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## ***Ophrys* ×*gaulosana* (Orchidaceae) - a new hybrid from Gozo (Maltese Islands)**

### **Keywords**

*Orchidaceae*; *Ophrys melitensis*, *Ophrys tenthredinifera*, *O. ×gaulosana*; Maltese endemics; Flora of Malta; Central Mediterranean region.

### **Summary**

Mifsud S. (2018): *Ophrys ×gaulosana* a new hybrid from Gozo (Maltese Islands).- J. Eur. Orch. 50 (2-4): 213-220.

A single *Ophrys* individual growing on rocky ground in the north area of the island Gozo (Malta) in March of 2018, was found to have unique characters not exhibited in any species growing in Malta. The orchid was growing very close to *O. tenthredinifera* and a scattered population of *O. melitensis*. From the intermediate state of several characters between these two species, it was concluded that this individual is a hybrid of these parents. Since *O. melitensis* is endemic to the Maltese Islands, this hybrid is hence an addition to the endemic flora of Malta.

### **Zusammenfassung**

Mifsud S. (2018): *Ophrys ×gaulosana*, eine neue Hybride von Gozo (Maltesische Inseln).- J. Eur. Orch. 50 (2-4): 213-220.

Auf Gozo (Malta) wurde im März 2018 auf felsigem Boden eine einzelne *Ophrys*-Pflanze angetroffen, die keiner der auf den Maltesischen Inseln vorkommenden Arten zuzuordnen war. In ihrer nächsten Nähe wuchs eine einzelne *O. tenthredinifera* sowie, zerstreut in der weiteren Umgebung, auch *O. melitensis*. Anhand der intermediären Eigenschaften dieser Pflanze zwischen *O. tenthredinifera* und *O. melitensis* konnte sie als deren Hybride bestimmt werden. Da *O. melitensis* ein Endemit der Maltesischen Insel ist, erweitert diese Hybride die endemische Flora von Malta.

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## 1. Introduction

About 35 species of orchids are currently found on the Maltese Islands with a few more reported in the past and have not been sighted in the wild for more than twenty years (BARTOLO et al. 2001; MIFSUD & LEWIS 2011). Five taxa are currently endemic: *Anacamptis pyramidalis* subsp. *urvilleana* (Sommier & Caruana Gatto) Landwehr (SOMMIER & CARUANA GATTO 1915); *Ophrys melitensis* (Salkowski) Devillers-Terschuren & Devillers (SALKOWSKI 1992); *Ophrys bombyliflora* var. *parviflora* (Mifsud) Mifsud (MIFSUD 2009, 2014a); *O. ×tumentia* nsubsp. *tumentia* Mifsud (*O. caesiella* × *O. iricolor* subsp. *vallesiana*) and *O. ×tumentia* nsubsp. *sancti-martini* Mifsud (*O. caesiella* × *O. iricolor* subsp. *mesaritica*) (MIFSUD 2014b). Most of the orchids occurring on the Maltese Islands are widely distributed in the Mediterranean region and south Europe of which some have a very restricted distribution in Sicily (Siculo-Maltese subendemics) whereas few others have a limited range in north Africa or eastern Europe.

## 2. *O. tenthredinifera* Willd. on Maltese Islands

Amongst the Maltese-Sicilian subendemics, there is the species *Ophrys tenthredinifera* subsp. *grandiflora* (Ten.) Kreutz which is simply recorded in Maltese literature as *Ophrys tenthredinifera* Willd. (ZERAPHA 1831; GRECH DELICATA 1853; SOMMIER & CARUANA GATTO 1915; BARTOLO et al. 2001) while only BORG (1927) list it under the synonymous taxon *O. rosea* (Desf.) Duf. This species was somewhat more frequent in the past, for example at Wied Babu, Żurrieq, but now it is considered as a very rare orchid for Malta (LANFRANCO 1989, BARTOLO et al. 2001) possibly due to habitat loss by development or land reclamation and overcollection by orchid devotees (BARTOLO et al. 2001). However *Ophrys tenthredinifera* s. l. was rediscovered in the northern areas of Gozo on the 8th April 2017 (pers. comm. Luc deBruyn, April 2017) in its last flowers and found again in another survey on the 19th March 2018 by the present author which was determined as subsp. *grandiflora*. More interesting was a unique orchid present very close, where it did not match any of the described taxa from Europe (DELFORGE 2006) or Italy (GIROS 2016). To protect these two rare species from being collected, the precise locality within Nadur will not be disclosed in this paper in line with the same principle adopted by BARTOLO et al. (2001).

During this last survey, the flowering orchids present on site were *Ophrys bombyliflora* Link (frequent), *O. melitensis* Salkowski (frequent), *O. caesiella* P.Delforge (rare), *Serapias parviflora* Parl. (common), *Anacamptis coriophora*

subsp. *fragrans* (Pollini) R.M.Bateman, Pridgeon & M.W.Chase (frequent) and as mentioned earlier, *Ophrys tenthredinifera* subsp. *grandiflora* (one plant)

### 3. The hybrid *Ophrys melitensis* × *Ophrys tenthredinifera* subsp. *grandiflora*

From the morphology examined, as shown in a comparison is given in Table 1, the new orchid from this site was determined to be a hybrid between *O. tenthredinifera* subsp. *grandiflora* and *O. melitensis* and described below as

#### *Ophrys* × *gaulosana* Mifsud hybr. nat. nov.

*Ophrys melitensis* (Salkowski) Devillers-Terschuren & Devillers × *Ophrys tenthredinifera* Willd. subsp. *grandiflora* Ten. (Kreutz)

**Diagnosis:** The new hybrid is characterized for having a lip similar in shape to *O. melitensis* but possessing a mixture of yellow and brown hair (yellow hair has never been documented in *O. melitensis*) giving it a unique light brown appearance. The speculum is reduced, more slender and with paler colours, hence closer to the speculum of *O. tenthredinifera*. The appendage is distinct and have the shape of a small hump, considered as an intermediate form between the small and indistinct appendage of *Ophrys melitensis*, and the large and back-bent one of *O. tenthredinifera*. In addition, the appendage lacks the tuft of hairs and therefore similar to the endemic parent. On the other hand, the basal field is absent (concolourous with the lip) as in *O. tenthredinifera*, where there is often a small but distinct white disk in *O. melitensis*. The sepals are mauve in colour, closer to the pink colour found in *O. tenthredinifera* but the oblong-lanceolate shape matches with the other parent. The upper lips are broad lanceolate about 1.5 times as long as wide, which can be interpreted as an intermediate form between the oblong-lanceolate and about 3 times as long as wide in *O. melitensis* and deltate with same length and as its width as in *O. tenthredinifera*.

**Description:** Plant 15 cm tall, slender with a basal rosette of 5 leaves 3.0–6.0 × 1.0–1.5 cm, oval-lanceolate, with a subacute tip. Bracts herbaceous, pale green, turned back away from ovary. Sepals 9–11 mm long, dull purple to mauve with a green midrib, lanceolate with a rounded tip and reflexed margins, the lateral sepal spreading out, the median narrower, more oblong and slightly concave. Upper petals 6 × 4 mm, greyish dirty mauve (like a suffused mixture of green and purple) deltate-lanceolate with an acute apex, puberulent especially on the margins. Lip 13 × 12 mm (L × W), with two small lateral lobes and a deep notch at the tip; pale brown with a dirty mustard-yellow tinge especially noticeable at the lateral lobes and tip; hairs mixed between brown

and yellow - more brown at the centre of the lip, more yellow at the border, dense throughout but longest at the lip's border and the shoulders of the lateral lobes, whitish towards the stigmatic cavity; outline suborbicular to oval and transversely strongly convex. Speculum metallic milky-blue with a brighter margin, formed by two narrow and short parallel limbs united by a transversal bridging band below and around the basal field and further up with two narrow upper limbs around the sides of the stigmatic cavity, roughly small H-shaped but lower limbs unequal in length. The appendage reduced and raised above the notch as a small hump without a tuft of hair above it. Basal field dark reddish-brown, distinctly darker from the centre of the lip. Floor of stigmatic cavity dark brown without a white specular stage; upper half of stigmatic cavity pale green, almost white. Pseudoeyes shiny blackish dull green with a tiny pale streak. Staminodial points dark brown, distinct. Column greyish green with pale amber loculi.

Table 1: Comparison of the principal characters of *O. xgaulosana* and its putative parents.

Character	<i>O. melitensis</i>	<i>O. xgaulosana</i>	<i>O. tenthredinifera</i>
Colour of sepals	Green	Mauve rather dull	Pale pink
Shape of sepals	Oblong-lanceolate	Oblong-lanceolate	Rounded to broad lanceolate
Shape of median sepal	Narrower from lateral sepals	Narrower from lateral sepals	Rounded and alike lateral sepals
Shape of upper petals	Elongate-lanceolate, about 3 times as long as wide	Broad lanceolate, about 1.5 times as long as wide	Deltate, about same length as basal width.
Colour of hair of lip.	Dark brown	Pale brown composed of a mixture of yellow and reddish brown hair	Reddish brown at the centre, yellow on a wide border
Speculum	Very variable, often with two large parallel limbs, sometimes connected by a transversal bridge under the basal field	Small, narrow collar around stigmatic cavity, unsymmetrical (one limb longer than the other in the single examined specimen)	Small, narrow collar around stigmatic cavity, uniform and symmetrical
Appendage	Variable but when present small and not elevated	Small but elevated as a small hump	Large and very distinct
Long hairs above appendage	Absent	Absent	Present
Stigmatic cavity	Black with a white disk of various size.	Black, disk absent	Black, disk absent
Pseudoeyes	Milky greyish-blue	Black with a greyish streak	Dark greenish-brown



Fig. 1-2: *Ophrys melitensis*, Gozo, 19.3.2018, phot. SM.



Fig. 3-4: *Ophrys*  $\times$  *gaulosana*, Gozo, 19.3.2018, phot. SM.



Fig. 5-6: *Ophrys tenthredinifera* subsp. *grandiflora*, Gozo, 19.3.2018, phot. SM.

**Holotypus:** Northeast of Gozo, Malta. 19.3.2018; deposited at the National Museum of Natural History (Mdina), collection number SMIFS120, leg. Stephen Mifsud.

**Etymology:** after the old name of Gozo called Gaulos (VELLA, 2010, 2012), the island where this hybrid has been found.

**Ecology:** Exposed garigue of calcareous coralline limestone rock with labiate and spurge shrubs.

**Distribution:** very rare and currently only one plant is known to occur, owing to the rarity of one of the parents (*O. tenthredinifera*) on the Maltese islands, and the endemism of the other parent (*O. melitensis*). Currently only known from the island of Gozo.

#### 4. Other orchid hybrids reported or observed from Malta.

Apart from *Ophrys* × *gaulosana*, five other hybrid orchids have been observed or published from the Maltese Islands as listed below:

*Ophrys bombyliflora* × *O. fusca* s. l.

Casual hybrid most likely with *O. iricolor* subsp. *vallesiana* (Devillers-Tersch. & Devillers) Paulus & Gack. Observed once by Michael Briffa in April 1985 (pers. comm. Michael Briffa, 2018) and Alex Casha (BARTOLO et al. 2001) both from Dwejra (Malta).

*Ophrys bombyliflora* × *O. melitensis*

At least three observations have been reported to the author (Michael Briffa, March 1992; Bernt-Gunnar, March 2014 and John Mifsud, March 2017) and one published by WEBER & KENDZIOR (2006). It is a casual hybrid formed between the two parents which are both frequent in the Maltese islands.

*Ophrys caesiella* × *O. iricolor* s. l. (= *O. ×tumentia*)

Forms hybrid swarms within populations where the two parents co-exist. Two nothosubspecies have been described: *O. caesiella* × *O. iricolor* subsp. *mesaritica* (= *O. ×tumentia* nsubsp. *sancti-martinii*) and *O. caesiella* × *O. iricolor* subsp. *vallesiana* (= *O. ×tumentia* nsubsp. *tumentia*) (MIFSUD 2014b). Scattered distribution where hybrid swarms occurs, sometimes frequent within them.

*Ophrys fusca* s. l. (?) × *O. lutea* s. l.

Single observation by Michael Briffa from Dwejra (Malta) in March 1991

(pers. comm., Michael Briffa, 2018), It has a superficial appearance to be an intermediate between *O. lutea* Cav. and *O. fusca* Link due to its labellum has a wide yellow border gently subfused to a central brown coloration, hence the yellow portion is neither predominant as *O. lutea* Cav. s. l. and nor very narrow or nil as in *O. fusca* s. l. It is assumed that one of the parents is specifically *O. lutea* subsp. *phryganae* Devillers-Terschuren & Devillers (Melki) which is the most frequent amongst the *O. lutea* subspp. in Malta and the other parent is likely *O. caesiella* P. Delforge, both present in the area where the hybrid has been recorded.

*Ophrys melitensis* × *O. speculum* (?)

Single individual observed by Michael Briffa from Dwejra (Malta) in March 1991 and another by Anthony Borg from Wied Hoxt (no date) (BARTOLO et al. 2001)

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