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A new record for the flora of Turkey: *Heteranthera limosa* (Sw.) Willd. (Pontederiaceae)

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Abstract

Heteranthera limosa (Sw.) Willd. (Pontederiaceae) is reported as a new record from province Balıkesir of northwest Anatolia for Turkey. This species grows on the borders of rice fields and shallow water. In this study, the species is described, illustrated and distribution map is given.

Key words: Pontederiaceae, *Heteranthera*, alien species, new record, Turkey

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Türkiye florası için yeni bir kayıt; *Heteranthera limosa* (Sw.) Willd. (Pontederiaceae)

Özet

Heteranthera limosa (Sw.) Willd. (Pontederiaceae) Anadolu'nun kuzeybatısından, Balıkesir ilinden Türkiye için yeni bir kayıt olarak rapor edilmektedir. Bu tür, pirinç tarlaları kenarlarında ve sığ sularda yetişmektedir. Bu çalışmada, türün betimi, resimi ve dağılış haritası verilmiştir.

Anahtar kelimeler: Pontederiaceae, *Heteranthera*, yabancı tür, yeni kayıt, Türkiye

1. Introduction

The family Pontederiaceae is represented with nine genera (*Eichhornia* Kunth, *Eurystemon* Alexander, *Heteranthera* Ruiz & Pavon, *Monochoria* C. Presl., *Hydrotrix* Hook f., *Pontederia* L., *Reussia* Endl., *Scholleropsis* H. Perrier and *Zosterella* Small) in the World (Cook et al., 1974). The distribution of *Heteranthera* species are in Western Hemisphere, Africa, Iberia Peninsula and Italy (Requena et al., 2003). *Heteranthera* represented with 12 species in the World (Horn, 1988). *Heteranthera limosa* known as "Blue Mudplantain" or "ducksalad" (in USA). *H. limosa* is best adapted for growth in water less than 5 cm deep. The another species of family, *Eichhornia crassipes* (Mart.) Solms (water hyacinth) was given as a new records for Turkey from Hatay (Asi River) (Uremis et al., 2014). *E. crassipes* is pernicious invasive species.

2. Materials and methods

During fieldwork for the Biological Diversity Project of Gönen River Delta Wetland in 2012, material of rare and handsome species was collected in Gönen (Balıkesir). These specimens were checked *Flora of Turkey* (Davis, 1984; Davis, 1985; Güner et al., 2000), *Flora of Europaea* (Webb, 1980), Plant list of Turkey (Vascular plants) (Güner et al., 2012) and Water Plants of the World (Cook et al., 1974). Identification was checked by Prof. Dr. Özcan Seçmen who is an expert on water plant. In a total, 10 specimens (14 individuals) of *H. limosa* were collected from the Gönen on the borders of rice fields and shallow water and deposited in Akdeniz University Herbarium.

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3. Results

***Heteranthera limosa* (Sw.) Willd.**, Mag. Neuesten Entdeck. Ges. Naturf. Freunde Berlin Neue Schriften. 3: 439. 1801. (Figure 1).

Syn.: *Pontederia limosa* Sw., *H. rotundifolia* (Kunth) Griseb., *H. limosa* (Sw.) Willd. var. *rotundifolia* Kunth.

Description

Plants annual. Stems tufted, rooted in mud, elongate or emersed, contacted, erect or creeping, glabrous. Basal rosette leaves sessile, blade oblong to oblanceolate, thin or sometimes thickened, 3.1–6.2 cm × 3–5.5 mm. Stalked leaves erect, standing out of water or blades floating on surface; stipule 1–6 cm; petiole 2–15 cm; blade cordate, oblong to ovate or elliptic, 1–5.5 cm × 4–40 mm; truncate to cordate at base, acute to obtuse at apex. Inflorescences 1-flowered; spathes 0.9–5 cm, glabrous. Flowers opening within 1 hour after dawn, wilting by midday; perianth blue or white, salverform, tube 15–44 mm, limbs actinomorphic, lobes equal, elliptic, 5.2–26.3 mm, distal lobes yellow toward base; stamens unequal, lateral stamens 2.3–7.8 mm, central stamen 3.3–7.2 mm; filaments linear, glandular-pubescent; style glabrous. Fruit cylindrical capsule, retained in spathe. Seeds 9–14-winged, 0.5–0.9 × 0.2–0.8 mm.



Figure 1. A- General view of *Heteranthera limosa*, B- Close-up of flower [R.S.Göktürk 7527 (Akdeniz University Herbarium)]

Collected specimens: Turkey: A1 Balıkesir, Gönen, West of Misakça, shallow water and on the borders of rice fields, 35 T 0553441; 4461739, 10 m, 28.07.2012. R.S.Göktürk 7527 (Akdeniz University Herbarium).

Chromosome number. $2n=14$

Habitat. *H. limosa* were collected from shallow water and on the borders of rice fields; the species is associated with plants such as *Typha latifolia* L., *Tamarix smyrnensis* Bunge and *Lemna gibba* L.

Phenology. Flowering in May–November, fruiting July–December.

General distribution. USA, Mexico, West Indies, Central America, South America, Spain, France and NW Turkey (Figure 2).

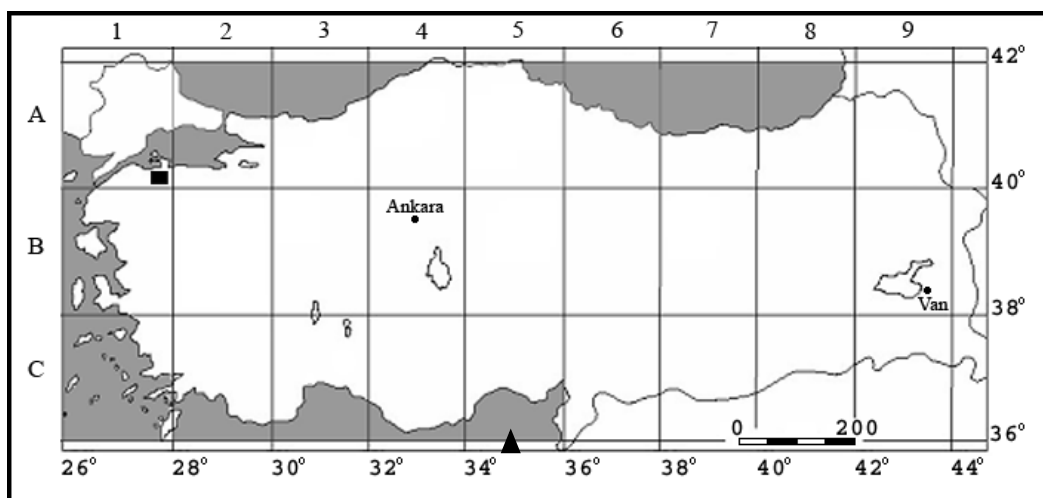


Figure 2. Distribution map of *Heteranthera limosa* (■) and *Eichhornia crassipes* (▲) in Turkey

4. Conclusions and discussion

Turkey is one of the richest countries in the World in terms of flora and new records for the flora of Turkey were added (Yüzbaşıoğlu, 2014; Başköse and Yaprak, 2016; Cabi and Soreng, 2016). *Heteranthera limosa* which is native to several countries of North, Middle and South America. For the first time this species outside the continental America has been recorded from France in 1991 (Lagarde and Gauthier, 1991) and from Spain in 2003 (Requena et al., 2003). This species is closely allied to *Heteranthera reniformis* Ruiz & Pavon. *H. limosa* is given as alien species to Turkey. It is very common aquatic weed in rice field, but apparently limited to an unusual microhabitat in Balıkesir. It can be controlled when young, but not controlled full grown.

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