

A New Record for the Flora of Turkey: *Physalis philadelphica* Lam. var. *immaculata* Waterf. (*Solanaceae*)

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Abstract: A new species, *Physalis philadelphica* Lam. var. *immaculata* Waterf. (*Solanaceae*) is reported for the first time for the flora of Turkey

Key Words: Cotton, Flora, Turkey, *Physalis philadelphica*, *Solanaceae*

Türkiye Florası İçin Yeni Bir Kayıt: *Physalis philadelphica* Lam. var. *immaculata* Waterf., (*Solanaceae*)

Özet: Türkiye Florası için yeni bir kayıt olan *Physalis philadelphica* Lam. var. *immaculata* Waterf., (*Solanaceae*) ilk kez rapor edilmiştir.

Anahtar Sözcükler: Pamuk, Türkiye, Flora, *Physalis philadelphica*, *Solanaceae*

Introduction

A new record of a weed, belonging to the family *Solanaceae*, was found in cotton fields on the Harran plain in Şanlıurfa during a weed survey done in 1998-2000 (Figures 1,2). One of them was checked with generic accounts of the Flora of Turkey (Davis, 1978) and a New Record for Turkey *Physalis angulata* L. (Gönen et al., 2000). After checking these, we realized that the specimen was different from *Physalis alkekengi* L. and *P. angulata*. By using the generic account of A Manual of Flowering Plants of California (Jepson, 1951), Gorteria (Ooststroom & Reichgelt, 1962), Manual of the Flowering Plants of Texas (Correl & Johnston, 1970) and Intermountain Flora (Cronquist et al., 1984) the specimen was identified as *Physalis ixocarpa* Brot. ex

Hornem. But according to Kartesz (1994), *Physalis ixocarpa* is a synonym of *Physalis philadelphica* Lam. var. *immaculata* Waterf.

Physalis philadelphica Lam. in Encyc. Meth. Bot. 2: 101 (1786). var. *immaculata* Waterf. in Rhodora 69: 215 (1967).

Syn.: *Physalis ixocarpa* Brot. ex Hornem. in Hort. Bot. Hafn., Suppl.: 26 (1819).

Annual. Stem 20-150 cm tall, branched, erect or spreading, nearly glabrous, younger parts minutely pubescent with decurved hairs. Leaves deltoid-lanceolate to ovate-lanceolate, acute or obtuse, oblique at base; lamina 2-6(-7) cm more or less coarsely sinuate dentate; pedicel rather stout, only 5-10 mm in fruit. Calyx 3-4(-5)

mm at anthesis, lobes deltoid, obtuse to somewhat acute, decurrent; fruiting calyx, subglobose, 2-3 cm in diam., membranous, greenish, 10-ribbed, rounded at base. Corolla campanulate-rotate, 5-7 mm long, yellow with purple dots at base of limb. Anthers bluish or greenish, 2.5-3 mm long. Berry greenish or purplish, 12 mm, viscid, nearly filling the calyx.

Turkey: South-east Anatolia, C7 Şanlıurfa: Harran, cotton fields, 400 m, 11 lx 2000, B. Bükün 6321; Akçakale, cotton fields, 400 m, 04 x 2000, B. Bükün 6322.

The herbarium specimens were deposited in the Herbarium of Science and Arts Faculty of Çukurova University (ADA).

Discussion

Physalis philadelphica var. *immaculate*, a native of Mexico, is commonly found outside cultivated areas in the South-west USA (Gleason, 1958). However, it is now mostly a weed in disturbed habitats in much of the USA, Mexico and West Indies and this species is also sometimes cultivated for its fruit (Cronquist et al., 1984). This species is widespread in the cotton fields of the Harran plain in Şanlıurfa province. It is not clear how this species arrived in Turkey, let alone the Harran plain. However, it is assumed that this weed was brought to Turkey with cotton seeds from the USA and other countries. It was observed that this species emerged immediately after the sowing of crops in irrigated fields. Later in the growing season, the population density increased after each irrigation. Previous studies performed before intensive

irrigation revealed that the species was scarcely found on the Harran plain. It was assumed that this species was transported via irrigation water (in canals) and dispersed in irrigated areas.

In the growing seasons of 1995/96, the frequency of the *Physalis* L. species was determined to be 74.54% in 1995 and 87% in 1996. The frequency of this species increased to 95.92% in 2000. It should be mentioned that the two species of *Physalis* were not distinguished at first. However, in 2000 it was realized that there were two species of *Physalis* found on the Harran plain; *P. angulata* and *P. philadelphica* var. *immaculata*. *P. philadelphica* was the most common species on the Harran plain. Previously, three other species of *Physalis* were recorded in Turkey. These are *P. alkekengi* (Davis, 1978), *P. pubescens* L. (Byfield & Baytop, 1998; Güner et al., 2000) and *P. angulata* L. (Gönen et al., 2000). Both the population and frequency of *Physalis* species have increased considerably over a 6-year period. This increase causes difficulties for cotton growers. Therefore, farmers should address the problem using different control methods. One of the reasons for the rapid spread of this species is the extremely high number of seeds it produces. Thus, a high number of plants will emerge each following year and the soil seed bank will get enriched with *Physalis* seeds. Control measures, such as the spraying of herbicides (Trifluralin etc.), proved not to be efficient, and this weed continues to be a serious problem for cotton growers.

With this new record, the total number of recorded *Physalis* in Turkey has reached four.

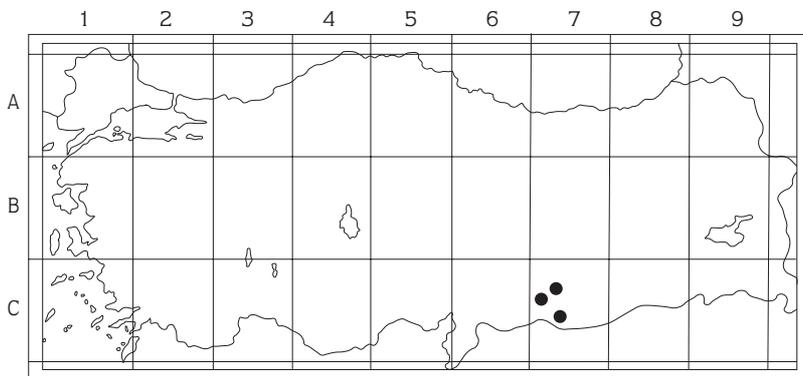


Figure 1. The distribution of *P. philadelphica* in Turkey.



Figure 2. A view of *P. philadelphica* in a field.

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