

TWO NEW RECORDS OF THE GENERA NAJAS (NAJADACEAE) AND LEMNA (LEMNACEAE) FOR AQUATIC FLORA OF IRAN

M. Dinarvand

Received 17.08.2010. Accepted for publication 10.11.2010.

Dinarvand, M. 2010 12 31: Two new records of the genera *Najas* (Najadaceae) and *Lemna* (Lemnaceae) for aquatic flora of Iran. – *Iran. J. Bot.* 16 (2): 233-236. Tehran.

For the preparation of aquatic Flora of Iran treatment, the families *Najadaceae* and *Lemnaceae* were studied. Among them, the specimens of *Najas gracillima* were collected from Khuzestan province wetland and the specimens of *Lemna perpusilla* were collected from Fars province wetland for the first time for the aquatic flora of Iran. In this paper, the two species are reported from Iran. Key to the species of both genera is presented for the species occurring in Iran.

Mehri Dinarvand (mdinarvand2003@yahoo.com), Research Center of Agriculture and Natural Resources of Khuzestan province, Iran.

Key words. *Najas*, aquatic flora, *Lemna*, new record, Iran.

گزارش گونه‌های جدیدی از جنس *Najas* متعلق به تیره *Najadaceae* و *Lemna* از تیره *Lemnaceae* برای فلور آبی ایران
مهری دیناروند، عضو هیئت علمی مرکز تحقیقات کشاورزی و منابع طبیعی استان خوزستان.

به منظور تدوین فلور گیاهان آبی ایران تیره های *Najadaceae* و *Lemnaceae* مطالعه گردید. در بین نمونه‌ها گونه‌های *Najas gracillima* از استان خوزستان و *Lemna perpusilla* از استان فارس برای اولین بار جمع‌آوری و شناسایی شد. در این مقاله گونه‌های مذکور از ایران معرفی و کلید شناسایی جنس‌های *Lemna* و *Najas* برای گونه‌های شناخته شده از ایران ارائه می‌شود.

INTRODUCTION

The family *Najadaceae* includes only one genus with about 50 species mostly cosmopolitan (Feinbrun-Dothan 1986). It contains three species in Iran (Dandy 1971). The habitats of the species are fresh or brackish water of canals, rivers and marshes. In order to prepare "Flora of Iran treatment" (Assadi 1989), the aquatic families have been revised. Among the recent collections of Khuzestan province, *Najas gracillima* (A. Braun ex Engelm.) Magnus is reported as a new record for flora of Iran. This species was reported from Italy in *Flora Europaea* (Dandy 1980) but without any report from the Middle-East. The *Lemnaceae* family includes very small fresh water plants, with about 6 genera and 29 species nearly cosmopolitan (Feinbrun-Dothan 1986). The family is represented in Iran by three genera and five species (Riedl 1976). Among the collected specimen of Fars province *Lemna perpusilla* Torrey is reported as a new record for Iran. The nearest report of this species to Iran is Saudi Arabia (Chaudhary 2001). In this paper, the key to the species

of both genera in Iran are presented. The specimens are preserved in TARI and the herbarium of Research Centre of Agricultural and Natural Resources of Khuzestan province.

RESULTS

Najas gracillima (A. Braun ex Engelm.) Magnus (Fig. 1).

Khuzestan province: Ahwaz to Shoush, Alhaee to Abdulkhan village, 45 km after Ahwaz, 80 m, (TARI Herbarium) Dinarvand 8040.

Submerged plant. Stems long and filiform; internode 0.7-3 cm. Leaves whorled, filiform, acute, 0.2 mm wide and 10-12 mm long, without prominent midrib, with 6-12 minute spines at the margin; teeth acute; sheaths 2 mm long; auricle truncate, with 2-4 minute spines on each side. Nut axillary, 1.8 mm long, not recurved, light brown.

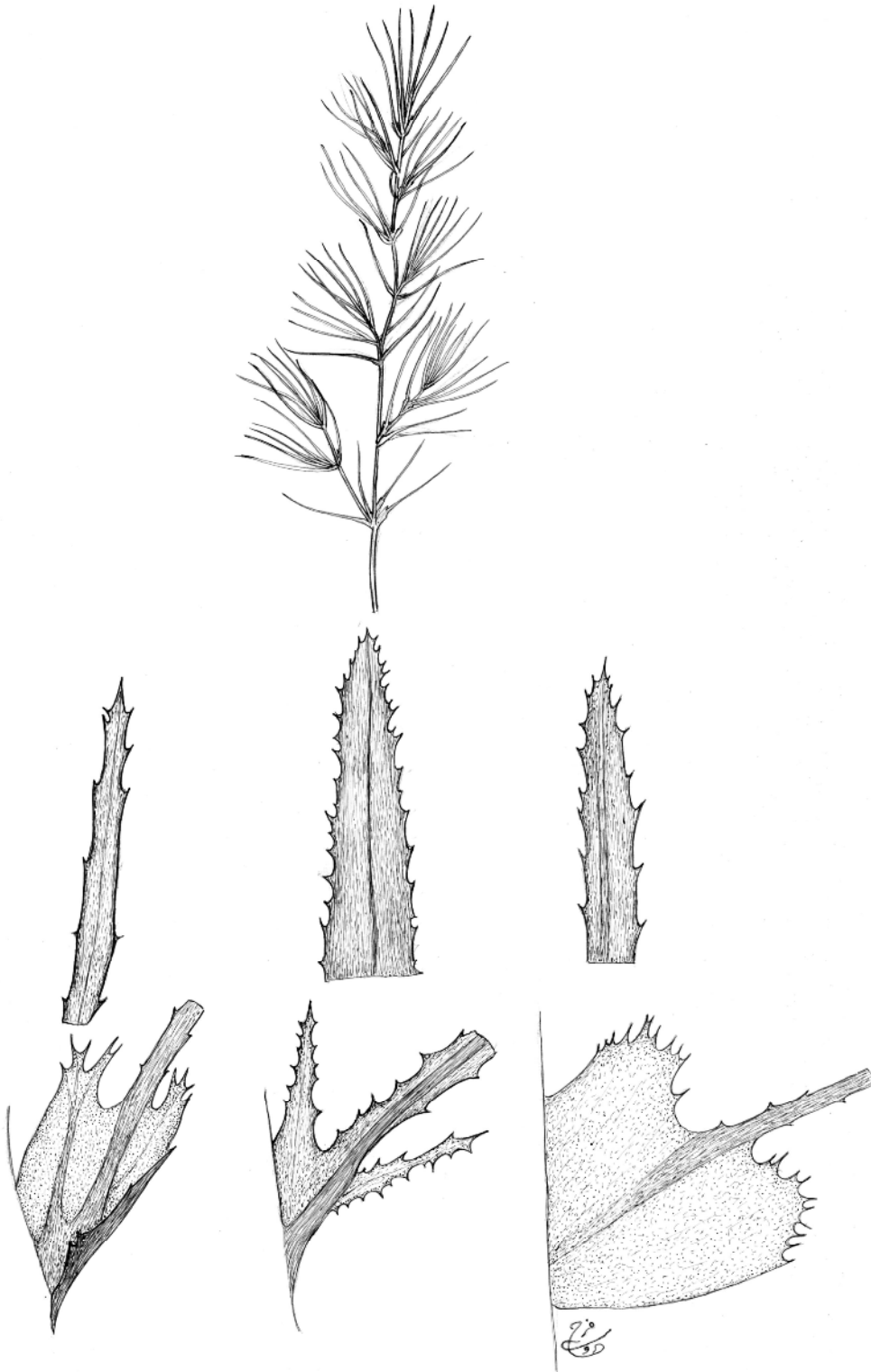


Fig. 1. *Najas gracillima* ($\times 1.8$); details ($\times 19$).

Distribution. North America and Europe, the nearest report of this species to Iran is North of Italy.

Key to *Najas* species in Iran

1. Leaves more than 2 mm wide, with conspicuously deltoid spines. Sheaths not denticulate **N. marina**
- Leaves less than 1 mm wide, with minute spines on the margin of teeth. Sheaths auricled 2
2. Auricles rounded. Fruits slightly recurved at the apex **N. minor**
- Auricles lanceolate or truncate. Fruits no recurved 3
3. Auricles lanceolate. Leaves 0.5-0.8 mm wide, linear, with more than 50 minute spines on the margin teeth **N. graminea**
- Auricles truncate. Leaves 0.2 mm wide, filiform, with 6-12 minute spines on margin teeth **N. gracillima**

Lemna perpusilla Torrey (Fig. 2).

Fars province: Tange Boragh to Kamfiroz, after T junction of Tange Boragh, near Abmahi village, after Mola Sadra dam, pool on left side of the road, UTM: 3392266, 2000 m, Dinarvand & Mohamadi 8674.

Free floating plant. Fronds asymmetrical, obovate or oblong, 3-4 mm long and 1.5-2.5 mm wide, light green, much branched, obtuse, with a small stalk, spongy on below and shining on the upper surface, 3 veined. Root solitary, white. Sheath winged; cap 2 mm long acute.

Distribution. Tropics and subtropics. The nearest report of this species to Iran is in Saudi Arabia.

Key to *Lemna* species in Iran

1. Fronds submerged, acute and forming chains **L. trisulca**
- Fronds floating, obtuse and not forming chains 2
2. Fronds with spongy air meshes under surface **L. gibba**
- Frond without spongy air meshes under surface 3
3. Frond less than 3 mm long. Cap obtuse **L. minor**
- Frond 3-4 mm long; sheath winged. Cap acute **L. perpusilla**

REFERENCES

- Assadi, M. 1989: Plan of the Flora of Iran. -Tehran.
- Chaudhry, Sh. A. 2001: Flora of the Kingdom of Saudi Arabia, Illustrated, vol 3. - National Agriculture and Water Research Center, Riyadh.
- Dandy, J. E. 1971: Najadaceae in K. H. Rechinger, Flora Iranica, no. 86.-Graz.
- Dandy, J. E. 1980: Najadaceae in Tutin, T. G. Hywood, V. H., Burges, N. A., Moore, D. M., Valentine, D. H., Walters, S. M., Webb, D. A. Flora Europaea 5: 13-14. -Cambridge University Press.
- Feinbrun-Dothan, N. 1986: Najadaceae in Zohary, Flora Palaestina. Part 4: 17-18. -The Israel Academy of Sciences and Humanities.
- Feinbrun-Dothan, N. 1986: Lemnaceae in Zohary, Flora of Palestina, vol 4: 340-343. -Jerusalem.
- Komorov, V. L. 1934: Najadaceae in Flora of the USSR, vol 1: 270-275. -Moskva & Leningrad.
- Riedl, H. 1976: Lemnaceae in K. H. Rechinger, Flora Iranica, no. 119. -Graz.
- Hashmi, R. I. & Omar, S. 1986: Lemnaceae in Nasir and Ali, Flora of Pakistan, no. 173. -Karachi.

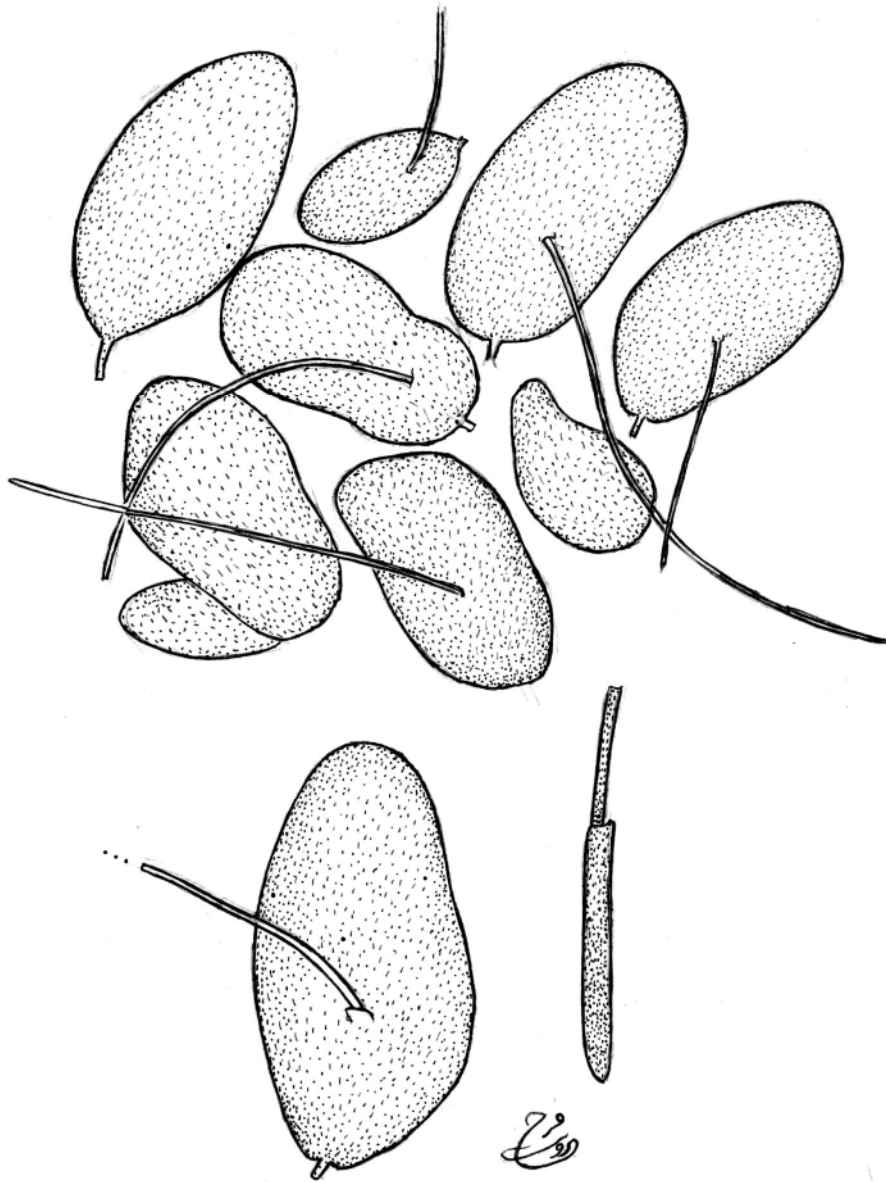


Fig. 2. *Lemna perpusilla* ($\times 18$).