

Biology and phylogeny of the *Ophrys tenthredinifera* species group in Crete

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The species of the genus *Ophrys* rely on sexual deception for pollinator attraction, imitating the complex olfactory, visual and tactile cues of their pollinator's females in order to attract males. This plant – pollinator relationship is highly specific, allowing for strong prezygotic isolation of *Ophrys* species, coupled with comparatively weak postzygotic isolation mechanisms. The occurrence of hybrids and the high morphological variability of most species, have led to a confusing classification system of the genus. This is also the case of the newly described species complex *Ophrys tenthredinifera*. Till recently there was only one species (*Op. villosa* DESFONTAINES 1807) or subspecies (*Op. tenthredinifera* subsp. *villosa* WILLDENOW 1805) described from the eastern Mediterranean basin. Delforge (2005) describes, based mainly on phenological and morphological criteria, 3 new species for the region: *Op. Ulyseea* (Ionian Islands), *Op. leochroma* (Egean Islands) and *Op. dyctinnae* (Crete). A fourth new species *Op. dimidiata* has been recently discovered in Crete. Due to the absence of evident morphological differences, because of high interspecific variability the taxonomic status of these taxa has been questioned.

The present study employs genetic fingerprinting, biotests and morphometry to investigate the strength of prezygotic reproductive isolation (based on pollinator specificity) and genetic separateness of the four taxa occurring in Crete: *Op. dyctinnae*, *Op. leochroma*, *Op. dimidiata* and *Op. villosa*. Using classic morphometric analysis we attempt to identify reliable traits for species delimitation. At this moment only partial results are available, these being mainly the results from pollinator experiments and partial results from morphometrics. From the four occurring species, only three could be analyzed, as *Op. villosa* seems to be extremely rare in Crete. Pollinator experiments indicate that these three species are indeed reproductively isolated from each other, with only few cases where one *Ophrys* species attracted two different pollinators. Additionally, it became apparent that in several locations two or all three species occurred sympatrically. The molecular analysis will have to confirm the species delimitation drawn by pollinator experiments, thus certifying the species status of these taxa.

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