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Rediscovery of *Tordylium brachytaenium* (Tordylieae, Apioideae, Apiaceae), an endemic and threatened species in Turkey

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Abstract

The threatened endemic species, *Tordylium brachytaenium*, which was not collected after the first description by Boissier and Heldreich in 1849, was rediscovered. An expanded species description, comments about its distribution, ecology and conservation are presented. Additionally, its distinction from the closely related species in respect of pollen and mericarp morphology is provided. The IUCN assessment of *T. brachytaenium* is also briefly discussed.

Introduction

Tordylium Tourn. ex L. (1753: 239) (Tordylieae, Apioideae, Apiaceae) is represented by 19 species worldwide (Al-Eisawi & Jury 1988, Duran & Duman 1999, Henwood & Hart 2001). There are 17 *Tordylium* species in Turkey, of which 7 are endemic (Alava 1972, Yıldırımlı 1997, Duran & Duman 1999, Pimenov & Leonov 2004). This genus is mainly distributed in Mediterranean phytogeographical region, and is typically characterized by crenate leaf margin, compound umbels, strongly dorsally flattened mericarp, thickened mericarp margin and mericarp indumentum. Genera, such as *Hasselquistia* L. (1755: 9), *Condylocarpus* Hoffm. (1816: 202), *Ainsworthia* Boiss. (1844: 343) and *Synelcossiadium* Boiss. (1844: 346), treated as distinct ones at times, have been made synonymous with *Tordylium* by Al-Eisawi & Jury (1988).

Tordylium brachytaenium Boiss. & Heldr. (1849: 45), a Turkish endemic species, is known only from type locality. It was collected by Heldreich in 1845, (Coll. No 575) from eastern part of Antalya province 'rupestribus collium prope Kourmalu ad occasum urbis Adalia in Pamphylia'. The local 'Kourmalu' name has not been known. The insufficient information about the type locality of this species and overlapping distributions of morphologically controversial species such as *T. pestalozzae* Boiss. (1849:45), and *T. ketenoglui* H. Duman & A. Duran (Duran & Duman 1999:51) cause to misidentifications of *T. brachytaenium*. It needs reveal detailed morphological features and diagnostic characters of the species.

In the course of the field trips in 2013, *T. brachytaenium* was recollected from type locality, in Hurma village close to Antalya (Fig. 1). During the morphological investigations on herbarium specimens, we identified another specimen from Akyarlar tunnel in Antalya collected by Peşmen identified as *T. cappadocicum* Boiss. (1844: 349) (Fig. 1).

Previous investigations demonstrated the significance of the mericarp and pollen morphology in Apiaceae (Liu *et al.* 2006, 2009, Pimenov, Kljuykov & Ostroumova 2007, Runemark 1968, Challe 1985, Al-Eisawi & Jury 1988, Gömürgen *et al.*2011). Al-Eisawi & Jury (1988) pointed a second or third order symmetry, dicolporate or tricolporate pollen types in the genus. The pollen surface sculpturing is taxonomically important character in *Tordylium* (Al-Eisawi & Jury 1988). We studied pollen grain to reveal its surface sculpturing. Al-Eisawi & Jury (1988) studied detailed mericarp morphology of some of *Tordylium* species except *T. brachytaenium*. We studied mericarp morphology of this species firstly and close taxa comparatively to find reliable diagnostic character to resolve these controversial group.

The aims of this paper are i) to record distributions of *Tordylium brachytaenium,* and to provide a comprehensive description of the species, ii) to provide morphological, palynological and carpological knowledge of this species in detail, iii) to re-evaluate of IUCN category of *T. brachytaenium*, and iv) to explain the relationships of this species with closely related species.

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