

PHYLLANTHUS TENELLUS (EUPHORBIACEAE), A NEW RECORD AND NATURALIZED SPECIES IN MAZANDARAN.

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Phyllanthus tenellus Roxb. was lately found as naturalized species in Mazandaran province. This report represents the first record of the species for the flora of Iran. It seems that it is introduced through exotic plants commerce and often distributed in the gardens, especially in the ornamental plants nurseries. Since ornamental plants imports started in a large scale in Iran less than 50 years ago. It is a small and herbaceous plant and is easily recognized by its very small flowers in axillary cymes on the branches and leaves thin and fragile produced on lateral shoots which resembling a compound leaves.

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Key words: *Phyllanthus*, Hyrcanian forests, new record, Iran.

Phyllanthus tenellus به عنوان گزارش جدید و گونه بومی شده از غرب مازندران

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گونه *Phyllanthus tenellus* Roxb. به عنوان گزارش جدید، از غرب مازندران نام برده می شود، این گونه به صورت بومی شده در اغلب مناطق کم ارتفاع و در حاشیه باغ ها و مزارع دیده شده و به علت برخورداری از برگ های بیضی شکل با آرایش غیر مارپیچی که بیشتر دورج به نظر رسیده، همراه با گل‌های بسیار کوچک در کنار دم‌برگ ها شناخته می شود.

INTRODUCTION

During field work on the flora of Hyrcanian in Northern Iran, several botanically exploration was done in the lowland vegetation especially on the northern slope of the low-lying hills and shady dunes overlooking the Caspian Sea. The most parts of the study area are covered by tea farms or Citrus garden as well as it growth understory of the hedge and trees or even too significantly in the ornamental plants nurseries. The specimens of *Phyllanthus* were collected from the mentioned sites and after detailed study of these collections, *Phyllanthus tenellus* were identified and presented below as a new record for the flora of Iran.

MATERIALS & METHODS

The study of the genus *Phyllanthus* in Iran was conducted on the basis of the observations and field study and also a complete study on the collected specimens in several field collections from central parts of low altitudinal zone of southern Caspian Sea shore in 50 kilometers horizontal distance between Abbas-Abad to Noor in Mazandaran province. After collecting enough specimens, the species were identified through the study on the herbariums specimens.

RESULTS

The results of the study on the herbarium specimens showed the presence of *Phyllanthus tenellus* in flora of low land zone of Hyrcanian forests. The genus

Phyllanthus was first described by Linnaeus in 1753 (Chantharanothai, 2005) and the species (*Phyllanthus tenellus*) was described for the first time by Roxburgh (1832) in Flora Indica as a plant introduced from Mauritius's Island in 1802 by Captain Tennant (Crisafulli et al., 2011).

The genus comprises 750-800 species (Radcliffe-smith, 2001) and is the largest and most diversified genus in the Phyllanthaceae and even its previous family in Euphorbiaceae, as subfamily phyllanthoideae (Webster, 1970, Samuel et al. 2005).

Phyllanthus is a genus of small plants worldwide, distributed into over 50 sections with distribution in different environments and vegetation formations in tropical regions of world (Cardoso-Gustavson et al., 2011) poorly represented in temperate regions (Zhu Shu et al., 2008). Hence, in this report, *Phyllanthus tenellus* in the flora of Iran includes a single species and is considered as a new record. This species is easily recognized by its very small flowers in axillary cymes on the branches and leaves thin and fragile produced on lateral shoots which resemble compound leaves.

Phyllanthus tenellus is a herbaceous plant or in some position as a shrub up to 120 cm tall. The species belongs to the group of species in the genus

Phyllanthus with phyllanthoid branching, because of this traits they are attractive experimental objects for studying specialization in branching (Zhu Shu et al., 2008). Leaves are thin and fragile, about 0.8-2 x 0.5-1.1 cm, produced on lateral shoots which resembling pinnate, as well as tend to be alternate and not spirally arranged on the twigs, greenish and glabrescense on above and glaucous on the underside, venation not obvious well, stipules persistent, lanceolate or narrowly triangular about 1-2 mm long and acuminate at apex; petiole less than 2mm long; flowers in axillary cymes on the branches, lower ones with 2-3 staminate flowers and 1-2 pistillate flowers, those above with solitary pistillate flowers; staminate flowers on pedicels 0.5-1.5 mm long; calyx lobes 5, 0.4-0.7 mm long, obtuse petals 5, nectary disk 5 lobed, stamens 5, free filaments distinct; pistillate flowers on capillary pedicel (2.5) 3-5 mm long, calyx lobes 5, 0.6-0.8 mm long, bowed in fruit, with 6(5) oblanceolate petals, nectar disk sub-entire, styles distinct, bifid. Capsules depressed globose, 1.7-1.9 mm in diameter, explosively dehiscent. Seeds 0.8-1 mm long, orange-brown, dorsally minutely tuberculate in longitudinal rows (wagner et al.,1999; Webster, 1999).

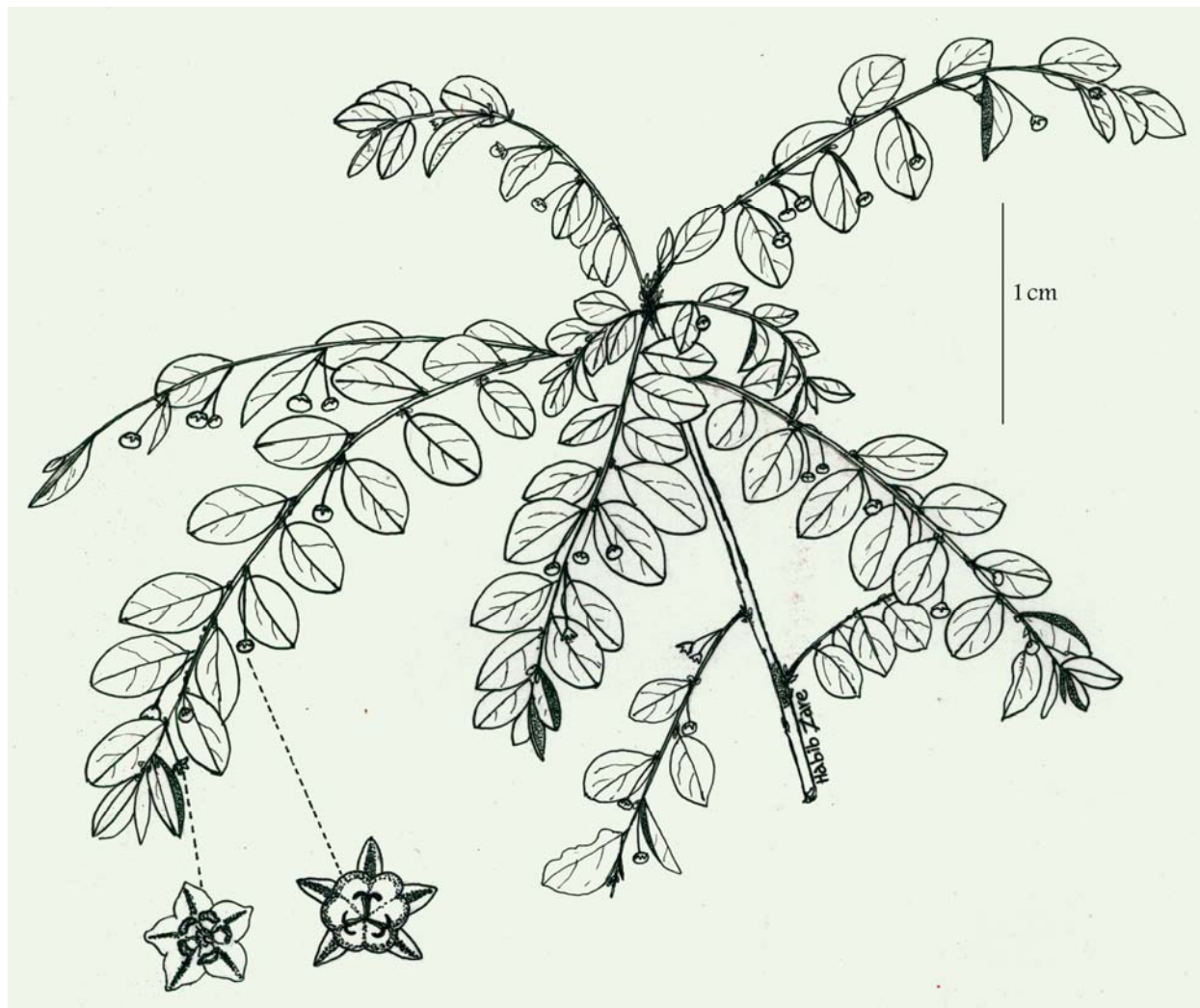


Fig. 1. *Phyllanthus tenellus*, a: fruit b: flower (x5)

Specimens seen: Mazandaran, Abbas-Abad, margin of thickets of *Alnus glutinosa* (L.) Gaertn. ssp *barbata* (C. A. Mey.) Yalt., - 10 m., Zare & Amini, 11051, Chaloos, edge of gardens, and ornamental nurseries, - 10 m. Zare & Amini, 11046. Nowshahr, southern gardens, -17 m., Zare & Amini, 11047, Nowshahr, Shokrikola margin of irrigated farm and Citrus gardens and *Salix alba* L. and *Alnus glutinosa* (L.) Gaertn. ssp *barbata* (C. A. Mey.) Yalt., - 18 m., Zare & Amini, 11030, Nowshahr, Vanoosh, - 8 m. Mehrasa Zare, 11031. Nowshahr, Botanical garden, -20 m., Zare & Amini, 11029.

Habitat and ecology

Phyllanthus tenellus is native to Madagascar and Mauritius's Island; Mascarense, Brazil, South-eastern USA, Southern Saudi-Arabia and West India. The species is currently spread naturally in many countries,

from the southern part of temperate zone to subtropical and tropical countries, in some of the positions, it can become invasive due to its rapid flowering and explosively dehiscent fruits (Welsh, 1998). These traits changed its ecological behavior as weedy species of open sites. In Iran, the species were collected from central parts of Elburz in Hyrcanian lowland vegetational zone from Abbas Abad to Western parts of Noor, so it can be a first distribution. Altitudinal range is from sea level or - 15 to about 50 m.a.s.l. The plant frequently grows around gardens and outdoor small gardens and easily grows in the soft and drained soil with deep and rotted humus and also in alluvial sandy flats by river banks so it can be a ruderal species.

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