

## NEW RECORD OF ASPHODELUS FISTULOSUS FROM IRAN

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*Asphodelus* L. is a widespread genus with about 20 species in the Asphodelaceae family. Most of its species are distributed in Mediterranean regions and among them *Asphodelus fistulosus* as a species with a broad ecological range is recorded from Gilan and Mazandaran provinces in North of Iran for the first time. The populations of this species are observed on the roadside, abandoned, disturbed farms and gardens.

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**Key words:** *Asphodelus fistulosus*; new record; Mediterranean, introduced species; Gilan; Iran

گزارش جدیدی از *Asphodelus fistulosus* L. از ایران

حبیب زارع: استادیار پژوهشی، باغ گیاه‌شناسی نوشهر، مؤسسه تحقیقات جنگل‌ها و مراتع کشور، سازمان تحقیقات، آموزش و ترویج کشاورزی، ایران

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جنس *Asphodelus* L. به عنوان یکی از پرگستره‌ترین جنس از تیره Asphodelaceae است که اغلب در مناطق مدیترانه‌ای و نواحی مجاور آن انتشار دارد و از بین حدود ۲۰ گونه این جنس، گونه *Asphodelus fistulosus* L. از انتشار جغرافیایی گسترده و دامنه اکولوژیک وسیع‌تری برخوردار است و در ایران برای اولین بار با جمعیتی نسبتاً فراوان از اراضی رها شده و حاشیه باغ‌های مناطق جلگه‌ای و نزدیک به ساحل دریای کاسپین در استان‌های گیلان و مازندران گزارش می‌شود.

### INTRODUCTION

The genus *Asphodelus* L. is one of the widespread genera in the Asphodelaceae family with about 20 species mostly distributed in Eurasia and Mediterranean regions (Smith and Van Wyk, 1998). Among them, *Asphodelus fistulosus* has an uncommon distribution boundaries and has been scattered in many parts of the world's ecological regions. It is Primarily found in warmer temperate and semi-arid regions and usually grows on different places like shallow, deep, poor or rich soils, open woodlands, abandoned and disturbed field, coastal environs, shrublands, roadsides, disturbed sites and cropping areas. It is also regarded as an environmental weed in some sub-

tropical and arid environments (DiTomaso & Healy 2007). The origin of this species is southern Europe, the Madeira Islands, northern Africa and Middle East (Randall 2002) but has been reported as a noxious weed in several countries, although it was introduced predominantly as an ornamental plant for its beautiful and fascinating flowers (Patterson 1996). Besides, it has been naturalized in some places and several countries including Western Europe in UK., southern USA, southern parts of South America and New Zealand (Boatwright 2012). Recently it has been introduced as a naturalized alien and the first invasive member of the Asphodelaceae from the West Coast of South Africa (Boatwright 2012).

During a recent survey and fieldwork on the flora of Mazandaran province and similar adjacent areas with similar ecological and geographical conditions, in lowland areas of Gilan and Mazandaran, a few scattered populations of a specific plant drew our attention. More study on the plants in the field, it turns out that they have different characteristics from the other previously known plants from the area. The specimens were collected and determined as *Asphodelus fistulosus*. Here we report it as a new record for the flora of Iran.

## MATERIALS AND METHODS

*Asphodelus fistulosus* was collected from disturbed and abandoned fields, close to garden, irrigated farming and margin of the roads in north-west of Sumeasara, in west of Gilan (49° 12' 15.8" E and 37° 28' 03.5" N) and a location in east of Gilan, close to Ramsar, the westernmost city of Mazandaran province (51° 27' 30" E and 36° 25' 00" N) and an area of east of Sari in Mazandaran province (53° 08' 58.68" E and 36° 34' 01.35" N). Elevation ranges of the species in these sites are limited to -10 to 20 m. a.s.l. close to Caspian Sea shore with mean annual precipitation between 800 -1470 mm. The plant material was identified using different floras (Smith, & Van Wyk, 1998, Tutin & al. 1980). The specimens are deposited in Nowshahr Botanical Garden Herbarium and TARI.

## RESULTS AND DISCUSSION

### *Asphodelus fistulosus* L.

Herbaceous, upright and erect, often tufted, 25-70 (80) cm tall, it can grow as annual, biennial or perennial and depending on the ecological situation of the sites which it is growing. Root has a series of tuber-like or short rhizome at the base of the stem and yellowish. Stems hollow and onion-like, flowering stems are smooth, glabrous, 2-6 mm. thick, are rigid, do not have any leaves and are usually branched in their upper parts. The linear leaves shorter than flowering stems, emerge from base of the plant, 5-50 cm long, less than 1 cm in diameter, in cross-section are cylindrical, like to succulent plants and rather fleshy. Flowers white in terminal racemes, with short stalks, alternately arranged along the stems, each flower with 6 petals (i.e. tepals or perianth segments)

that are 4-12 mm. long and up to 3 mm. wide, each of which has a purplish or pinkish and sometimes brownish coloured stripe running down the middle of each petal. Stamens in 6, and 5-6 mm. long, flowers occurs the end of winter to middle of spring, plants usually do not flower in the first year of growth. Capsule globular, usually rugose, up to 8 mm. in diameter, are divided into three compartments, seeds 1 or 2, triangular or spindle-shaped, black-brownish.

*Examined specimens:* Gilan, 20km NW of Sumaasara, 49° 12' 15.8" E and 37° 28' 03.5" N. -5 m. on the roadside and margin of garden, 12360 HNBG. Gilan, between Kelachay and Chaboksar, northern parts of Rezamahalleh village, 37° 03' 56.27" N, 50° 26' 58.48" E, -21 m, on the roadside, 12107 HNBG, same place, in abandoned field, -19 m., 12115 HNBG. Mazandaran, 5 km. east of Sari, on the roadside and abandoned farm, 12346 HNBG.

There is another *Asphodelus* species growing in south of Iran, reported in the Flora Iranica as *A. tenuifolius* Cav. (wendelbo 1982). The later species is very similar to *A. fistulosus*. According to some available literatures such as some European floras, the two species are considered as synonyms. Based on study of Rejon & al. (1990), the most significant morphological differences between *A. fistulosus* and *A. tenuifolius* are that the latter is annual and more dwarf, its scape is somewhat scaly at the base, its tepals are smaller (5-10 mm), the fruit is proportionally smaller, and the peduncles are articulated in the lower half.

## ECOLOGY

*Asphodelus fistulosus* always grows on the drained to wet soil, especially on the sunny places without any canopy. Stems 20-60, hollow, very fast growing plant in poor soils especially on sandy-loamy soils, and it usually companies with species of *Bromus japonicus* Thunb., *Paspalum distichum* L., *Vulpia myuros* (L.) J.F. Gmel., *Poa annua* L., *Cynodon dactylon* (L.) Pers., *Potentilla reptans* L., *Sonchus oleraceus* L. *Urospermum picroides* (L.) Desf. *Sorghum halepense* (L.) Pers. As previously mentioned, this species is native to the Mediterranean region of Europe, North Africa and the Middle East and naturalized in many world ecological zones.



Fig. 1. *Asphodelus fistulosus* in natural sites in easternmost of Gilan Province (Phots: Habib Zare).

Besides, the species in some geographical areas and several countries have been introduced as weed, and also it is invasive in the south-western United States, Australia, India, Spain and New Zealand (Randall, 2002, Auld and Medd, 1987). In Australia and America, the species is found in pastures, rangelands and crops, where it excludes grasses and is avoid by livestock (Boatwright, 2012, Demissew, and Nordal, 1997). In Iran, in present report, the species has been observed in three populations and has been found in margin of abandoned farms and disturbed roadsides in Gilan and Mazandaran Provinces and it does not yet appear to be spread into irrigated farmlands of Tea, Kiwi fruit and Citrus gardens or in natural lowland forests sites i.e. *Alnus glutinosa* communities and its companion plants. In this regard although one of the natural distribution range of the species is the Middle East and that includes Iran, too, but it may have been imported by raw crop seeds or ornamental pot plants.

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