

## A new record for the flora of Turkey: *Dactylorhiza maculata* (L.) Soó (Orchidaceae)

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### ABSTRACT

*Dactylorhiza maculata* (L.) Soó (Orchidaceae) subsp. *maculata* is collected from Uludağ Mountain (Bursa, Turkey) and is reported for the first time for the Flora of Turkey. The description of the species has also been expanded, following collection of specific plant materials. A comparison between our specimens and *Dactylorhiza nieschalkiorum* H. Baumann & Künkele - the closest species to these specimens - is provided, and their distributions in Turkey are shown on a map.

**Key Words:** *Dactylorhiza*, new record, flora of Turkey, *Orchidaceae*

### INTRODUCTION

The genus *Dactylorhiza* Neck. ex Nevski (Orchidaceae), is mainly distributed in Europe, the Mediterranean and Asia. (Wood, 1985). Renz and Taubenheim (1984) researched and revised *Dactylorhiza* for Flora in Turkey, and identified 9 new species. Kreutz (2000) added three species: *D. bithynica* H. Baumann, *D. ilgazica* Kreutz and *D. pythagorae* Gözl & Reinhard, while removing three species from the list, as synonyms. Thus, the total number of *Dactylorhiza* species in Turkey is now 13, with *D. maculata* (L.) Soó. which is given as a new record in this paper.

During the summer of 2005, *Dactylorhiza* specimens were collected from Uludağ Mountain. At first glance, the specimens looked like *D. nieschalkiorum* H. Baumann & Künkele, which is distributed on the southeast slopes of Uludağ. However, our attention was drawn to smaller sizes of whole plants. After checking Flora of Turkey (Renz and Taubenheim, 1984; Kreutz, 2000), Flora Europaea (Soó, 1980), and related literature (Grey-Wilson et al., 1981; Sezik, 1984; Kreutz, 1998), it was decided that these specimens are new record for the flora of Turkey. The specimens were identified as *D. maculata*.

### MATERIALS AND METHODS

*Dactylorhiza* specimens were collected from the study area. Then, every part of each plant (tubers, leaves and flowers) were carefully examined and measured. Our specimens were compared with other, similar *Dactylorhiza* specimens, and the differences were determined. Additionally, slides of the specimens were taken in the field (Figure 1). The collected materials were numbered and stored at the Herbarium of Uludağ University, Department of Biology (BULU).

### RESULTS AND DISCUSSION

*Dactylorhiza maculata* (L.) Soó in Nom. Nova Gen. *Dactylorhiza*, 7 (1962).

subsp. *maculata*

Synonym: *Orchis maculata* L. in Sp. Pl. 2: 942 (1753).

Lectotype: Habitat in Europae pratis succulentis, Herb. Linn. No. 1054.36 (LINN, photo!).

The following description of the species was written according to the specimens collected from Turkey.

Description: Tubers deeply 3 - 4 fid, more elongated at apex. Stem up to 60 cm, erect, usually solid. Cauline leaves 6 - 10, erect to patent, broadly lanceolate to oblong, acute to obtuse, with or without dark spots. Spike cylindrical to elongate, lax and many flowered. Bracts lanceolate, mostly shorter than the flowers. Flowers dark to pale pink. Sepals 8 - 9 x 3 mm, oblong to ovate-oblong, two lateral sepals spreading, dorsal sepal antrorse. Petals 6 - 7 x 3 - 4 mm, ovate to ovate-oblong, antrorse with dorsal sepal. Labellum transversely oblong, usually broader than long, 8 x 9 - 10 mm, with dark purple spots and darker coloured interrupted loops and lines, glabrous, flat, 3 - lobed, margins slowly erose-dentate. Lateral lobes oblong-triangular, ovate, 1.5 x 5 - 5.5 mm. Middle lobe of labellum as long as (rarely longer than) and much narrower than the lateral lobes, 1.5 x 2.5 - 3 mm. Spur cylindrical, obtuse, 2/3 - 3/4 as long as ovary, 6 - 11 x 3 - 4 mm, directed downwards, ± straight. Ovary cylindrical, 9 - 15 mm, ± straight, gently twisted, glabrous. Flowering: July - August.

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Distribution, Ecology and Habitat: *D. maculata* subsp. *maculata* known only from Uludağ Mountain in Turkey (Figure 2). It grows together with *Rumex conglomeratus* Murray, *Epilobium roseum* Schreber subsp. *subsessile* (Boiss.) P.H. Raven, *Digitalis ferruginea* L. subsp. *ferruginea*, *Scrophularia umbrosa* Dum., *Euphrasia pectinata* Ten., *Lysimachia verticillaris* Sprengel on grassland, wet and marshy grounds at 1000-1100 m altitude.

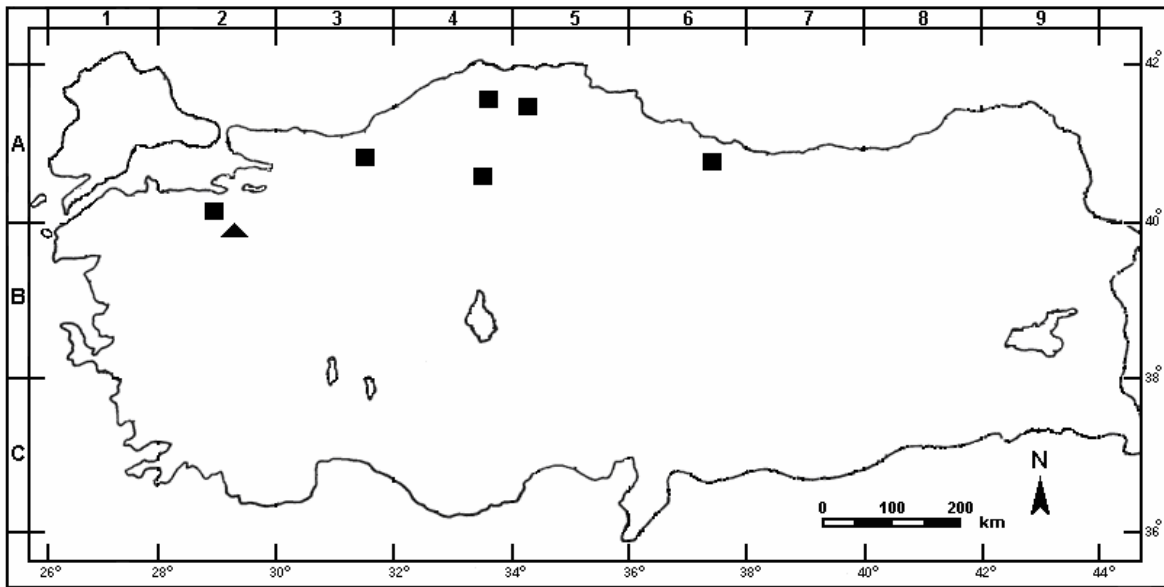


Figure 1. *Dactylorhiza maculata* subsp. *maculata* in the wild.

–a. Habit. –b. Cauline leaves. –c. Inflorescence. –d. Flowers. –e. Rhizome.

Specimens Examined: Turkey. *D. maculata* subsp. *maculata* B2 Bursa: Uludağ, between İnegöl and Oylat; Mesuriye village, around Alaçam forest depot, marshy ground, 1070 m, 39°54'09''N - 29°34'19''E, 24.07.2005, G. Kaynak, Ö. Yılmaz, BULU 26606.

*D. nieschalkiorum* A2 (A) Bursa: Uludağ; Kestel, entry of Alaçam village, waterside, 1000 m, 40°06'53''N - 29°17'16''E, 02.07.2003, G. Kaynak, R. Daşkın, Ö. Yılmaz, BULU 17131; above Alaçam village, edges of water canal, 1780 m, 40°05'37''N - 29°16'53''E, 01.09.2004, R. Daşkın, E. Erdoğan, BULU 23404; Keles, above Pınarcık village, Dutçalık location, wet and marshy grounds, 1800 m, 09.07.2003, G. Kaynak, R. Daşkın, Ö. Yılmaz, BULU 17412; Uludağ National Park, edge of Wolfram brook, 1800 m, 07.08.2003, R. Daşkın, Ö. Yılmaz, BULU 17975.



**Figure 2.** Distribution map of *D. maculata* subsp. *maculata* (▲) and *D.nieschalkiorum* (■) in Turkey.

Considering the lengths of stems, features of leaves and flowers, the ratio between spur and ovary, Soó (1980) stated that *D. maculata* is divided into five subspecies, namely: *D. maculata* subsp. *maculata*, *D. maculata* subsp. *elodes* (Griseb.) Soó, *D. maculata* subsp. *schurii* (Klinge) Soó, *D. maculata* subsp. *islandica* (A. & D. Löve) Soó and *D. maculata* subsp. *transsilvanica* (Klinge) Soó. According to the characteristics mentioned above, the specimens are included in *D. maculata* subsp. *maculata*.

*Dactylorhiza maculata* subsp. *maculata* is similar to *D. nieschalkiorum*. However, the main differences are that the *Dactylorhiza maculata* subsp. *maculata* has many leaves, dark to pale pink flowers, smaller labellum, narrower labellum in middle lobe, and the spur, which is shorter than the ovary. A further comparison between these two species is given in Table 1. *D. maculata* is distributed in many areas throughout Europe, except Ireland and England, the west part of Iberia and Southeast Europe. The distributions of *D. maculata* subsp. *maculata* and *D. nieschalkiorum* in Turkey are shown in Figure 2.

**Table 1.** A comparison of selected characters used to distinguish between *Dactylorhiza maculata* subsp. *maculata* and *D. nieschalkiorum*

Character	<i>D. maculata</i> subsp. <i>maculata</i>	<i>D. nieschalkiorum</i>
Cauline leaves	6-10, broadly lanceolate to oblong, acute to obtuse, with or without spots	3-5, broadly elliptic-ovate to lanceolate, with or without spots
Spike	cylindrical to elongate, lax and many flowered	pyramidal at first, later broadly cylindrical, mostly very dense
Flowers	dark to pale pink	rose-purple
Sepals	8-9 x 3 mm, oblong to ovate-oblong, lateral ones spreading, dorsal sepal antrorse	to 16 mm, lanceolate to ovate-lanceolate, tips often arched
Petals	6-7 x 3-4 mm, ovate, ovate-oblong	to 16 mm, lanceolate to ovate-lanceolate, tips often arched
Labellum	8 x 9-10 mm, transversely oblong, flat, 3-lobed, with dark purplish spots and darker coloured loops and lines	10-15 x 12-20 mm, roundish or transversely oblong, subentire or lobed at apex, densely covered with small dots and fine broken lines
Spur	6-11 x 3-4 mm, cylindrical, 2/3- 3/4 as long as ovary	11-15 x 3-5 mm, broadly cylindrical, almost as long as ovary

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