



Short Communication

Potamogeton acutifolius (Potamogetonaceae)-A New Species for the Flora of Turkey

¹Candan Aykurt, ²İsmail G. Deniz and ³Zdenek Kaplan

¹Department of Biology, Faculty of Science, Akdeniz University, Antalya, Turkey

²Department of Biology Education, Faculty of Education, Akdeniz University, Antalya, Turkey

³Department of Taxonomy, Institute of Botany, Czech Academy of Sciences, Pruhonice, Czech Republic

Abstract

Potamogeton acutifolius is reported as a new species for the flora of Turkey. The specimens of the species were collected from Acarlar Freshwater Swamp Forest. *Potamogeton acutifolius* belongs to a morphologically defined *P. compresses* group. This species can be easily distinguished from the other species that occur in Turkey especially by its compressed stem, leaves with additional sclerenchymatous strands and short peduncle. Its morphological description, distinguishing characters and systematic placement are given. The new locality discovered in Turkey is the Southern most occurrence of this species in its entire range.

Key words: Distribution, new record, Potamogeton, systematic, Turkey

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Corresponding Author: Candan Aykurt, Department of Biology, Faculty of Science, Akdeniz University, Antalya, Turkey

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Data Availability: All relevant data are within the paper and its supporting information files.

INTRODUCTION

The Potamogetonaceae are known as a taxonomically extremely difficult family. They include the genus *Potamogeton* L., which is the most diverse genus of aquatic plants (Wiegleb and Kaplan, 1998). It includes about 72 species and 99 hybrids and the highest species and hybrid diversity is found in temperate regions of the Northern Hemisphere (Kaplan *et al.*, 2013). In Turkey, the genus *Potamogeton* is represented by 12 species and one hybrid (Uotila, 1984; Secmen, 2001; Aykurt, 2012). The species can be divided into two informal groups: Broad-leaved and linear-leaved species. The linear-leaved species, sometimes classified as sect. *Graminifolii* Fries (Dandy, 1980) are more difficult to identify because of their reduced morphology, which limits the number of characters that can be used (Kaplan and Stepanek, 2003). So far, this section was known to be represented in Turkey by three species, *P. pusillus* L. (*P. panormitanus*), *P. berchtoldii* Fieber and *P. trichoides* Cham and Schldtl. (Uotila, 1984). *Potamogeton acutifolius* Link known as European linear-leaved species was collected and identified for the first time flora of Turkey. The morphological description of the species and distinguishing characters from its related species are presented in this study.

MATERIALS AND METHODS

For the project aimed at revision of Potamogetonaceae in Turkey, field studies have been carried out recently in Acarlar Freshwater Swamp Forest (Sakarya). The plant specimens were collected and identified using relevant literature (Wiegleb and Kaplan, 1998; Dandy, 1980; Uotila, 1984). The discovered plants included also *P. acutifolius* Link, a European species

previously not recorded for Turkey. The details of the locality and the voucher specimens follow:

Turkey: A3 Sakarya: Karasu, Acarlar Freshwater Swamp Forest, canals, 36T 285206 4557206, 12 m, 1. vii. 2014, C. Aykurt (4079) and İ.G. Deniz (Akdeniz University Herbarium and Herbarium Z. Kaplan).

RESULTS

Because the species is known in Turkey from only one population, which covers only a small proportion of the variation of this species, the following description based on a material from its entire range is compiled here from the relevant literature (Wiegleb and Kaplan, 1998; Kaplan and Marhold, 2012).

***Potamogeton acutifolius* Link:** Rhizome absent or filiform, annual, short. Stem sparingly to richly branched, slender, strongly compressed to flattened, 1.0-3.0 mm wide, annual, axillary or apical dormant turions developing. Submerged leaves sessile, linear, 35-80 (-135) mm long, 1.8-3.8 mm wide 13-30 (-40) times as long as wide, bright green to dark green, sometimes with a reddish tinge, 3-veined, with 16-24 additional sclerenchymatous strands, entire at margins, narrowly cuneate at base, acute at apex. Floating leaves always absent. Stipules axillary, convolute, 10-21 (-29) mm long, translucent to opaque, persistent but soon eroding to fibrous strands at the apex. Peduncles mostly 5-8 mm long, as thick as the stem. Spikes almost globose, 3-8 mm long in fruit, contiguous. Flowers 4-7, with 1 carpel. Fruits 3.0-4.0 (-4.7) mm long, dorsal keel distinct (Fig. 1).



Fig. 1(a-c): *Potamogeton acutifolius* (a) Upper part of the stem, (b) Flowering spike and (c) Spike with young fruits (scale bars 5 mm)

DISCUSSION

Potamogeton acutifolius belongs to a morphologically defined *P. compresses* group (Kaplan and Marhold, 2012). Besides *P. acutifolius*, it includes three other species, namely *P. compresses* L., *P. manchuriensis* A. Benn. and *P. zosteriformis* Fern. This group is well defined within linear-leaved species as its species are characterized by markedly compressed stems and leaves with sclerenchymatous strands, in addition to true vascular veins. *Potamogeton acutifolius* is well distinguished from other species included in the group by leaves with three vascular veins, short spikes and short peduncles (Kaplan and Marhold, 2012). Phylogenetically, species of *P. compresses* group are nested within other linear-leaved species (Kaplan *et al.*, 2013). In contrast to majority of linear leaved species, which have 26 chromosomes in somatic cells, the species of *P. compresses* group have $2n = 28$ (Kaplan *et al.*, 2013).

From the other linear-leaved species that occur in Turkey, *P. acutifolius* can be easily distinguished by its compressed stem, leaves with numerous additional sclerenchymatous strands, short peduncle, few-flowered and almost globose spikes and fruits with a distinct dorsal keel.

So far, *P. acutifolius* has been known only from temperate regions of Europe, with Northern limits of distribution in central Sweden and Southern limits in Northern Italy, Serbia and Romania (Kaplan, 2010). The new locality discovered in Turkey is apparently the southernmost occurrence of this species in its entire range.

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