



## A new species of *Orobanche* (Orobanchaceae) from Turkey

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### Abstract

*Orobanche turcica* (Orobanchaceae) is described as a new species from Turkey. The new species is a close relative of *O. anatolica*. Morphological differences of the new taxon from closely related species are discussed. A distribution map, illustration, as well as pollen and seed microphotographs of the species are provided.

**Key words:** *Orobanche*, Orobanchaceae, new species, Turkey

### Introduction

The genus *Orobanche* Linnaeus (1753: 632) is one of the holoparasitic members of Orobanchaceae (Lamiales). It is distributed mainly throughout subtropical and temperate regions of the northern hemisphere (Uhlich *et al.* 1995, Plaza *et al.* 2004) with Turkey being one of its centres of diversity (Schneeweiss *et al.* 2004). Turkey is placed at the cross point of three phytogeographic regions (Mediterranean, Irano-Turanian and Euro-Siberian) and has heterogeneous topography and climate; this leads to a high habitat diversity and a correspondingly high plant diversity with around 10,000 known native vascular plant species (30% endemic) in this area (Güner *et al.* 2012).

The taxonomy of the genus *Orobanche* is notoriously difficult. Poor preservation of diagnostic features on herbarium specimens, considerable intraspecific variation, and a poorly understood effect of the host plant on the parasite's morphology render species identification based on morphology alone often difficult. Consequently, the taxonomy of the genus is burdened with confusing synonymies, incorrectly cited names, poorly described species and the distinction of numerous varieties and forms (Beck von Mannagetta 1930, Gilli 1966).

Currently, a revision of *Orobanche* and *Phelipanche* Pomel (1874: 102) is undertaken. Based on extensive field surveys as well as herbarium studies, morphology (including micromorphology of seed and pollen), anatomy as well as molecular phylogeny of these genera are studied (Zare 2012, Zare *et al.* 2014). During this revision, material not belonging to any of the *Orobanche* species currently known from Turkey and adjacent regions was found and is herein described as new species.

### Material and methods

The specimens for this study were taken from herbaria ANK, BM, E, HUB, INU and K. Pollen samples for light (LM) and scanning electronic microscopical (SEM) study were prepared as described by Zare *et al.* (2014). Pollen dimensions (length at the polar axis P and equatorial diameter E) as well as width and length of seeds were measured from 30 seeds and pollen grains. For SEM, dry seeds and pollen grains were mounted directly on stubs and coated with gold in a sputter coater (Electron microscopy sciences EMS 550X). SEM examination was carried out using a Zeiss EVO 50 EP microscope at Hacettepe University (Ankara, Turkey).

*Orobanche turcica* has a wide distribution in Turkey throughout the Irano-Turanian phytogeographic region overlapping with that of *O. anatolica* (Figure 3). Thus, *O. turcica* may also occur in Iran and other countries in the Irano-Turanian phytogeographic region. Judged from our field experience (dedicated searches failed to recover this species in the field) and from the representation in herbaria *O. turcica* may be relatively rare despite its wide distribution.

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