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DIONYSIA SPLENDENS (PRIMULACEAE), A NEW SPECIES FROM THE FARS PROVINCE OF IRAN

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Dionysia splendens Alipour, Mehregan & Lidén, sp. nov., from Fars, Iran, is a unique species that cannot be easily accommodated in any hitherto recognised section of the genus and is immediately recognised by its large flowers and pectinate leaves with very broad pale and thick midvein. It agrees with Dionysia cespitosa Duby (Boiss.) in the small flat leaves, stalked inflorescence with large bracts, and few large ellipsoid seeds, but differs in the tubular calyx and large purplish-blue corolla. It is also somewhat reminiscent of Dionysia viva Lidén & Zetterl. in growth habit and inflorescence structure, but that species has large irregularly dentate leaves, yellow corolla and numerous small angular seeds. Dionysia splendens is so far known from a single locality with c.200 mature individuals. An updated key to Dionysia species in the Zagros mountains is provided.

Keywords. Dionysia, Fars province, Iran, new species.

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Introduction

The genus *Dionysia* Fenzl is endemic to the Irano-Turanian floristic region, from Southeast Anatolia and the Zagros mountains of Iran east to Afghanistan and Tadjikistan, with a southern outlier in Northeast Oman. All species are cliff-dwellers, often confined to vertical or even overhanging rocks. *Dionysia* is a well-characterised monophyletic taxon, but recognising it at generic rank leaves *Primula* L., as traditionally circumscribed, polyphyletic (see Lidén *et al.*, 2021, for further discussion).

Dionysia splendens was discovered by the first author in May 2020, southwest of the village of Kaftar in the Fars province in Southwest Iran, in a place that is difficult to access, which explains why this remarkable plant has escaped notice. It is a unique species that cannot be immediately accommodated in any hitherto recognised section of the genus, and is easily recognised from all other *Dionysia* by its pectinate rosette leaves with very broad pale and thick midvein, and its large flowers. It agrees with *Dionysia cespitosa* (Duby) Boiss. in its small flat leaves, stalked inflorescence with large bracts, and few large ellipsoid seeds, but differs (in addition to the unique leaves) in its tubular calyx and very large purplish-blue corolla. It is also somewhat reminiscent of *Dionysia viva* Lidén & Zetterl. in growth habit and

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inflorescence structure, but that species has large irregularly dentate leaves, much smaller yellow corolla, and numerous small angular seeds.

The only other *Dionysia* species with stalked several-flowered inflorescenses with purplish flowers are *D. involucrata* Zaprjag. and *D. hedgei* Wendelbo, from Tajikistan and Afghanistan, respectively, both belonging to sect. *Dionysiastrum* subsect. *Involucratae* Wendelbo. They are very different in pubescence, as well as leaf and seed morphology. According to DNA data (Trift et al., 2004), the eastern taxa form a separate clade from the Zagros taxa, but neither *Dionysia splendens* nor *D. viva* was included in that study.

Species description

Dionysia splendens Alipour, Mehregan & Lidén, sp. nov.

Differs from all other Iranian species of *Dionysia* in its purplish-blue flowers in stalked inflorescences. – Type: Iran, Fars, Eqlid county, Khonjesht district: Kuh-e Musa-Khani SW of Kaftar (30°29'51"N, 52°42'21"E), 3300–3400 m, westward rocky clefts, 21 v 2020, *S. Alipour s.n.* (holotype IAUH-000015310!; isotypes TAR!!, UPS!). Figure.

Caespitose scapose suffrutescent chasmophyte. Perennating stems glandular-pubescent, reddish brown, terminating in dense rosettes with 10-20 leaves. Marcescent leaves pale grey, thin and fragile, probably not lasting for more than one extra season. Farina sparse (or absent) confined to inside of calyx and apical half of corolla tube. Leaves 15-22 × 4-6 mm, oblong without defined petiole, in apical half with 4 or 5 regular triangular teeth on each side; midvein very broad, pale, conspicuously raised below; margin flat. Whole leaf with rather dense erect mostly glandular hairs 0-1.5 mm. Inflorescence pedunculate with one or two tiers of flowers, 1-4 flowers in each. Peduncle 3-6 cm, ± pubescent with spreading glandular hairs. Bracts usually 3, 10-20 × 4-9 mm, ovate, acute, with sharply dentate margin. Pedicels 8-18 mm. Calyx 8-11 mm, divided to c.4/5 into linear acute erect lobes; pubescence like that of bracts and peduncle. Corolla tube 16-18 mm long, pale yellowish, conspicuously ridged, ± densely pubescent with glandular hairs up to 0.5 mm long, often farinose. Limb pinkish purple to pale purplish blue, often paler towards the centre, but without a marked eye, 20-24 mm in diameter, cut into oboyate, narrowly and shallowly emarginate lobes, sometimes with a few apical teeth. Style in longistylous flowers usually slightly exserted; style of brevistylous flowers reaching halfway through the tube. Ovary with c.15 ovules; capsule rounded, 3-4 mm. Seeds almost black, ellipsoid, c.1.2 × 0.8-0.9 mm.

Altitudinal range. 3300-3400 m.

Ecology. On west-facing limestone cliffs.

Etymology. From Latin splendens ('illustrious').

Phenology. Flowering in May.

Distribution. Known only from the type locality.

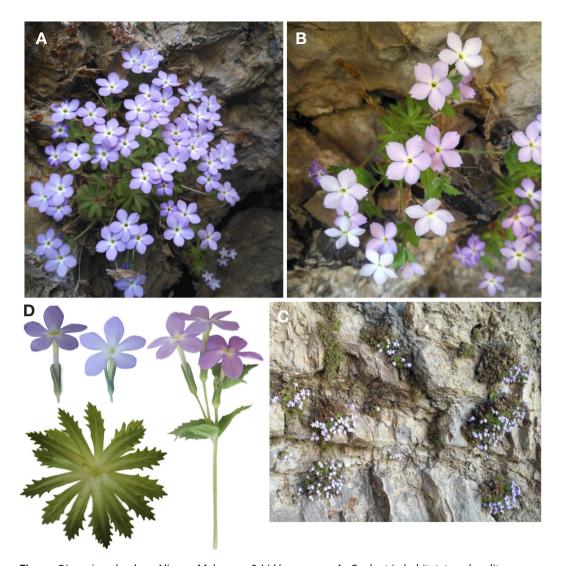


Figure. *Dionysia splendens* Alipour, Mehregan & Lidén, sp. nov. A–C, plant in habitat, type locality; D, close-up of flowers, inflorescence and leaf rosette (upper left, brevistylous corolla; upper middle, longistylous corolla). Photographs: Sajad Alipour.

Provisional IUCN category. The restricted occurrence (a single locality with c.200 mature individuals is currently known) suggests the category Endangered (criterion D) according to the IUCN (2012). However, the species may well occur in other parts of the Kuh-e Mousa-Khani, and because we know of no immediate threat to the population, we list *Dionysia splendens* as LC (Least Concern).

Key to species of Dionysia in the Zagros mountains

All species detailed in the key, except *Dionysia viva* and *D. splendens* (both currently *incertae sedis*) belong in sect. *Dionysopsis* (Pax) Melchior. Section *Dionysia* (see couplets 3 and 7) is not detailed. Species described since Lidén's synopsis (2007) are in **bold**.

1a. 1b.	Flowers yellow 7
2a. 2b.	Inflorescence long-stalked, several-flowered; bracts large, dentate D. splendens Flowers sessile, single or paired; bracts linear 3
3a.	Leaf margin distinctly revolute 4
3b.	Leaves flat or slightly involute (sect. Dionysia)
4a. 4b.	Corolla pubescent; cushions very compact, completely covered in hairs 5 Corolla glabrous; indumentum sparse to moderately dense 6
5a.	Cushions grey; apical leaf hairs reflexed; corolla densely and coarsely hairy
5b.	D. esfandiarii Wendelbo Cushions greyish green; leaf hairs straight; corolla finely hairy D. assadii Borjian
ба.	Cushions dense; leaves almost glabrous, not or very sparsely farinose D. zschummelii Lidén
6b.	Cushions lax; leaves usually hairy, often densely farinose D. archibaldii Wendelbo
7a. 7b.	Leaf margin distinctly revolute, and/or leaves more than 13 mm long 8 Leaves flat or slightly involute, 2–12 mm (sects <i>Dionysia</i> and <i>Mucida</i> Lidén)
8a. 8b.	Inflorescence stalked, few- to many-flowered; bracts large, ± leaf-like 9 Flowers sessile, single or paired (rarely up to 4 in <i>D. leucotricha</i> Bornm.); bracts small, linear 11
9a. 9b.	Leaf margin distinctly revolute; corolla tube 15–30 mm; calyx split to 3/4 or more 10 Mature leaves almost flat; corolla tube 13–15 mm; calyx split to 2/3 <i>D. viva</i>
	Peduncle 2–9 cm, flowers several in 2–4 tiers <i>D. bornmuelleri</i> T.Strauss ex Bornm. Peduncle 1–3 cm; flowers 2–4 in a single umbel <i>D. teucrioid</i> es P.H.Davis & Wendelbo
11a.	Marcescent leaves in distinct clusters, erect; seeds 3-1512
11b.	Marcescent leaves not clustered, erect or reflexed; seeds 50-90
	D. revoluta Boiss. complex
12a.	Leaves with minute glandular hairs only; seeds 3-6
	D. jamzadiae Lidén, M.Irvine, Alvén & Mehregan
12b.	Leaves with dense long eglandular hairs; seeds 10-15 D. leucotricha

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References

- IUCN. 2012. IUCN Red List Categories and Criteria, version 3.1, 2nd edition. IUCN Species Survival Commission. Gland, Switzerland, and Cambridge: International Union for Conservation of Nature. https://www.iucnredlist.org/resources/summary-sheet [Accessed February 2021.]
- Lidén M. 2007. The genus *Dionysia* (Primulaceae), a synopsis and five new species. Willdenowia. 37:37–61.
- Lidén M, Irvine M, Alvén A, Mehregan I. 2021. *Dionysia jamzadiae* (Primulaceae), a new species from the Fars province of Iran. Edinburgh Journal of Botany. 78 article 396: 1–7. https://doi.org/10.24823/EJB.2021.396
- Trift I, Lidén M, Anderberg AA. 2004. Phylogeny and biogeography of *Dionysia*. International Journal of Plant Sciences. 165(5):845–860.