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NOTES

ORCHIS ITALICA POIR. (ORCHIDACEAE): REDISCOVERY AFTER FOUR CENTURIES OF A PRESUMABLY EXTINCT SPECIES IN MT. VESUVIUS, ITALY

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Abstract – *Orchis italica* Poir. (Orchidaceae), thought to be extinct on Mt. Vesuvius, has been rediscovered after a gap of four centuries. Its ecology and conservation status are discussed, and photographs provided.

Keywords: Biodiversity, conservation, field research, orchids, vascular flora

Introduction

The Orchidaceae comprise approximately 850 genera and 20,000 species (Dressler, 1993). As many orchids are threatened with extinction, whether local, regional or global, to promote their conservation the whole family has been inserted in the Appendices of the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES). *Orchis* L. includes 34 species and subspecies, in addition to 37 hybrids (The Plant List, 2013), occurring mainly in Europe and Northwest Africa.

Orchis italica Poir. (Poiret in Lamarck, 1798: 600-601; type designated by Efimov & Kuropatkin, 2014), known commonly as the Italian orchid, is a steno-Mediterranean species recorded for Italy in Piemonte region, peninsula and Sicily (Conti et al., 2005, 2007). Morphologically it can be described as: a perennial herb with 2 ovoid rhizotubers; stem up to 50 cm generally erect, cylindrical in cross section, green; 5-8 oblong-lanceolate leaves, generally with undulate margin, rarely with dark spots, almost all in basal rosette and with sheaths above; bracts lanceolate, 1-veined, shorter than ovary; inflorescence is a spike, conical at first and becoming ovoid, with up to 40 zygomorphic and epigynous flowers; 6 perianth segments in 2 whorls, lanceolate, acuminate, convergent into a galea, pale pink with purple veins; pink labellum 12-20 mm, longer than wide, directed downwards owing to the ovary twisting through 180° (resupination), often with purple spots at the base, 3-lobed with the middle lobe divided into 3 linear-acuminate lobules; spur cylindrical, directed downwards, shorter to the ovary, containing nectar; gynostemium (derived from the fusion of filaments of the stamens and style) pale pink; fruit a capsule with numerous seeds without endosperm. In the Vesuvius volcanic complex (Southern Italy) this species was recorded four centuries ago by Colonna (1616) and not subsequently confirmed (e.g. Tenore, 1832; Pasquale, 1869; De Rosa, 1907; Ricciardi et al., 1988; Nazzaro & La Valva, 2000; Stinca & Motti, 2009, 2013).

The aim of the present study was to document the rediscovery of *O. italica* on Mt. Vesuvius and to assess its current ecology and conservation status.

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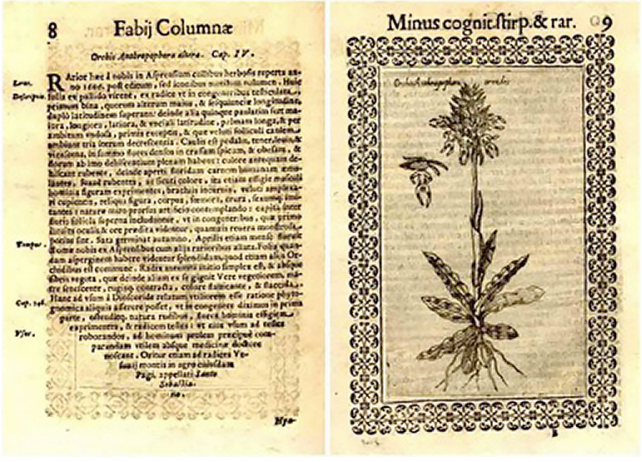
Materials and methods

Field research in the Vesuvian area was undertaken from April 2015 to April 2016. The species was identified according to de Soó (1980), Rasetti (1982), Grünanger (2001), and Rossi (2002). The protologue by Poiret (Poiret in Lamarck, 1798: 600-601) was also examined. For preservation of the species, in April 2015 only two flowers were collected from a plant, currently conserved in the *Herbarium Porticense* (PORUN, acronym according to Thiers, 2011). Geocoding of the Vesuvian locality of the plant was performed with the use of a portable GPS device (GPS map 60CSx, Garmin, USA), calibrated beforehand (geographic system UTM WGS84). Number and vitality of the new population were evaluated for two consecutive years (2015 to 2016) through the following parameters: number of individuals (n.), number of plants with flowers (n.), area occupied (m^2), and threats.

Results and discussion

Colonna (1616, sub *Orchis Anthropophora altera* (sic!)) indicated the presence of *O. italica* for "*Oritur etiam ad radices Vesuvij montis in agro cuiusdam Pagi, appellati Santo Sebastiano*" (Fig. 1). The species was subsequently never observed probably due to environmental changes resulting from volcanic activity. Indeed, a catastrophic subplinian event occurred in 1631. Pyroclastic flows and the lahars that were produced as a result of heavy rains reached the sea, altering the morphology of the whole Vesuvian area. Starting from 1649 and for the next 300 years, there were 17 cycles of effusive or explosive-effusive eruptions, with quiescent periods lasting 7 to 30 years in between. The last of these cycles, which began in 1913, culminated with the paroxysmal event of 1944.


8 Fabij Columnæ

Minus cognit. stirp. & rar. 9

Figure 1. Description and illustration of *Orchis italica* Poir. from Colonna (1616).

O. italica was rediscovered on 25 April 2015 on the western slopes of Mt. Vesuvius, within the protected area of the Vesuvius National Park, Special Protection Area (IT8030037 "Vesuvio e Monte Somma"), and Site of Community Importance (IT8030036 "Vesuvio"). This orchid was collected in the municipality of Ercolano between Casa Cantoniera and Vesuvian Observatory, at 546 m a.s.l. (coordinates: WGS84 33T 448966 E and 4519659 N) (Fig. 2).

Figure 2. Habit and inflorescence of *Orchis italica* Poir. on Mt. Vesuvius, April 2015. Photographs by the author.

Climate is referable to the Mediterranean type, with an average annual temperature of 18.0°C, average annual rainfall of 929.1 mm, and a summer drought period from June to August (Stinca & Motti, 2009).
O. italica was found along the main access road from the town of Ercolano to Mt. Vesuvius, on the edge of a natural hardwood forest. Frequent taxa are: *Quercus ilex* L. subsp. *ilex*, *Fraxinus ornus* L. subsp. *ornus*, *Quercus pubescens* Willd. subsp. *pubescens*, *Hedera helix* L. subsp. *helix*, *Rubus ulmifolius* Schott, *Cistus salviifolius* L., *Helianthemum*

nummularium (L.) Mill. subsp. *obscurum* (Čelak.) Holub, *Picris hieracioides* L. subsp. *hieracioides*, *Dactylis glomerata* L. subsp. *glomerata*, *Asparagus acutifolius* L., *Silene vulgaris* (Moench) Garcke subsp. *tenoreana* (Colla) Soldano & F.Conti, *Arum italicum* Mill. subsp. *italicum*, *Rubia peregrina* L., and *Asplenium onopteris* L.

The *O. italica* population consists of only eight individuals, three of which were in bloom in April 2015 (only one in April 2016), and it occupies an area of 15 m^2. This species lives on the edge of the road leading to the Great Cone of Vesuvius, one of Italy's most popular tourist destinations and therefore subject to human impact. In particular, the detected population is at risk of pedestrian traffic, and spills of waste. Moreover, after ten days from the first discovery, the stem was removed from one of the three plants with flowers. The spread of invasive alien species also represents a serious problem for the conservation of *O. italica* (Stinca et al., 2015). Although this orchid might be present in other Vesuvian localities, these considerations show the risk of local extinction for *O. italica*.

In conclusion, according to this recent rediscovery that bridges a gap of four centuries, *O. italica* should be added to the vascular flora of Mt. Vesuvius.

Specimina visa

ITALY: Ercolano along the Ercolano-Vesuvius road between Casa Cantoniera and Osservatorio Vesuviano (UTM WGS84: 33T 448966 E - 4519659 N), edge of hardwood, 546 m a.s.l., 25 April 2015, leg. et det. *Adriano Stinca* (PORUN).

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