

## A new hybrid in the genus *Ophrys* (Orchidaceae) from the Elba Island (central Italy)

Duilio Iamónico<sup>1,\*</sup>, Leonardo Forbicioni<sup>2</sup> & Giuliano Frangini<sup>3</sup>

<sup>1)</sup> Department of Environmental Biology, University of Rome Sapienza, IT-00185 Rome, Italy  
(\*corresponding author's e-mail: duilio76@yahoo.it)

<sup>2)</sup> Via Roma 6, IT-57037 Portoferraio (Livorno), Italy

<sup>3)</sup> Via Aldo Moro 7, IT-57037 Portoferraio (Livorno), Italy

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The natural hybrid *Ophrys* × *capoliverii* Iamónico, Forbicioni & Frangini, *hybr. nat. nov.* (*O. fusca* subsp. *lucifera* × *O. speculum*) from the Elba Island (Toscana region, central Italy) is described. The flowers have intermediate characters between the putative parents (sepal and petal dimensions, petal colour and hairiness of the lip marginal zone). The new nothospecies is close to *O. fusca* subsp. *lucifera* in the ovate basal leaves, green-yellowish colour of the sepals and 2-lobed central lobe of the lip, while it is similar to *O. speculum* in the number of basal leaves (6–7), sub-patent position of lateral sepals and petals, red-brownish colour of the lip marginal zone and hairiness of the speculum. Four characters are distinctive in the hybrid: maximum ratio lip length/width (1.8), and speculum shape (entire), colour (black-bluish and orange-yellowish in the marginal zone) and colour pattern (two central grey-bluish parallel lines).

Natural hybridization among Mediterranean orchids is a common and well documented phenomenon (Delforge 2001, 2005). Regarding the genus *Ophrys*, interbreeding is certainly frequent and it may be facilitated by shared ploidy levels (Pellegrino *et al.* 2007). In the Italian flora, 71 *Ophrys* hybrids are reported (Souché 2008), of which four are from the Elba Island (Ackermann & Ackermann 2004, Frangini *et al.* 2005, Frangini *et al.* 2006). During our floristic surveys on the island in April 2007, we found *O. fusca* subsp. *lucifera* and *O. speculum* growing sympatrically. Some specimens (10) had unusual flowers, which appeared to combine the characters of the two co-occurring species. We supposed that those specimens were hybrids. Field

research at the same site in 2008, 2009 and 2010 confirmed that the population was stabilized.

A morphological analysis was carried out to test if we had a hybrid at hand. The plant exhibits five intermediate features, three typical features of *O. fusca* subsp. *lucifera*, five typical features of *O. speculum*, and four distinctive characters (Table 1).

The hybrid has the following characters that resemble *O. fusca* subsp. *lucifera*: ovate basal leaves, green-yellowish sepals and a 3-lobed lip (with the central lobe pubescent and 2-lobed). Characters that resemble *O. speculum* are: sub-patent lateral sepals, a strongly recurved lateral petal, a red-brownish lip marginal zone and a glabrous speculum. The intermediate characters

of the hybrid are: sepal dimensions (5 × 10 mm), width (2 mm) and colour (orange) of the lateral petal, and the hairiness of the lip marginal zone (slightly pubescent). The hybrid can be distinguished from *O. fusca* subsp. *lucifera* and *O. speculum* in some characters of the lip: the maximum ratio length/width (1.8), the shape (entire) and colour (black-bluish and orange-yellowish in proximal zone) of the speculum and the colour pattern of the speculum (two central parallel lines, grey-bluish).

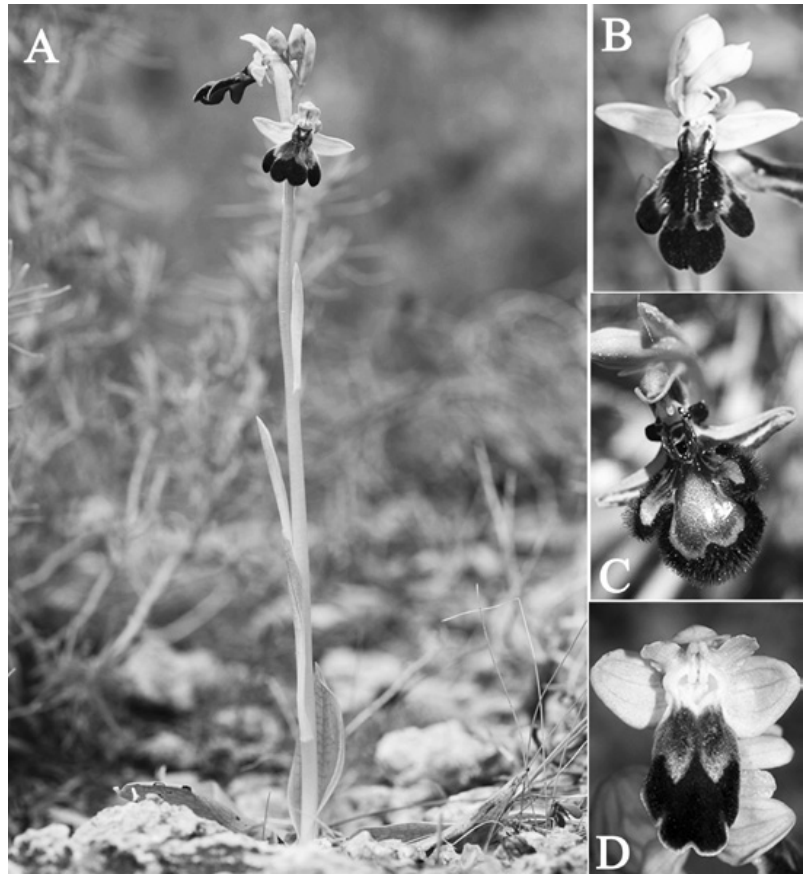
***Ophrys* × *capoliverii*** Iamonico, Forbicioni & Frangini, *hybr. nat. nov.* (Fig. 1)

*Hybrida* 20 cm alta. *Rosula homophylla*; *foliae*

6–7, *ovatae*, 60 mm longae, 20 mm latae. *Inflorescentia* 4 floribus. *Sepala* lateralialia viridia-sublutea, suberecta, 10 mm longa, 5 mm lata; *sepalum* medium supra columnam inclinatum. *Petala* lateralialia aurantiaca, lanceolata, 5 mm longa, 2 mm lata, magnopere reduncus. *Labellum* subhorizontalis, trilobum (lobulo medium bilobo; lobulis lateralibus integris), 18 mm longum, 10 mm latum; *marginem* rubrum-subfuscum, infirme villosum; *speculum* glabrum, integrum, nigrum-subcaeruleum (subest area aurantiacum-subluteum), cum 2 medium lineae, cineraceus-subcaeruleae. *Hybridis* plurimis formis inter species parentales intermediis. *Ophrys fusca* subsp. *lucifera* simillima, *foliae* ovatae, *sepala* lateralialia viridia-subluteae, *labellum* trilobum cum lobulo medium bilobum. *Ophrys speculum* simillima,

**Table 1.** Morphological comparison of *Ophrys fusca* subsp. *lucifera*, *O.* × *capoliverii* and *O. speculum*. Intermediate features are set in boldface, features typical of one of the parents are set in italics, and features distinctive in the hybrid are underlined.

	<i>O. f.</i> subsp. <i>lucifera</i>	<i>O.</i> × <i>capoliverii</i>	<i>O. speculum</i>
Plant height (cm)	20	20	5–25
Number of flowers	2–4	4	2–6(8)
Number of basal leaves	3–4	6–7	5–7
Basal leaves shape	<i>ovate</i>	<i>ovate</i>	ovate-lanceolate
Sepal length (mm)	11–15	<b>10</b>	7–10
Sepal width (mm)	5–8	<b>5</b>	3–5
Sepal colour	<i>green-yellowish</i>	<i>green-yellowish</i>	green with one or two red-brown central lines
Lateral sepal position	incurved	<i>sub-patent</i>	<i>sub-patent</i>
Median sepal position	incurved	incurved	incurved
Lateral petal length (mm)	6–10	5	4–6
Lateral petal width (mm)	1–2	<b>2</b>	2–3
Lateral petal colour	yellow-brown	<b>orange</b>	purple
Lateral petal position	slightly incurved	<i>strongly recurved</i>	<i>strongly recurved</i>
Median petal (lip) shape	sub-horizontal	sub-horizontal	sub-horizontal
	<i>3-lobed (central lobe 2-lobed and pubescent; lateral lobes entire and pubescent)</i>	<i>3-lobed (central lobe 2-lobed and pubescent in the 2/3 distal; lateral lobes entire and pubescent)</i>	3-lobed (lobes entire and pubescent)
Lip length (mm)	(12–)14–20	18	12–15
Lip width (mm)	(8.5–)10–14.5	3.5–10	7–15
Maximum ratio lip length/lip width	1.28	<u>1.80</u>	1.00
Lip marginal zone colour	yellow	<i>red-brownish</i>	<i>red-brownish</i>
Lip marginal zone hairiness	glabrous	<b>slightly pubescent</b>	strongly pubescent
Speculum	pubescent	<i>glabrous</i>	<i>glabrous</i>
	2-lobed	<u>entire</u>	slightly 2-lobed
	blue to grey-bluish	<u>black-bluish</u>	blue or violet
	no pattern	<u>(orange-yellowish at proximal zone)</u>	orange or green-yellowish border line
		<u>2 central parallel lines, grey-bluish</u>	



**Fig. 1.** *Ophrys × capoliverii* and its parents. — **A:** Habit of *Ophrys × capoliverii*. — **B:** Flower of *Ophrys × capoliverii*. — **C:** Flower of *Ophrys speculum*. — **D:** Flower of *Ophrys fusca* subsp. *lucifera*.

*foliae* 6–7, *sepala* *lateralia* *suberecta*, *petala* *lateralia* *magnopere* *reduncus*, *labellum* *marginē* *rubrum*-*subfuscum*, *speculum* *glabrum*.

**HOLOTYPE:** Italy. Tuscany region, Livorno Province, Elba Island, Capoliveri, Gabbiani coast, calcareous cliff (aspect south), 120 m a.s.l., 42°43'2.93"N, 10°24'13.11"E, 30.III.2009 L. Forbicioni, G. Frangini & D. Iamónico (FI).

Plant erect, to 20 cm tall. Stem green, glabrous, sub-cylindrical, slightly ribbed. Basal leaves 6–7, ovate (2–2.3 × 6–6.5 cm), margins entire, base cuneate, apex acute; stem leaves 3, ovate to lanceolate (1–3 × 4.5–2.2 cm), slightly pointed, patent, smaller than basal leaves. Inflorescence of 4 flowers; bracts ovate-lanceolate; sepals green-yellowish, ovate (5 × 10 mm), with apex obtuse; lateral sepals sub-patent; central sepal incurved over gynostemium with margin recurved; lateral petals orange, ovate-lanceolate (2 × 5 mm), strongly recurved, apex acute; median petal (lip) sub-orizonthal, sub-rhomboid

(10 × 18 mm), 3-lobed (central lobe 2-lobed and pubescent in the distal 2/3; lateral lobes entire and pubescent), margins red-brownish, slightly pubescent; speculum glabrous, entire, black-bluish (orange-yellowish at proximal zone), with 2 central parallel lines, grey-bluish; stigmatic cavity sub-triangular, narrow (1 × 2 mm), deep, pubescent (white hairs), with a transverse red line near the stigma; pollens yellow; gynostemium short (3 mm), cylindrical, with apex rotounded; ovary (length 1.5 mm) sub-cylindrical, sessil, ribbed with 6 distinct veins.

**ETYMOLOGY:** The name is derived from the small town of Capoliveri on the Elba Island.

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