

Cyclamen persicum f. puniceum (Gleason) Grey-Wilson New Plant Record Joined the Lebanese Flora

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Abstract

The species *Cyclamen persicum* f. *puniceum* (Gleason) Grey-Wilson was discovered for the first time in the city of Bchamoun, which is located at the western slopes of Mount Lebanon. Morphologically, this variety appears like *Cyclamen persicum* Mill, but it differs primarily in color. The study discusses, examines, and provides taxonomic description, synonym lists, plant's relationships to similar species, pertinent information and photographs founded on more than 10 years of field work, observations, and fresh collections.

Keywords: primulaceae, *cyclamen persicum* f. *puniceum* (gleason) grey-wilson, taxonomy, biodiversity, flora, lebanon, mediterranean

1. Introduction: Background

Lebanon is considered as one of the richest countries in native flora (more than 3150 plant species) among all the Mediterranean countries despite its small area (10452 km²).^[1] This is due to its typical Mediterranean climate, geological up-bringing, and topographical diversity. All these factors characterize Lebanon as a significant reserve for many sporadic, native and endemic species and one of the most astounding spots of conservation in the world.^[2, 3, 4, 5, 6] One of these "regional hotspots" is Mount Lebanon area (where *C. persicum* f. *puniceum* (Gleason) Grey-Wilson was found in two places), which includes very high levels of endemism among plant species.^[7, 8, 9, 10] The genus *Cyclamen* L. comprises 21 popular species such as garden flowers and house plants^[11, 12] that are principally disseminated in the Mediterranean, Europe, Western Asia and North Africa.^[13, 14] Before its recent classification under the Primulaceae family, it was formerly classified under the Myrsinaceae family.^[16, 17, 18] The spiraling habit of the seed stem or the round corms might insinuate to the word "Cyclamen" which originates from the Greek word "kyklaminos" meaning circle.^[15] All species of the Genus *Cyclamen* share some mutual characteristic features by which they can be diagnosed as a monophyletic group. For instance, their hypocotyl's are swelling, their corolla lobes are conspicuously reflexed, have coiled fruiting pedicels, and a well-developed tuberous subterranean bulb.^[19, 14]

A lot of researches and scientists that worked on the Lebanese flora mentioned in their books the presence of *Cyclamen coum* Mill. Fig 1 (a), *Cyclamen libanoticum* Hildebr Fig 1 (b,c) and the most prevailing species in Lebanon *Cyclamen persicum* Mill. Fig 1 (d).^[20, 21, 22, 23] These were the only *Cyclamen* stated till the year 2016 when Dr. Khodr Addam and Mounir Bou-Hamdan supplemented

the presence of a novel variety of this genus to the Lebanese flora *Cyclamen persicum* Mill. var. *autumnale* Wilson Grey Fig 1 (f), and made an illustrated re-description of its morphology for the first time in the world.^[15]



Fig 1: *C. coum*, *C. libanoticum*, *C. persicum*, *C. per* var. *f. roseum* and *C. per* var. *autumnale*

In Lebanon, another forma of the most existing species "Cyclamen persicum" group was noticed by Dr. K. Addam and M. Bou-Hamdan seven years ago called "Cyclamen persicum f. *puniceum* (Gleason) Grey-Wilson synonym *Cyclamen allepicum* subsp. *puniceum* Glasau". Fig 2 (a, b, c) & Fig 3 (a)



Fig 2: *Cyclamen persicum* f. *puniceum* (Gleason) Grey-Wilson

By the addition of *C. persicum* f. *puniceum*. To the Lebanese flora, the whole group of *C. persicum* var. *persicum*. is completed and publicized to be a part of it (as a whole group).

In 1997 Grey-Wilson made an illustrated classification for all the members of this group:

Cyclamen persicum var. *persicum*.

Cyclamen persicum var. *persicum* f. *persicum*. Fig 1 (d)

Cyclamen persicum var. *persicum* f. *roseum*. Fig 1 (e)

Cyclamen persicum var. *persicum* f. *albidum*. Fig 3 (b)

Cyclamen persicum var. *autumnale*. Fig 1 (f)

Cyclamen persicum var. *persicum* f. *puniceum*. [11] Fig 2 (a, b, c)

All the members of this group already exist in Lebanon after this forma was discovered.

Mount Lebanon) and still growing safely in these locations till 2017 but in very tiny quantities (about 110). In the year 2017, tens of these species were found in the aforementioned places after the completion of a wide search. *Cyclamen persicum* f. *puniceum* was identified in 2017 after 13 years of observation.

2.1 Voucher specimen

A voucher specimen (representative dried sample) of the plant was deposited in K. Addam’s Herbarium Arts, Sciences and Technology University in Lebanon collected by Dr. Addam at 31/X/2015, collection number (1441789001).

The prevailing deposited herbarium material was recognized, scrutinized, and recorded as a matter of its distribution. Fig 4



Fig 3: *Cyclamen persicum* f. *puniceum* and *C. persicum* var. *persicum* f. *albidum*

2. Materials and Methods

About 12 *Cyclamen persicum* f. *puniceum* were uncovered by Dr. Addam at 14/III/2004 in Der Khonah valley (Ras El Matin, Mount Lebanon), but they were not acknowledged as *Cyclamen persicum*. After five years of observation, we remarked that this cyclamen is appearing every year with a stable red to carmine color and without any modifications. At 24/1/2006, it was found in Alnabee (Ras El Maten, Mount Lebanon) and in 1/III/2009 in Bshamoun (western slopes of



Fig 5: The Dried Herbarium Material

2.2 Pictures

The pictures were captured by Dr. K. Addam and M. Bou-Hamdan.

3. Results and Discussion

Cyclamen persicum f. *puniceum* (Gleason) Grey-Wilson was added for the first time to the flora of Lebanon in this study. It is identical to *Cyclamen persicum* Mill, but the petals have red to carmine color where the size of flowers and leaves vary from small (sometimes even smaller than *Cyclamen persicum*) to big size. [11]

3.1 Species description

The morphological description of *Cyclamen persicum* f. *puniceum* (Gleason) Grey-Wilson flowers have individual stalks with length ranging from 9 to 20 cm, each with five petals almost erected on top. The flowers are red to carmine in color with crimson-magenta or deep pink zone at the base of each petal. The clumps are composed of toothed heart shaped dark green leaves (4-9 cm), purple underneath, often highlighted with dramatic silver patterns with marbling on the upper surface. The leaf-stalks rise from a corky flattened tuber (up to 15cm diameter) of the plants, brown, becomes rough with age, thick (2mm) diameter roots arise all over the base. Figure 3. [11, 24, 25]

3.2 Phenology

From the beginning of January (174 m) to the end of April (836 m).

3.3 Habitat

Perennial flowering herbaceous plant growing from a tuber that remains dormant during the dry summer months [26] and adapted to the very dry and hot summer climate of the Mediterranean. *Cyclamen persicum* f. *puniceum* is native to shrub land rocky hillsides under pine trees (very shade tolerant) and sometimes in full sun (the leaves get smaller). [27]

3.4 Distribution and Location

Bchamoun (Western slopes of Mount Lebanon Range) (N 33, 47' 263" EO 35, 29' 493", 167.15 m alt., N 33, 46' 426" EO 35 30' 359", 328.86 m alt., N 33, 46' 414" EO 35, 31' 107", 445 m alt.), located in the Qadaa of Aley, an administrative division of Mount Lebanon, 18 km far from Beirut. Ras El Matn N 33, 49' 4972" EO 35, 39' 3242" alt 435.7 m, N 33 49' 5367" EO 35 39' 4713" alt 487 m, 27.7 km far from Beirut, Kfar Jarrah (South of Lebanon) N 33, 2' 4797" EO 35 40' 5833" alt 292 m, 47.9 km far from Beirut. Fig 5



Fig 5: Distribution of *C. Persicum* f. *puniceum* in Lebanon

4. Discussion

Cyclamen persicum f. *puniceum* is identical to *Cyclamen persicum* Mill, where all its subspecies but the petals have red to carmine color (excluding *Cyclamen persicum* var. *autumnale*) that differ in the size of the flower (usually smaller), the flowering time (one month before all other cyclamens in Lebanon), and the blooming flowers before the leaves. The leaves of *C. persicum* f. *puniceum* are dentate while the leaves of *C. libanoticum* Hildebr are not. The lobes are reflected; has throat with small dark spots.

Cyclamen coum Mill has vivid disparities in its whole morphology from *Cyclamen persicum* f. *puniceum* that it is difficult to be mistaken with.

4.1 Recommendations

Though they are discovered in fair abundance (more than 200), the *Cyclamen persicum* f. *puniceum* are still very rare and endangered in Lebanon. The fast urbanization in the regions where these species are discovered might soon lead to the extinction of the Lebanese flora. Till now in some sites

(woods), *Cyclamen persicum* f. *puniceum* are still growing safely but in small amounts.

5. Conclusion

A new record called *Cyclamen persicum* f. *puniceum* (Gleason) Grey-Wilson joined the Lebanese flora and specifically the *Cyclamen persicum* family. The confirmation for the existence of this new forma was proved by the illustrated morphologic description, more than 10 years of observation, and multitude of locations found in fair amounts. The phenology and voucher specimen (representative dried sample) of the plant was deposited in K. Addam's Herbarium in Arts, Sciences and Technology University in Lebanon and was collected and identified by Dr. Addam.

6. Acknowledgement

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