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İlk Kayıt/First Report

Türkiye Florası için Yeni Yabancı Ot Türü Kaydı *Ipomoea hederifolia* L. (Convolvulaceae)

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ÖZET

Yeni kayıt edilen tür Adana ilinde toplanmış ve *Ipomoea hederifolia* L. (Convolvulaceae) olarak tanılanmıştır. *Ipomoea* cinsine ait birçok tür kayıtlı olmasına rağmen bu yabancı ot türü Türkiye Florası için ilk defa tanılanmıştır. Bu yeni tanılanan yabancı ot türü Çukurova Bölgesi'nde mısır üretimi için önemli bir tehdittir.

Anahtar Kelimeler: Flora, Türkiye, Yabancı Ot, *Ipomoea hederifolia*

A New Weed Species Record for the Flora of Turkey *Ipomoea hederifolia* L. (Convolvulaceae)

ABSTRACT

A new recorded species were collected and identified as *Ipomoea hederifolia* L. (Convolvulaceae). Although there are many weed species belonging to the same genus, *Ipomoea*, this weed was determined as a new species for the flora of Turkey. This species is one of the major threats for maize production nowadays in Çukurova Region.

Key words: Flora, Turkey, Weed, *Ipomoea hederifolia*

INTRODUCTION

Because of its Mediterranean climate and fertile soils, the agriculture has a major importance in Çukurova Region. Therefore, many plant species or plant materials may continuously be introduced and/or taken out of this region. Adana province is located in the center of the Çukurova Region, where the most field crops, especially wheat and maize, are cultivated in Turkey (Anonymous, 2017). Sarıçam district, which

located in the middle part of Adana province, has some productive fields. A new weed species causes important problems in maize growing areas in that region and farmer complaints about this weed have increased recently. In weed surveys conducted through the 2015-2016 growing season in Çukurova Region, species belonging to the *Ipomoea* genus were the most widespread weeds in maize (Hançerli and Uygur,

2017). Other species belonging to the genus *Ipomoea* were also previously identified in the region. Five species have identified so far for the flora of Turkey belonging to the *Ipomoea* genus; *I. sagittata*, *I. stolonifera*, *I. purpurea*, *I. hederifolia* and *I. triloba* were recorded by different researchers (Davis, 1978; Gönen and Uygur, 1999; Yazlık et al., 2017). However the new species seems to be different from other known *Ipomoea* species in Turkey, especially with its red flowers and hairy seeds. Therefore it was aimed in this study to identify this weed on a species basis.

MATERIALS and METHODS

This new weed species was first collected from maize fields in Sarıçam/Adana (37° 1' 26.17" N and 35° 23' 12.81" E) in the east Mediterranean part of Turkey. In 2016, herbarium specimens and seed samples were collected for the identification of this weed. During the next growing season, seeds were sown in pots (3 seeds per pot) under greenhouse conditions with four replications. Eventually, all growth stages were thoroughly examined and photographed. Later, specimens were collected from greenhouse and field and brought to the laboratory for detailed examination.

The genus *Ipomoea* L. is a member of the Convolvulaceae family, which are generally shrub or herbs and their stems are frequently climbing or trailing. Flowers are both hermaphrodite and actinomorphic. There are five separate, imbricate sepals. Corolla consists of, trumpet-shaped five united petals. Fruits are capsule type.

The species in genus *Ipomoea* are generally herbaceous, climbing annuals or perennials. Leaves are alternate, asymmetric or symmetric, ovate, about 8.6 cm in length and 10.8 cm width (Lowel and Lucansky, 1986). Flowers are axillary, usually solitary. Bracteoles do not conceal calyx. Corolla glabrous. Ovary is made up of 2-4 locular and each ovule has 2 loculus. Stigma has 1-3 globose lobes. (Davis, 1978).

RESULTS

Plant samples were identified based on their morphological characters. According to the Turkey grid system, the area where the species were collected is located in the C 5 location (Figure 1).

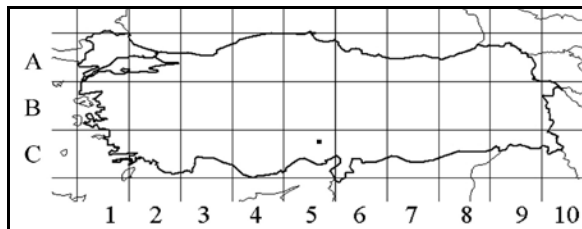


Figure 1. The location of scarlet morning glory (*Ipomoea hederifolia* L.) according to the grid system.

Sample plants had different shapes and structures. Therefore, it may seem similar to the other *Ipomoea* species found in the region and can be confused easily especially with *Ipomoea triloba*. Nevertheless, the shape and color of the flower and the bunch of fruit is another important difference. In addition *I. hederifolia* differs from *I. triloba* by its hairy seed surface, while *I. triloba* has globrous smooth surface.

All *Ipomoea* L. species were searched and scanned in literature. Research established on leaf, seed and flower structure. After all examined studies and checking other plant specimens show that the sample plant is "*Ipomoea hederifolia* L." that has a common name Scarlet Morning Glory.

Scarlet morning glory (*I. hederifolia* L.) is a species of annual herbaceous, climbing or creeping plant. Leaves are alternate, heart-shaped, lobed or unlobed (Fig. 2. c-e). Interestingly, young plant leaves are generally unlobed in the early growing season, while mature plants produce both trilobed and unlobed leaves in the end of the season. In Adana climate conditions, flowers open in autumn, varying from orange to red color (Figure 2.d). There are five petals, five separate sepals, five stamens and one ovary in the flower. The flower from above, it show 5 lines that give a star shape on the petal (Figure 2.d). For this reason, this genus is called "Yıldız Sarmaşığı" in Turkish, which mean "The Star Ivy", whilst the *I. hederifolia* L. is also called "Kırmızı Çiçekli Yıldız Sarmaşığı", which mean "Red Flower Star Ivy" because of the red flowers. When the fruits are ripened, it turns brown and contains approximately 1-4 seeds. The seed color can vary from dark brown to black with intensively hairy surface. Seeds are about 5 mm long and 3 mm width (Figure 2. a).

Taxonomy:

Family: Convolvulaceae

Genus: *Ipomoea* L.

Species: *Ipomoea hederifolia* L.



Figure 2. Growth stages of scarlet morning glory (*Ipomoea hederifolia* L.), (a) seed (b) basal leaves (c) mature plant (d, e) flower (f) fruit.

DISCUSSION

The species originally from tropical America and eventually spread around the world as a weed. In Turkey, it is believed that this plant might have been introduced deliberately for the purpose of ornamentation or accidentally with impure crop seeds and later escaped and became weedy. Nowadays, the population size of this weed is expanding and increasing rapidly in Çukurova Region, causing remarkable yield losses in maize productivity. Although many species in this genus, *Ipomoea*, are considered invasive weeds in many parts of the world, there is no effective herbicide or any other management method for this weed in Turkey. Therefore, more studies focusing on possible management strategies and tactics for this species are greatly needed.

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