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***EPIPACTIS MUELLERI* GODFERY (*ORCHIDACEAE*), A NEW SPECIES FOR THE FLORA OF UKRAINE**

Key words: *Epipactis*, *flora*, *Ukraine*, *Crimea*

Abstract

A self-pollinated orchid, *Epipactis muelleri* Godfery, is reported from the Crimea as a new species for the flora of Ukraine. Data on key diagnostic characters of the species and collected herbarium specimens are provided.

Twelve species and subspecies of the genus *Epipactis* were known in Ukraine until recently: *E. palustris* (L.) Crantz from sect. *Arthrochilium* Irmisch, ser. *Palustres* Nevski ex Efimov; *E. atrorubens* (Hoffm.) Besser and *E. microphylla* (Ehrh.) Sw. from sect. *Epipactis*, ser. *Atrorubentae* Nevski ex Efimov; and *E. condensata* Boiss. ex D.P. Young, *E. helleborine* (L.) Crantz, *E. helleborine* subsp. *levantina* Kreutz, Óvári & Shifman, *E. helleborine* subsp. *orbicularis* (K. Richt.) E. Klein, *E. turcica* Kreutz, *E. purpurata* Sm., *E. albensis* Nováková & Rydlo, *E. persica* (Soó) Nannf., and *E. taurica* Fateryga & Kreutz from sect. *Epipactis*, ser. *Epipactis* [1–7, 9–12].

Taxonomy of representatives of the genus *Epipactis* is quite complicated due to their low interspecific morphological differentiation, especially in the nominative section. As far as this genus was not previously studied in Ukraine in detail, several species groups need further investigations. Thus, *E. turcica* is quite closely related to *E. tremolsii* Pau and probably can be better treated as its subspecies. The same situation can be applicable to *E. taurica*, which is closely related to *E. persica*. In addition, the presence of *E. condensata* in Ukraine should be confirmed with new findings [6].

However, some taxa discovered recently (e.g. obligate self-pollinated species like *E. albensis*) are well-recognized and clearly separated morphologically from other entities. First of all, it is characteristic of obligate self-pollinated species (e.g., *E. albensis*). This species

has been the only obligate self-pollinated *Epipactis* known in Ukraine (Carpathians Region) until now [7], and we succeeded in finding another such species in the Crimea. The species has been identified as *E. muelleri* Godfery.

Herbarium specimens of the discovered species are deposited at the National Herbarium of Ukraine, Kiev (*KW*), the Herbarium of National University of Life and Environmental Sciences of Ukraine, Southern Branch «Crimean Agrotechnological University», Simferopol (*CSAU*), and the Herbarium of Karadag Nature Reserve, NAS of Ukraine, Feodosiya (*PHEO*). Photographs of discovered plants are stored in the Plantarium website (<http://www.plantarium.ru/page/view/item/52778.html>).

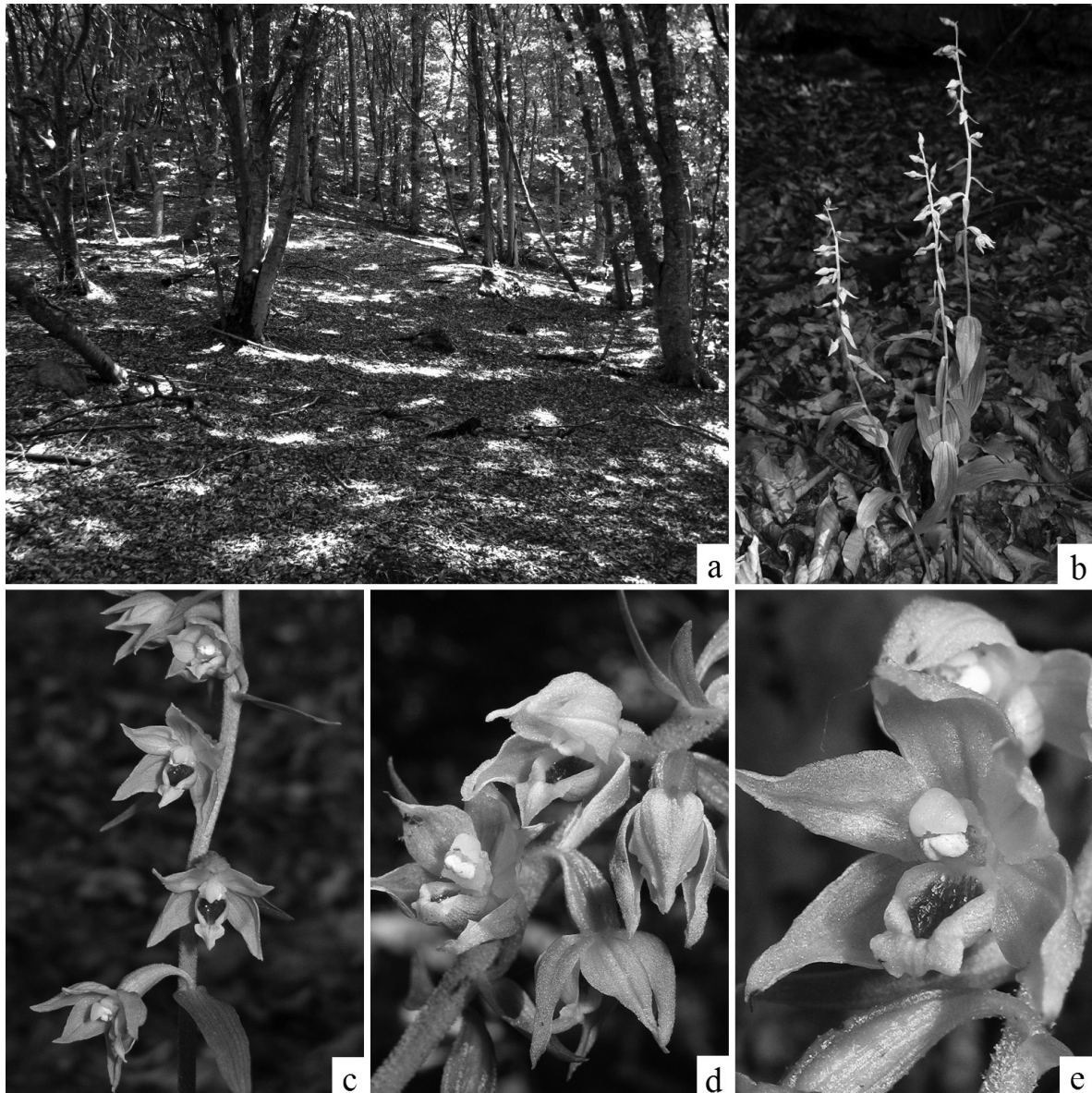
Epipactis muelleri Godfery, 1921, J. Bot. (London), **59**: 106. — *Helleborine muelleri* (Godfery) Bech., 1936, Bech. Ber. Schweiz. Bot. Ges., **45**: 266. — *E. helleborine* subsp. *muelleri* (Godfery) O. Bolòs, Masalles & Vigo, 1988, Collect. Bot. (Barcelona), **17**(1): 96.

Diagnostic characters. Plant slender, (10)20–60(90) cm tall, usually with 1 or rarely up to 3 stems (figure, *b*); stem erect or slightly inclined, completely green; at the base subglabrous, in inflorescence well pubescent, with 5–7(10) leaves. Leaves green to yellowish-green, arching, channeled, usually distichous, with undulate margins, lower leaves ovate to ovate-lanceolate, medium ones ovate-lanceolate to lanceolate, acuminate, 4–12 cm long, 2–5 cm wide, upper ones bract-like. Inflorescence 5–20(28) cm long, (7)10–30(45) — flowered, elongate, subdense, sometimes one-sided; pedicel green; ovary pyriform, almost glabrous. Flowers spreading to campanulate, self-pollinated; sepals 7–12 mm long and 4–5 mm wide, yellowish-green to whitish-

green; petals 7–10 mm long and 4–5 mm wide, of the same color as sepals or some what paler; hypochile cup-shaped, pale pink to greenish-pink outside, brownish-red inside, containing nectar; junction of hypochile and epichile broad; epichile cordate, 4–5 mm long and 2.5–4 mm wide, flat or only with two small indistinct tubercles at the base, pinkish-green to yellowish-green, at the top turned down and backwards; clinandrium in the form of narrow cut or absent; viscidium absent; pollinia erect, friable, their basis touching the stigma (figure, *c–e*).

Material examined. The Crimea, west slope of Dolgorukovskaya Yayla Mt., oak forest (44°50'20''N, 34°21'37''E, 750 m above sea level), 05.07.2013, V.V. Fateryga (2 at *PHEO*); *ibid.*, beech forest (44°50'25''N, 34°21'54''E, 840 m above sea level), A.V. Fateryga (1 at *KW000107361*, 1 at *CSAU*, and 1 at *PHEO*); the Crimea, south slope of Babugan Yayla Mt., pine forest (44°35'14''N, 34°16'50''E, 850 m above sea level), 07.07.2013, S.A. Svirin (1 at *CSAU*).

General distribution. Patchy in Central Europe; southward to the Pyrenees, Central Italy, Sardinia,



Habitat, plants, inflorescences and flowers of *Epipactis muelleri* Godfrey: a — habitat; b — flowering plants; c–d — part of inflorescence; e — flower. Photographs by A.V. Fateryga.

Slovenia and Croatia; eastward to Hungary and the Czech and Slovak Republics; northward to Belgium, the southern part of the Netherlands and Poland (http://www.aho-bayern.de/epipactis/fs_epipactis_1.html, http://euromed.luomus.fi/euromed_map.php?taxon=507233&size=medium).

Habitat. Woodlands, forest edges, glades, and shrubs, up to 1500 m above sea level, on fairly dry, calcareous soil [13, 14]. In the Crimea the plants were found in a beech (*Fagus sylvatica* L.) forest (figure, a), pine (*Pinus nigra* J.F. Arnold subsp. *pallasiana* (Lamb.) Holmboe) forest, and oak (*Quercus petraea* (Matt.) Liebl.) light forest edge.

Phenology. Flowering plants of *E. muelleri* were recorded on July 5, 2013, but it can be approximated that the flowering period extends from the end of June to the end of July, after the flowering period of other species of the genus growing together with it (*E. helleborine* subsp. *levantina* and *E. persica*). In the countries of Central Europe, however, *E. muelleri* flowers earlier than *E. helleborine* [8].

Epipactis muelleri is well recognized among other species of *Epipactis* occurring in Ukraine by the absence of viscidium, strongly green pedicels and a small cordate epichile with only small indistinct tubercles at the base, or without them. However, these characters are visible well only on living plants and can be missed when studying herbarium specimens.

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**EPIPACTIS MUELLERI GODFERY (ORCHIDACEAE) —
НОВИЙ ВИД ДЛЯ ФЛОРИ УКРАЇНИ**

Epipactis muelleri Godfery, самозапильний вид орхідей, знайдено в Криму як новий вид для флори України. Наведено дані про його ключові діагностичні ознаки та зібрані гербарні зразки.

Ключові слова: *Epipactis*, флора, Україна, Крим.

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НОВИЙ ВИД ДЛЯ ФЛОРИ УКРАЇНИ**

Epipactis muelleri Godfery, самоопыляемый вид орхидей, найден в Крыму как новый вид для флоры Украины. Приводятся данные о его ключевых диагностических признаках и собранных гербарных образцах.

Ключевые слова: *Epipactis*, флора, Украина, Крым.