

Gundelia armeniaca NERSESYAN (Compositae) – a new species from Armenia

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Abstract

The name *Gundelia armeniaca* NERSESYAN is given to the population of *Gundelia* in the vicinity of Garni village, Armenia. The species is separated from *G. tournefortii* L., *G. rosea* M. HOSSAIN & AL-TAEY and the recently described *G. aragatsi* VITEK, FAYVUSH, TAMANYAN & GEMEINHOLZER based on differences in the characters of the flower, pubescence, fruit complex, and bracteoles.

Key words: *Compositae*, *Gundelia*, *G. armeniaca*, systematics, new species.

Introduction

In most floras *Gundelia* is reported to have only one species, *Gundelia tournefortii* L. (NIKITIN 1960, KUPICHA 1975, FEINBRUN-DOTHAN 1978, RECHINGER 1981, etc.), declaring all other names to synonym. However, in 1984 *Gundelia rosea* M. HOSSAIN & AL-TAEY was described based on well-defined characters (AL-TAEY & HOSSAIN 1984) bringing the number to two. Since then *Gundelia aragatsi* VITEK, FAYVUSH, TAMANYAN & GEMEINHOLZER (VITEK et al. 2010) has been published raising the total number of species in the genus to three.

Until recently the well-known population of *Gundelia* in Armenia in the area of Garni village continued to be considered part of *G. tournefortii* in all treatments of the Armenian flora and adjacent areas (GROSSHEIM 1934; VASILCHENKO 1961, SOFIEVA 1961, TAKHTAJAN & FEDOROV 1972, AVETISIAN 1995). Although, for a long time it was supposed that the Garni population might be a taxon different from *G. tournefortii* (E. GABRIELIAN, pers. comm.). An intensive analysis was carried out (NERSESYAN & NAZAROVA 1989, NERSESYAN 1991, NERSESYAN & MEKHAKIAN 1999) concerning the independence of *Gundelieae* versus *Arctotideae*. At that time there weren't enough data on differentiation within the genus.

Material and Methods

Specimens of the herbaria ERE and W have been analyzed; duplicates from other herbaria are also listed. All herbaria mentioned are referred to by their abbreviations in Index Herbariorum (THIERS, continuously updated).

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Results and discussion

Recent studies have brought the Garni population into focus again. The Linnean name was typified (VITEK & JARVIS 2007) and two new taxa from Armenia were described (VITEK et al. 2010) owing to the differences of flowers and fruits. The analyses of the ITS region showed some similarities shared between the Garni population and *Gundelia rosea* on the one hand, and a dramatic difference from all the other analyzed samples of *Gundelia* (VITEK et al. 2010) as well as from the material of *G. tournefortii* from Israel (VITEK & GEMEINHOLZER, pers. comm.), on the other.

Based on the flower colour the population of Garni was suspected to belong to *Gundelia rosea* (TAMANYAN 2010). In the meantime it was possible to compare the fruits of the type specimens held by E and K (<http://plants.jstor.org/specimen/e00385310>, <http://plants.jstor.org/specimen/k000797235>) and these showed clear differences.

Last, as mentioned in VITEK et al. (2010), the dubious name *Gundelia glabra* MILLER, described from Bayburt (Turkey), needed to be clarified. Material from this area (collected by Yüce, University of Tunceli, 2012, and Vitek et al. 2013) clearly differs from the Armenian plants (VITEK, pers. comm.). Therefore the plants of *Gundelia* growing near Garni village are described here as a new species and named as follows below.

Gundelia armeniaca NERSESIAN sp.n. (Fig. 1)

Perennial lactiferous herb with branched stem 30–80 cm. Leaves alternate, 20–30 × 12–20 cm, coriaceous, rigid, pinnatilobate, pinnatipartite, or pinnatisected, spiny, glabrous or more or less hairy. Compound inflorescences (1–) 5–8 (–15), globose or ovoid, 6–8 × 3–5 cm, glabrous or slightly hairy, consisting of 30–50 capitula. Bracts spiny, exceeding capitula, glabrous or more or less hairy. Capitula (in the middle of the compound inflorescence) of 5–7 (–9) flowers. Flowers spreading, corolla usually dark-pink or purple, sometimes varies from dark-purple (almost violet) up to light-lilac, rarely grayish-white. Fruit complex (disseminule) obconical, grayish-brown, 10–15 mm long; central and lateral flowers surrounded by identical bracteoles, these fused to each other and spiny in upper part. $2n = 18$ (NERSESIAN & NAZAROVA 1989).

Affinitas: A similibus *Gundelia tournefortii* L. et *G. aragatsi* VITEK, FAYVUSH, TAMANYAN & GEMEINHOLZER floribus roseis ad purpureis, rarius albidis (nec flavis, pullis vel fuscis) et indumento inflorescentiae haud dense arachnoideo differt. A *G. aragatsi* disseminulis obconicis (nec compresse triangularibus) e 5-7 (9) [nec 3-4(5)] floribus compositis, bracteolis fructiferis identicis quoque differt. A *G. rosea* M. HOSSAIN & AL-TAEY disseminulis minoribus, 10-15 mm, obconicis, griseo-brunneis (nec magnis, 15-20 mm, obovatis, albidis) differt.

The new species differs from *Gundelia tournefortii* L. and *G. aragatsi* by pink to purple, rarely whitish (not yellow, brown or dark orange) flowers, and by the lack of densely arachnoid pubescence on the inflorescence. From *G. aragatsi* the new species differs also by having an obconical (not flattened-triangular) fruit complex of 5–7 (–9) [not of 3–4 (–5)] flowers with identical bracteoles [upper parts of bracteoles surrounding central flower not fused below the spines into exerted tube]. The new species differs from *G. rosea* M. HOSSAIN & AL-TAEY by its smaller, 10–15 mm, obconical, greyish-brown, [not large, 15–20 mm, obovoid, whitish] disseminules.



Fig. 1: *Gundelia armeniaca* (photos A. Nersesyan).

Distribution: Armenia, Erevan floristic region (Fig. 2).

Habitat: dry loamy and stony slopes, 1400–1700 m.s.m.

Type specimens: Абовянский район, окр. с. Гехадир, 10.06.1988, А. Нерсисян, [Abovian region, surroundings of Geghadir village, 10.06.1988, A. Nersesyan] [holotype ERE 137773, isotypes ERE 137772, ERE 149115, ERE 149116, ERE 149117, W 2006-0005938, W 2006-0005939].

Other collections: Armenia: Baš-Garni, prope pag. Abdallar, 03.06.1927, A. Schelkovnikov [ERE 3425, ERE 8000]; – Wočhabert, 11.06.1931, Petros Gambarian [ERE 3426]; – Prope Djervesch, in decliv. lapid. austro-occident., 22.05.1932, S. Tamamschian [ERE 3427]; – Erivan, inter Djervesch et Vogchabert, 22.06.1933, A. Takhtajan [ERE 12315]; – Prope Erivan. Inter p. p. Wokhčabert et Djervesch, 24.05.1935, S. Tamamschian [ERE 27215]; – Erivan. Prope pag. Avdallar, 30.06.1935, S. Tamamschian [ERE 27217]; – Erivan. Prope Wokhčabert in decliv. australibus, in argillois, 03.06.1936, T. Avakian [ERE 27216]; – Гарни – Гехадир, на глинистых местах, 23.05.1959, А. Тахтаджян, Я. Мулкиджанян, Э. Габриэлян, [Garni – Geghadir, on loamy places, 23.05.1959, A. Takhtajan, J. Mulkijanian, E. Gabrielyan] [ERE 81561, ERE 77518]; – между с. с. Гарни и Гехадир. Сухой каменистый склон, 19.07.1961, Э. Габриэлян [between Garni and Geghadir, dry stony slope, 19.07.1961, E. Gabrielyan] [ERE 70801]; – Абовянский район, Шорбулах – Гехадир, на сухих каменистых склонах, 23.05.1963, Э. Габриэлян [Abovian region, Shorbulagh – Geghadir, dry stony slopes, 23.05.1963, E. Gabrielyan] [ERE 81562]; – Абовянский район, Шорбулах – Гехадир, на сухих глинистых склонах, 23.05.1963, E. Gabrielian, [Abovian region, Shorbulagh – Geghadir, dry loamy slopes] [ERE 81560, ERE 81563]; – Абовянский район, с. с. Вохчаберд – Зовашен, правый борт р. Азат, гаммада, напротив г. Еранос, 03.06.1964, А. Takhtajan, V. Avetisian [Abovian region, Vokhchaberd – Zovashen villages, right bank of Azat river, gammada, opposite to Eranos mountain, 03.06.1964] [ERE 78647]; – Шорахпюр – Вохчаберт, 13.07.1964, Я. Мулкиджанян, П. Гандилян, Э. Назарова, [Shoraghbjur – Vokhchaberd, 13.07.1964, J. Mulkijanyan, P. Ghandilyan, E. Nazarova] [ERE 81565]; – между Гарни и Гехадиром, на сухом каменистом склоне 10.06.1965, E. Gabrielian [between Garni and Geghadir, dry stony slope] [ERE 81903]; – окр. г. Еревана, Шорбулах, на глинах, 14.05.1966, Э. Габриэлян, Э. Назарова, [near Yerevan, Shorbulagh, on clay, 14.05.1966, E. Gabrielyan, E. Nazarova] [ERE 106380, ERE 106855]; – Абовянский район, с. с. Гехард – Вохчаберт, 29.05.1967, Ю. Мхитарян, Г. Бабаян, [Abovian region, Geghard – Vokhchaberd, 29.05.1967, J. Mkhitaryan, G. Babayan] [ERE 89142]; – distr. Abovian, Atsavan – Garni, nearer Atsavan [translated from Russian], 11.07.1969, J. Mkhitaryan, G. G. Babayan] [W 2006-0008893, W 1995-0007671, W 2006-0008892]; – Абовянский район, Ереван – Гарни, 17 км, 22.06.1970, В. Аветисян, В. Манакян [Abovian region, Yerevan – Garni, 17 km, 22.06.1970, V. Avetisyan, V. Manakyan] [ERE 96458]; – Абовянский район, Гехадир – Гарни, 25.05.1972, Э. Габриэлян, [Abovian region, Geghadir – Garni, 25.05.1972, E. Gabrielyan] [ERE 106854]; – Абовянский район, сухие склоны над Джрвезем, у дороги на Шорахпюр, 29.05.1974, В. Аветисян, П. Гамбарян [Abovian region, dry slopes above Jrvezh, near road towards Shoraghbjur] [ERE 105963, ERE 105487]; – Абовянский район, окр. с. Ацаван, 09.06.1974, N. Chandjian, [Abovian region, near Hatsavan village] [ERE 104630, ERE 104631]; – Абовянский район, с. Гехард, левый берег реки, верхняя граница леса, 14.06.1975, Э. Габриэлян [Abovian region, Geghard village, left river bank, upper forest edge, 14.06.1975, E. Gabrielyan] [ERE 106381]; – Абовянский район, Гехадир – Гарни, 27.05.1976, Э. Габриэлян [Abovian region, Geghadir – Garni, 27.05.1976, E. Gabrielyan] [ERE 108470]; – Абовянский район, окр. с. Ацаван, горная степь, 29.05.1977, А. Тахтаджян, Э. Габриэлян [Abovian region, near Hatsavan village, mountain steppe, 29.05.1977, A. Takhtajan, E. Gabrielyan] [ERE 109149, ERE 124620]; – Абовянский район, окр. с. Ацаван, горная степь, 29.05.1977, Э. Габриэлян, [Abovian region, near Hatsavan village, mountain steppe, 29.05.1977, E. Gabrielyan] [ERE 124621]; – Абовянский район, Ереван – Гарни, окр. с. Вохчаберд, 29.05.1981, Манакян, Пристер [Abovian region, Yerevan – Garni, near Voikhchaberd village, 29.05.1981, Manakyan, Prister] [ERE 117747]; – Абовянский район, с. Гехадир, 03.06.1987, А. Нерсисян, [Abovian region, Geghadir village, 03.06.1987, A. Nersesyan] [ERE 137770]; – Абовянский район, с. Гехадир, 12.06.1987, А. Нерсисян, [Abovian region, Geghadir village, 12.06.1987, A. Nersesyan] [ERE 137771, W 2006-0004319]; – Абовянский район, окр. с. Гехадир, 06.05.1988, А. Нерсисян [Abovian region, surroundings of Geghadir village, 06.05.1988] [ERE 149114]; – Abovian district, between Charents arch and Shorbulagh, ca. 1600 m [translated from Russian], 23.05.198#, V. Manakyan [W 1991-0001381]; – обл. Котайк, Абовянский район, окрестности с. Гарни, 6–7 км с.-в. села, склоны русла Чорселав, местность “Гюна”, 1500–1600 м над ур. м., 04.06.1997, А. Гаспарян [Kotayk distr., Abovian region, surroundings of Garni village, 6–7 km NE from the village, Chorselav river-bed slopes, „Gjuna“ locality, 1500–1600 m s. m., 04.06.1997, A. Gasparyan] [ERE 153573]; – обл. Котайк, Абовянский район, 6–7 км северо-восточнее с. Гарни, правый борт водосборного русла Чорселав, урочище Гюнаи, 1600–1700 м

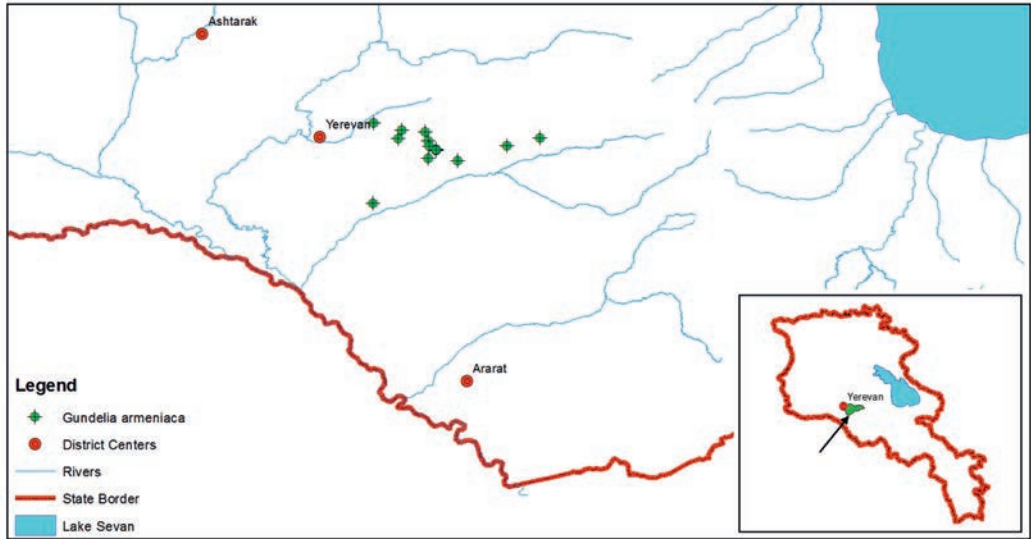


Fig. 2: Distribution of *Gundelia armeniaca*.

над ур. м., 21.05.1998, А. Гаспарян, В. Манакян, [Kotayk distr., Abovian region, surroundings of Garni village, 6–7 km NE from the village, right slope of Chorselav river-bed, „Gjunai“ locality, 1600-1700 m s. m., 21.05.1998, А. Gasparyan, V. Manakyan] [ERE 153574, ERE 153576]; – обл. Котайк, Абовянский район, окр. с. Гарни, 7 км северо-восточнее, южные каменистые с ксерофитным редколесьем склоны русла Чорселав, урочище Гюнаи, 1550-1600 м над ур. м., 21.05.1998, В. Манакян [Kotayk distr., Abovian region, surroundings of Garni village, 7 km NE from the village, Southern stony slopes with xerophyte open woodland, Chorselav river-bed slopes, locality Gjunai, 1500-1600 m s. m., 21.05.1998, V. Manakyan] [ERE 153575]; – prov. Kotayk, carretera de Geghadir a Garni, с. Garni, 40°08'27"N/44°39'45"E, 1542 m, 02.07.2005, С. Navarro & aliis 5781 [MA, W 2007-0018696]; – Kotayk province, E of Yerevan, road from Geghadir to Garni, steppe meadows, 1555 m s. m., 40°08'23"N/44°39'45"E, 18.06.2007, К. Tamanyan, M. Oganessian, E. Vitek 07-0738 [ERE 185093, W 2009-0018499, W 2009-0018500, B]; – Kotayk province, E from Yerevan, road from Atsavan to Garni; 1535 m s. m., 40°08'25"N/44°39'44"E, 11.07.2007, S. Ter-Poghosyan [fruit specimen – ERE, W 2009-0018774, B, NY].

Details of morphological, palynological and anatomical characteristics were published earlier under the name *G. tournefortii* (NERSESYAN & NAZAROVA 1989, NERSESYAN 1991, NERSESIAN & МЕКХАКИАН 1999). The population of *G. armeniaca* is included in the Red Data Book of Armenia as *Gundelia rosea* M. HOSSAYN & R.A. AL-TAEY (TAMANYAN 2010). According to the present data *Gundelia armeniaca* is considered to be an endemic with a rather small range of 187 km² near Yerevan in Armenia (Fig. 2).

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References

- AL-TAEY R.A. & HOSSAIN M., 1984: Studies in *Gundelia*: I. a new species from Iraq. – Notes Royal Bot. Gard. Edinb. 424: 39–44.
- AVETISIAN V.E., 1995: *Gundelieae*. – In: ТАКХТАЖАН А.Л. (ed.): Flora Armenii 9: 212–216 (in Russian).

- GROSSHEIM A.A., 1934: Flora Kavkaza, 4. – Baku: AzFAN (in Russian).
- FEINBRUN-DOTHAN N. 1978: Flora Palaestina, 3. – Jerusalem: The Israel Academy of Sciences and Humanities.
- KUPICHA F.K., 1875: *Gundelia*. – In: DAVIS P.H. (ed.): Flora of Turkey 5: 325–326.
- NERSESIAN A.A., 1991: Morpho-anatomical study of the reproductive organs of *Gundelia tournefortii* (Asteraceae). – Flora, rastitelnost, rastitelnye resursy Armenii 13: 96-105 (in Russian).
- NERSESIAN A.A. & NAZAROVA E.A., 1989: Karyosystematic study of *Gundelia tournefortii* (Asteraceae). – Bot. Zhurn. (Russia) 74/6: 837–839. (in Russian).
- NERSESIAN A. A. & MEKHAKIAN A. K., 1999: On the palynomorphology of the genus *Gundelia* (Asteraceae). – Flora, Vegetation and Plant Resources of Armenia 12: 43-45 (in Russian).
- NIKITIN V. V., 1960: *Gundelia* L. – In: SCHISCHKIN B.K. (ed.): Flora Turkmenii 7: 141 (in Russian).
- RECHINGER K.H., 1989: *Gundelia*. – In: RECHINGER K.H. (ed.): Flora Iranica 164: 107–109.
- SOFIEVA R.M., 1961: *Gundelia* L. – In: KARJAGIN I.I. (ed.): Flora Azerbajana 8: 347–348 (in Russian).
- TAKHTAJAN A.L. & FEDOROV A.A., 1972: Flora Erevana. – Leningrad: Nauka (in Russian).
- TAMANYAN K., 2010: *Gundelia rosea* M. HOSSAYN & R.A. AL-TAEY – In: TAMANYAN K. & al. (ed.): The Red Data Book of Plants of the Republic of Armenia, 2nd edition: 123.
- THIERS, B. [continuously updated]: Index Herbariorum: A global directory of public herbaria and associated staff. – New York Botanical Garden’s Virtual Herbarium. – <http://sweetgum.nybg.org/ih/>
- VASILCHENKO I.T., 1961: *Gundelia* L. – In: KOMAROV V.L. (ed.): Flora SSSR, 26: 862 (in Russian).
- VITEK E. & JARVIS C.E., 2007: The typification of *Gundelia tournefortii* L. (Compositae). – Ann. Naturhist. Mus. Wien, B, 108: 267–272.
- VITEK E., FAYVUSH G., TAMANYAN K. & GEMEINHOLZER B., 2010: New taxa of *Gundelia* (Compositae) in Armenia. – Ann. Naturhist. Mus. Wien, B, 111: 85–99.