely pinkish, spreading, oval-lanceolate	spreading, greenish, lanceolate	spreading, greenish, lanceolate	broadly oval-lanceolate, bright green, whitish green, yellowish or olive-green
Petals	narrowly lanceolate, entire, chestnut-brown to yellowish-brown	green to brown, sometimes pink, darker than sepals, narrowly to broadly lanceolate	broadly lanceolate, margins undulate yellowish-brown	broadly lanceolate, margins undulate, yellowish-brown	spreading, greenish-yellow to olive-green, of various shape: oblong, lanceolate, oval, margins strongly undulate
Lip	light yellowish brown, pronounced convex, with rounded basal swellings, not longer than 9 mm	entire or obscurely 3 lobed, up to 14 mm long, dark brown to blackish, margins turned down	dark reddish-brown, slightly convex without basal swellings, 9.5-10 mm long	horizontally aligned, dark reddish-brown, slightly convex without basal, 9.6- 10 mm long	chestnut brown, reddish-brown, entire rarely 3 lobed, up to 15 mm long, convex, margins turned down
Basal swellings	more or less marked	prominent triangular basal swellings, up to 4 mm high, hairless on inner side	absent	absent	more or less well marked
Speculum	basal, drab, dark greyish, edged whitish	central, rather simple forming H shape, blue, glossy, rarely edged whitish	basal, slightly glossy, dark bluish, often edged whitish	π shaped, glossy, dark bluish, edged whitish	greyish to bluish, glossy, often simply forming a thickened H shape
Stigmatic cavity	paler, greenish-grey, with a blurred bluish to whitish specular stage, not obvious	concolourous with the centre of the lip, contrasting with their whitish edges, floor with a strongly contrasting white or pale bluish specular stage	concolourous with lip, higher than broad, strongly constricted at the base	concolourous with lip, higher than broad, strongly constricted at the base	and basal field rather reduced, coloration paler than centre of the lip, stigmatic cavity rounded
Pseudo-eyes	greenish-grey, iridescent, rather large and globular	circular, spotted black or blue in centre, edged pale blue	blackish, contrastingly encircled pale bluish	blackish, contrastingly encircled whitish-pale bluish	iridescent greenish-grey, sometimes encircled with pale greenish

Flowering season	end III, IV, early V	III-V	late flowering: a month later than <i>O. tommasinii</i> V, mid VI	mid V (beginning of the flowering phase)	mid III to late IV in Istria (late III-mid V in continental Slovenia)
Pollinator	<i>Andrena vulpecula</i> (Hymenoptera: Andrenidae)	<i>Andrena morio</i> (Hymenoptera: Andrenidae)	<i>Andrena pandellei</i> (Hymenoptera: Andrenidae)	Pollinator was not observed in the field	<i>Andrena nigroaenea</i> , <i>A. barbilabris</i> , <i>A. cineraria</i> , <i>A. limata</i> (Hymenoptera: Andrenidae)

ends with flowering phases in Slovenian Istria already in the mid-April. The flowering period of the *Ophrys sphegodes* s.s. in Slovenian Istria extends from mid-March till the end of April. Because of the poorly known distribution of *Ophrys illyrica* in Slovenia, this taxon should definitely belong to the Slovenian Red List as a vulnerable taxon (V). The reason for this lack of data for Slovenia is mainly due to morphological similarity with the *Ophrys sphegodes* s.s. It is of great importance to closely observe late flowering specimens from the *Ophrys incubacea* group which are flowering from May till June and resemble *Ophrys sphegodes* s.s. On the other hand, closer inspection of the inflorescence and floral elements reveals quite sufficient and reliable mor-

phological dissimilarities between *Ophrys sphegodes* s.s. and *Ophrys illyrica*, but also *Ophrys tommasinii* and *Ophrys illyrica*. The occurrence of this taxon in Slovenia is not surprising, and it is likely to have more localities elsewhere in the Slovenian Istria.

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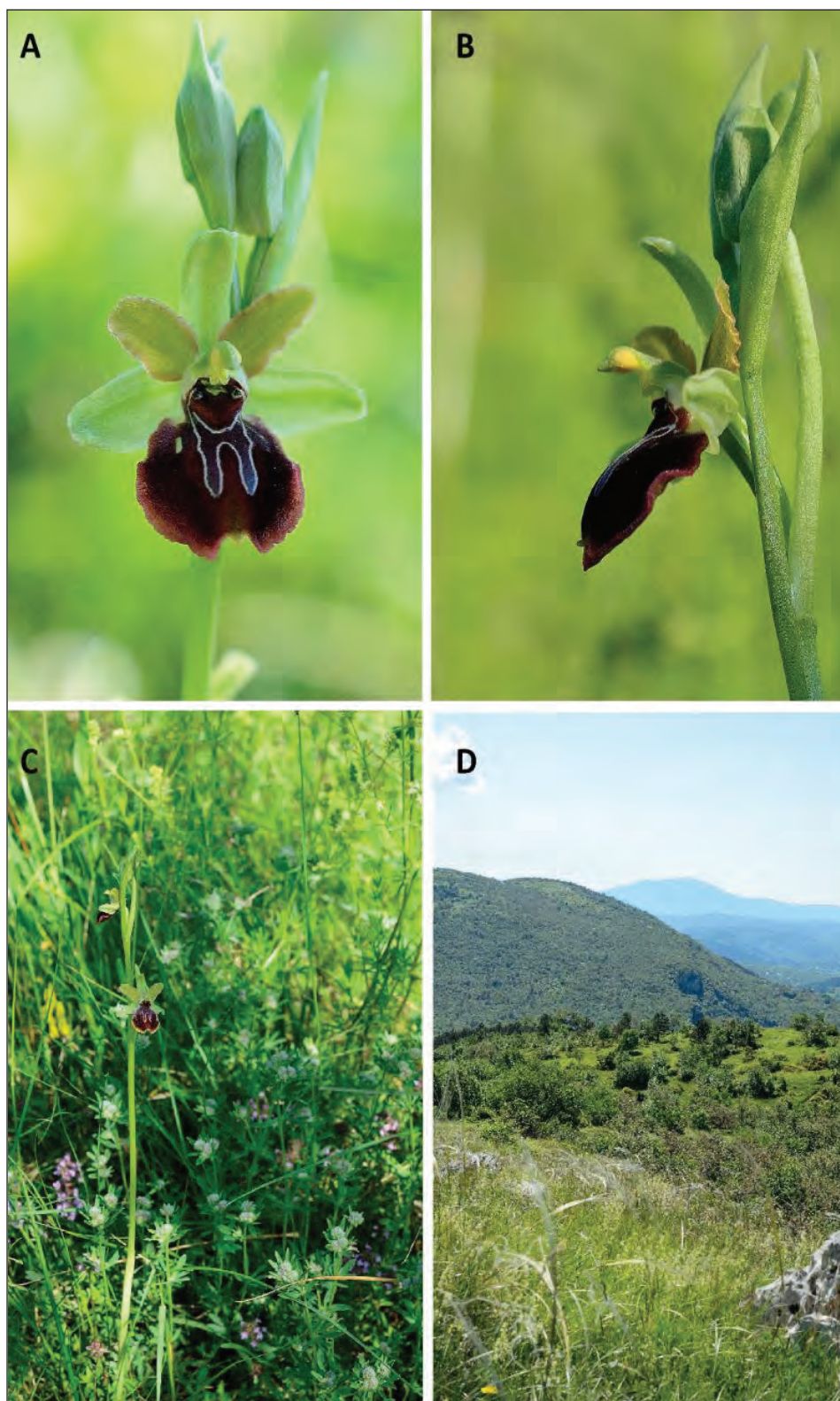


Fig. 2: *Ophrys illyrica* at Veli Badin, Istria, SW Slovenia; A- frontal view of the flower, B- lateral view, C- habitus, D- habitat (Photo: I. Paušič, 19.5.2016).

Sl. 2: *Ilirsko mačje uho* (*Ophrys illyrica*) z rastišča Veli Badin, Istra, JZ Slovenija; A- sprednji pogled na cvet, B- stranski pogled, C- celotna rastlina, D- habitat (Photo: I. Paušič, 19.5.2016).

OPHRYS ILLYRICA S.HERTEL & K.HERTEL (ORCHIDACEAE),
NOVA VRSTA V FLORI SLOVENIJE

Igor PAUŠIČ, Žan CENC & Branko BAKAN

Biology Department, Faculty of Natural Sciences and Mathematics, University of Maribor, Koroška c. 160, SI-2000 Maribor, Slovenia
e-mail: igor.pausic@um.si

POVZETEK

Na območju spodmolov Veli Badin nad Sočergo (Istra, JZ Slovenija) smo 11. in 19. maja 2016 naleteli na dva, kasno cvetoča primerka mačjih ušes (rod *Ophrys*) iz oblikovnega kroga *Ophrys incubacea*. Primerka sta imela majhne cvetove in rahlo socvetje. Vodoravno nastavljena medena ustna je bila temno, rdečerrjavo obarvana in le rahlo konveksna, brez lateralnih grbin. Rob medene ustne je bil svetlejšega odtenka, oranžno rjav, z rahlo navzgor uvihanim robom. Brazdna votlina je bila pri obeh primerkih višja kot široka, na bazi močno zažeta. Risba (lat. macula) je bila bleščeča, modro obarvana s kontrastno, belo obrobo, ne razvejana. Zaradi omenjenih makro morfoloških znakov cvetov in kasnega začetka cvetenja smo najdena primerka mačjih ušes determinirali kot Ilirsko mačje uho, *Ophrys illyrica* S.Hertel & K.Hertel (Orchidaceae), novo vrsto v flori Slovenije.

Ključne besede: Orchidaceae, *Ophrys illyrica*, Veli Badin, Istra, JZ Slovenija

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