

TWO NEW RECORDS FROM GILAN AND MAZANDARAN PROVINCES, N IRAN

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Naqinezhad, A. & Sharafi, M. 2007 12 31: Two new records from Gilan and Mazandaran provinces, N Iran, -Iran. Journ. Bot. 13 (2): 95-98. Tehran.

Ludwigia epilobioides Maxim. (*Onagraceae*) and *Oxalis corymbosa* DC. (*Oxalidaceae*) from N Iran are reported as new records for flora of Iran. A comparison between the new records and the closest relatives are discussed.

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Submitted: 2007. 05. 20 Accepted for publication on: 2007. 12. 22

Key words. *Ludwigia epilobioides*, *Oxalis corymbosa*, new records, northern Iran.

گزارش دو گونه جدید از فلور استانهای گیلان و مازندران

علی رضا نفی نژاد و مریم شرفی

Ludwigia epilobioides و *Oxalis corymbosa* که از استانهای گیلان و مازندران جمع آوری شده‌اند برای اولین بار در فلور ایران گزارش می‌گردند. ویژگیهای این گونه‌ها با نزدیکترین گونه‌ها مورد بحث و مقایسه قرار می‌گیرند.

Introduction

During some field works in N. Iran, it was found two new plant specimens belonging to *Onagraceae* (*Ludwigia epilobioides* Maxim.) and *Oxalidaceae* (*Oxalis corymbosa* DC.) in Gilan and Mazandaran provinces respectively. There are no reports of these plants from the flora of Iran (Raven 1964; Rechinger 1967).

Ludwigia epilobioides Maxim. -Fig. 1.

Material examined. Gilan Province, Langerud to Rudsar, Salekuyeh village, -15 m, 10.10.2002, Naqinezhad 1002 [Herbarium of Mazandaran University].

Ludwigia L. is a rather cosmopolite genus with 75 species of which 15 are aquatic (Cook 1996). Already this genus was represented with only one species, *L. palustris* (L.) Elliott, in Iran (Parsa, 1964; Raven 1964; Azizian, 2004). *L. palustris* occurs on wet soils of rice fields over the N Iran (Ghahreman et al. 2003; Ghahreman & Attar, 2003).

Studied specimens had features of *L. epilobioides* subsp. *epilobioides*. *L. epilobioides* distributes in N. Iran, E Russia, Korea and Japan to Vietnam. This species has been classified in *Ludwigia* sect. *Nipponia* P. H. Raven, and is probably most closely related to *L.*

prostrata and *L. abyssinica*. Although, two species *L. epilobioides* and *L. prostrata* are superficially quite similar in gross morphology (Shteinberg 1949), but differ emphatically in several characters. Specifically the seeds of *L. epilobioides* are 0.8 – 1.4 mm long and embedded in the endocarp of the capsule, and the pollen is shed singly; *L. prostrata*, on the other hand, has seeds 0.3-0.6 mm long that are free, not embedded in the endocarp, and the pollen is shed in tetrads (Raven 1963).

Based on the discovery of the third species of *Ludwigia* in Flora Iranica area, the genus treatment can be summarized in the following key:

1. Leaves opposite, petals absent
L. palustris (Iran, Talish)
2. Leaves alternate, petals present
2. Seeds embedded in endocarp *L. epilobioides* (Iran)
Seeds not as above *L. perennis* (Afghanistan)

Oxalis corymbosa DC.- Fig. 2.

Material examined. Mazandaran Province, Babol, .IV.2005, Mohammadjani 1020 [Herbarium of Mazandaran University].

Plant bulbiferous; bulbils clustered, sheathed in three-nerved scales. Roots fibrous. Petioles up to 15 cm long, flexuous; leaflets ca. 20 mm long, 20-40 mm

broad, obovate or orbicular, with a narrow indentation at the apex, punctuate beneath, sparsely pubescent. Inflorescence a corymbose cyme; flowers infundibuliform; sepals 4-5 mm long, lanceolate pubescent, tip with two brownish red callus; petals 12-15 mm long, pink; filaments shorter than stamens, glabrous, not exceeding the styles; longer ones strigose. *Oxalis corymbosa* is reported as new record and third species of *Oxalis* in Iran. *O. corniculata* L., a widespread species in Iran, and *O. articulata* Savigny in Lam. both already are reported for Iran (Rechinger 1967; Ghahremaninejad 2006). This species is close to *O. violacea* L. and *O. latifolia* Kunth, but differs from the former due to the occurrence of two separate calli (oxalate deposits) on the sepal apex and differs from the latter due to leaflet morphology (Young, 1965; Eve Emshwiller, pers. comm.). *Oxalis corymbosa* may be misidentified as *O. articulata* due to swollen rhizome in *O. articulata*. The best feature for separating these two species is occurrence of small bulbils in *O. corymbosa*.

Identification key for Iranian *Oxalis* species:

1-Annual	<i>O. corniculata</i>
Perennials	2
2-Plant with bulb	<i>O. corymbosa</i>
Plant with swollen rhizome	<i>O. articulata</i>

Acknowledgment

We are grateful to Prof. P. H. Raven, Dr. P. Hoch and Dr E. M. Zardini, all from Missouri Botanical Garden, USA for their valuable comments and confirmation the determination of *Ludwigia* specimens. We are also appreciated Dr E. Emshwiller, University of Wisconsin, USA for her valuable comments and information on *Oxalis* species. We also thank Dr. David Goyder, Royal Botanical Garden, Kew for his helps during a herbarium visit at Kew.

References

- Azizian, D. 2004: Onagraceae in Assadi et al. (eds.): Flora of Iran. Research Institute of Forests and Rangelands. 35 pp.
- Cook, C. D. K. 1996: Aquatic Plant Book. -SPB Academic Publishing, Amsterdam/New York. 228 pp.
- Ghahreman, A. & Attar, F. 2003: Anzali wetland in Danger of Death (an ecologic-floristic research). - Journal of Environmental studies 28 (special issue): 1-38. abstract).
- Ghahreman, A., Naqinezhad, A. & Attar, F. 2003: Habitats and Flora of the Chamkhaleh-Jirbagh coastline and Amirkelayeh wetland. -Journal of Environmental studies 33: 46-67.
- Ghahremaninejad, F.. 2006: A new record of *Oxalis* from Iran. -Iran. Journ. Bot. 12 (1): 55-56.
- Parsa, A. 1964: Flora d'I Iran, vol. 4. -Ministry of Science and Higher Education of Iran, Tehran.
- Raven, P. H. 1963: The old world species of *Ludwigia* (including *Jussiaea*) with a synopsis of the genus (Onagraceae). -Reinwardtia 6 (4): 327-427.
- Raven, P. H. 1964: Onagraceae in K. H. Rechinger (ed.) Flora Iranica no.7. - Graz: Akademische Druck-u. Verlagsanstalt.
- Rechinger, K.H. 1967: Oxalidaceae in K. H. Rechinger (ed.): Flora Iranica no. 40. -Graz: Akademische Druck-u. Verlagsanstalt.
- Shteinberg, E. I. 1949: Onagraceae in B. K. Shishkin (ed): Flora of the USSR vol. 15. -Izdatel'stvo Akademii Nauk SSSR Moskva, Leningrad (translated to English by N. Landau Israel program for scientific translations, Jerusalem, 1974).
- Young, D. P. 1968: *Oxalis* in T. G. Tutin, V. H. Heywood, N. A. Burges, D. M. Moore, D. H. Valentine, S. M. Walters, & D. A. Weeb, (eds.): Flora of Europaea vol.2. -Cambridge University Press.



Fig. 1. *Ludwigia epilobioides*: based on Naqinezhad 1002.

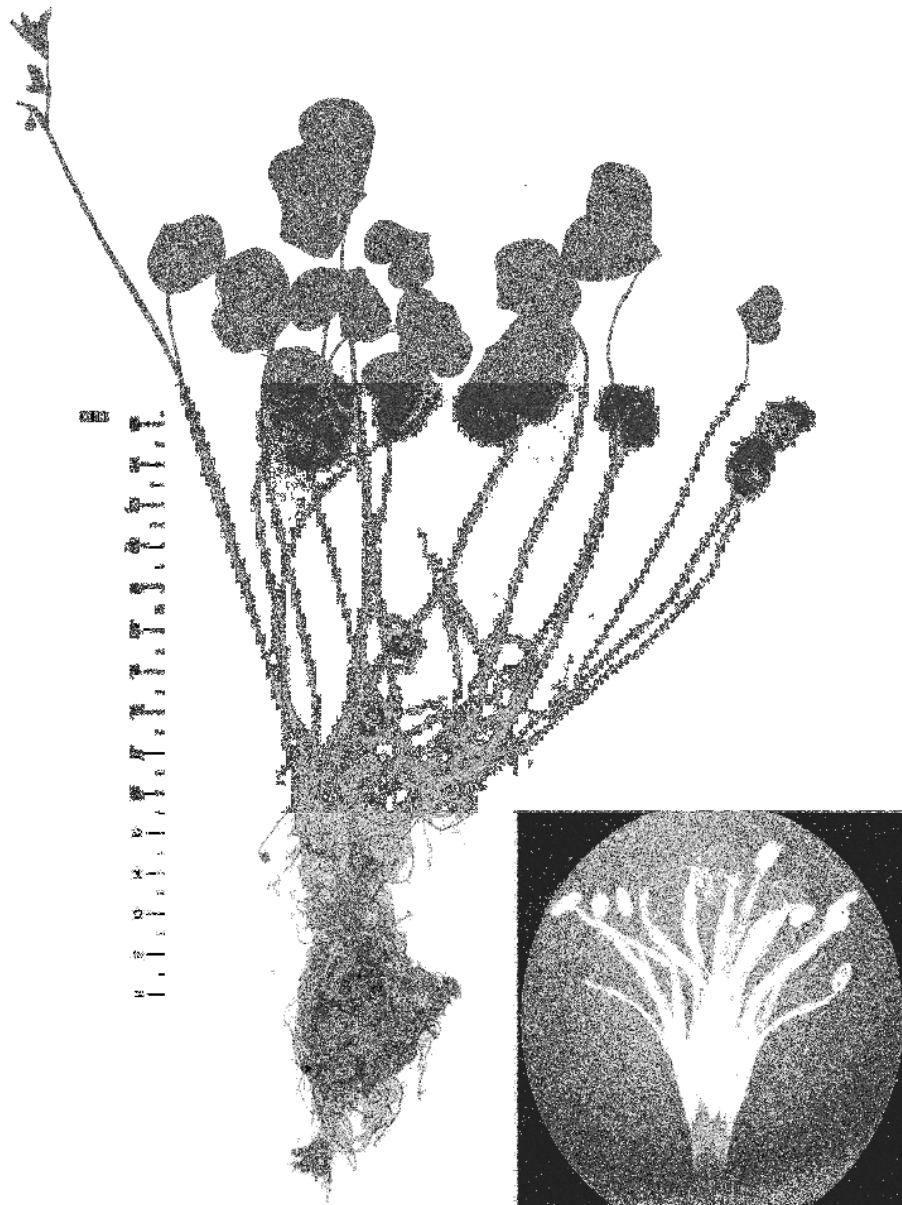


Fig. 2. *Oxalis corymbosa*: habit and stamens, based on Mohammadjani 1020.