New plant records for Khorassan province, Iran, V, with complementary notes to its flora

F. Ghahremaninejad*, M. Joharchi** & E. Vitek***

Abstract
In the fifth and last contribution to the flora of Khorassan 143 angiosperm plant taxa from 80 genera in 28 families are recorded for the first time. 21 of these taxa are endemic to Iran. The specimens cited in this paper are deposited in several herbaria, i.e. BASU, FAR, FUMH, IRAN, K, MO, SUTH, TARI, TUH, W. This contribution is a continuation of the recently published papers on this province (Ghahremaninejad & al. 2005, Joharchi & al. 2007, Ghahremaninejad & al. 2010, Joharchi & al. 2011). In the five papers (including the present) 586 species are reported for the first time from this province. Furthermore, as in the recently published part IV (Joharchi & al. 2011), specimens from Khorassan representing new taxa or new records for Iran published in other papers are listed here to give a complete overview. This series of five papers serves as supplement to Flora Iranica treatments (Rechinger 1963–1999, 2001–2011) for the Khorassan province flora.

KeyWords: Flora, Iran, Khorassan province, new records.

Introduction
Khorassan province is located in NE Iran, covering an area of 313,335 sq. km. It extends from 30°21’ to 38°17’N and from 55°28’ to 61°20’E. Recently 459 plant taxa have been recorded for the first time for this province (Ghahremaninejad & al. 2005, Joharchi & al. 2007, Ghahremaninejad & al. 2010, Joharchi & al. 2011). In the present paper 143 further taxa are added to the flora of the province. They are based on recent field research

* Dr. Farrokh Ghahremaninejad, Department of Plant Biology, Faculty of Biological Sciences, Kharazmi University (Tarbiat Moallem University), 43 Dr. Mofatteh Avenue, Postal Code 15719-14911, Tehran, Iran – ghahremaninejad@tmu.ac.ir

** Mohammadreza Joharchi, Herbarium FUMH, Research Center for Plant Sciences, Ferdowsi University of Mashhad, Mashhad, Iran – Joharchi@um.ac.ir

***Dr. Ernst Vitek, Naturhistorisches Museum, Botanische Abteilung, Burgring 7, A–1010 Wien, Austria – ernst.vitek@nhm-wien.ac.at
and critical evaluation of existing specimens. Thus collectively in these five papers 602 species are recorded for the first time for this province.

Like the recently (the forth) published paper (Joharchi & al. 2011), the present paper includes some additional aspects too. In part one, as in the four previous papers, taxa new for the province are recorded for the first time. All these taxa have been recorded from other localities in Iran, but not from Khorassan province. In part two specimens of Khorassan are listed for taxa which have been found to be new for Iran recently and in part three for taxa recently described new to science. The complete information is critical for completing the inventory list of the flora of Khorassan province.

Localities within Khorassan are listed from NW to SE, according to figure 1. Specimens from the following herbaria are cited: BASU, FAR, FUMH, IRAN, K, MO, SUTH, TARI, TUH, W. The abbreviations for the herbaria follow Index herbariorum (http://sciweb.nybg.org/science2/IndexHerbariorum.asp).

**New records for Khorassan province**

The following 143 vascular plant taxa are not or incorrectly listed for Khorassan province in Flora Iranica (Rechinger 1963–1999, 2001–2011). Of these 83 are recorded for the first time from the province, 61 taxa are mentioned in Flora of Iran (Assadi & al. 1988–2011) with specimens from Khorassan already. For 38 of these 61 additional specimens from FUMH are given here. The 143 taxa are from 80 genera in 28 families. 114 dicotyledons (from 24 families and 59 genera) and 29 monocotyledons (from 4 families and 21 genera), 21 of them are endemic to Iran.

**Monocotyledons**

*Amaryllidaceae* – Ref.: Wendelbo 1971 (sub Alliaceae).

Distribution in Iran: N, E. This species is recorded from Khorassan in Flora Iranica. The locality (E: Khorassan, Kotal-e Yek Chenar, Koeltz 16702) belongs to Golestan province, not to Khorassan. Now this species is confirmed with a correct locality.


Khorassan: NE: Mashhad, Ferdowsi University Campus 1035 m, 3.7.2006, Akramian 38198 [FUMH].
Distribution in Iran: S, E.

Khorassan: SW: Boshruyeh, Fathabad dam, 1300 m, 7.7.1989, Faghihnia & Zangooei 17978 [FUMH].
Distribution in Iran: N, W, E.

*Poaceae* – Ref.: Bor 1970.
Fig. 1: Province of Khorassan. Localities are listed from NW to SE.
**Aegilops cylindrica** HOST, Gram. Austr. 2: 6 (1802).
Distribution in Iran: W, E.

Khorassan: N: NE Chenaran, Boghmech towards Hezar-Masjed summit, km 78, 2400 m, 30.4.2000, Hojjat & Zangooei 32730, 32745 [FUMH],
Distribution in Iran: S, E.

**Alopecurus pratensis** L., Sp. Pl. 1: 60 (1753).
Distribution in Iran: W, E.

**Avena clauda** Durieu, in Duchartre, Rev. Bot. 1: 360 (1845).
Khorassan: N: Chenaran, Radkan, Baro Mts., 1500 m, 12.5.1985, Ayatollahi & Zangooei 12751 [FUMH],
Distribution in Iran: N, W, S, E, C.

Khorassan: NW: W Bojnord, Darkash, Ghartal, 1570 m, 20.7.2007, Joharchi & Aydani 35704 [FUMH, FAR].
Distribution in Iran: N, E.

**Bromus sterilis** L., Sp. Pl. 1: 77 (1753).
Distribution in Iran: N, W, S, E, C.
**Eremopyrum triticeum** (Gaertn.) Nevsk., Fl. URSS. 2: 662 (1934).
Khorassan: NW: W Bojnord, W Dasht, 2 km after Ghez-Ghala dam, 1150–1178 m, 30.4.2008, Memariani & Zangooei 39709 [FUMH].
Distribution in Iran: W, E.

**Festuca drymeia** Mert. & Koch, in Roehling, Deutschl. Fl. 1: 670 (1823).
Khorassan: NW: SW Bojnord, Rein, Shahneshin Mt., eastern slopes, 1700 m, 20.5.2006, Memariani & Arjmandi 37649 [FUMH].
Distribution in Iran: N, E.

**Lolium perenne** L., Sp. Pl. 1: 83 (1753).
Khorassan: N: SW Shirvan, Zo-Eram, 1500 m, 7.6.1998, Faghihnia & Zangooei 31300 [FUMH]; - NE: NW Mashhad, Abghad, 1250 m, 15.6.1993, Faghihnia & Zangooei 23323 [FUMH]; - SW: Boshrouyeh toward Tabas, on road of Eshghabad, km 5, 1200 m, 4.5.1992, Faghihnia & Zangooei 21599 [FUMH].
Distribution in Iran: N, W, S, E, C.

Khorassan: NE: Mashhad, Kuye Abobargh, 1050 m, 21.5.1986, Joharchi & Zangooei 42981 [FUMH]; - Mazdavand toward Sarakhs, km 14, 850 m, 21.5.1985, Ayatollahi & Joharchi 13209 [FUMH]; - SW Sarakhs, between Salehabad bifurcation and Baghbagh, 690–700 m, 2.6.2003, Joharchi & Zangooei 34571 [FUMH]; - W Sarakhs, Gonbadli, 550 m, 24.4.1975, Zargari s.n. [FUMH]; - Sarakhs, 350 m, 27.4.1994, Faghihnia & Zangooei 23813 [FUMH]; - N Sarakhs, Yaztappe, 300 m, 27.4.1992, Faghihnia & Zangooei 21539 [FUMH]; - SW Sarakhs, Chahak hills, 800 m, 21.5.1986, Joharchi & Zangooei 14480 [FUMH]; - Sarakhs on the way to Mashhad, km 9, 310 m, 28.4.1986, Ayatollahi & Zangooei 13977 [FUMH]; - W: Bardaskan, Borjak, 1200 m, 6.5.1990, Faghihnia & Zangooei 18413 [FUMH]; - C: Bajestan toward Ghasemabad, km 16, 1300 m, 14.5.1997, Hojjat & Zangooei 28195 [FUMH]; - Gonabad, Shurab, Ghala-Dokhtar Mts., 1300 m, 27.4.1993, Faghihnia & Zangooei 22950 [FUMH]; - E: Khaf, Mahabad, 1050 m, 5.5.1986, Ayatollahi & Zangooei 14155 [FUMH]; - ibid. Bande-Ozbak, 865 m, 5.5.1986, Ayatollahi & Zangooei 14095 [FUMH]; - SW Tabas, Jafarabad, 700 m, 13.3.1988, Zangooei 15912 [FUMH]; - N Tabas, Kalshaneh, 1000 m, 8.4.1985, Ayatollahi & Rezaei 11845 [FUMH]; - ibid. Ozbago, Alimorad mine, 1000 m, Ayatollahi & Zangooei 13880 [FUMH]; - Tabas on the way to Boshruyeh, km 45, 850 m, 22.4.1986, Ayatollahi & Zangooei 13844 [FUMH]; - ibid. km 24, 700 m, 21.4.1986, Ayatollahi & Zangooei 13815 [FUMH]; - E Tabas, Chirook, 1400 m, 19.4.1987, Ayatollahi & Zangooei 15269 [FUMH]; - SE Tabas, between Parvadeh and Peykuh, 1000 m, 8.4.1997, Faghihnia & Zangooei 28195 [FUMH]; - SE: Nehbandan, Taghestan, 1200 m, 13.4.1992, Faghihnia & Zangooei 21439 [FUMH]; - Nehbandan toward Chah-Chocho, km 20, 1200 m, 10.4.1998, Hojjat & Zangooei 29947 [FUMH]; - SW Nehbandan, Bandan, 750 m, 10.4.1998, Hojjat & Zangooei 29965 [FUMH].
Distribution in Iran: N, W, S, E, C. This species is recorded from Khorassan in Flora Iranica (no: 70: 347). But the localities (Rechinger 3948, Sharif 8023-E) belong to Sistan and Baluchistan province, not to Khorassan. Now this species confirmed with a correct locality.

Khorassan: NW: W Bojnord, Qorkhod protected area, Badbor guard station, 1300 m, 24.5.2010, Memariani & Arjmandi 43762 [FUMH]; - NE Bojnord, on road of Gifan, km 14, 890 m, 29.5.2007, Memariani & Zangooei 38981 [FUMH].
Distribution in Iran: W, S, E.
Piptatherum holciforme (M.Bieb.) Roemer & Schultes, Syst. Veg. 2: 328 (1817).

var. holciforme.

Khorassan: NW: SW Bojnord, Rein, Topal-Rayeh, 2015 m, 21.5.2006, Memariani & Arjmandi 37690 [FUMH].

Distribution in Iran: W, S, E, C.

Saccharum ravennae (L.) Murray, Syst. Veg. 88 (1774).


Distribution in Iran: N, W, S, E, C.


Distribution in Iran: W, E, C.


Distribution in Iran: N, W, S, E, C.


Distribution in Iran: N, W, S, E, C.

Stipa bromoides (L.) Dreerl., Herb. Norm. 34: 129, no 3386 (1897).

Khorassan: NW: W Bojnord, Qorkhod protected area, 2200–2675 m, 18.6.2011, Memariani & Zangooei 44451 [FUMH]; ibid. between Darkash and Haver, 1350 m, 8.7.2001, Joharchi 33865 [FUMH]; ibid. Darkash reserved area, 1500–1600 m, 29.7.2004, Aydani 35732 [FAR, FUMH].

Distribution in Iran: N, E.


Distribution in Iran: N, W, S, E, C.


Khorassan: NW: NW Bojnord, Raz bifurcation toward Raz, km 27, 690 m, 14.5.2008, Memariani & Zangooei 39993 [FUMH]; SW Bojnord, between Hessar and Shoghan, 2502 m, 1.6.2008, Joharchi & Zangooei 40611 [FUMH]; ibid. 2579 m, 13.7.2008, Memariani & Zangooei 41016 [FUMH]; SE Bojnord, between Pakatal and Assadli, Chichalli, 2049 m, 16.6.2008, Joharchi & Zangooei 40855 [FUMH].

Distribution in Iran: N, W, S, E, C.
**Tragus racemosus** (L.) All., Fl. Pedem. 2: 24 (1785).
Khorassan: NW: E Jajarm, Jajarm on the way to Sankhast, km 14, 921 m, 26.8.2008, Joharchi & Zangooei 41356 [FUMH].
Distribution in Iran: N, S, E.

Khorassan: NE: Mashhad, Ferdowsi University Campus, 1041 m, 4.5.2009, Joharchi 43453 [FUMH]; – N Sarakhs, Yaztappa, 300 m, 22.4.1991, Faghihnia & Zangooei 19440 [FUMH]; – S Sarakhs, between Dowlatabad and Nowroozabad, 300 m, 14.4.1988, Joharchi & Zangooei 16108 [FUMH]; – C: Torbat-e Heydarieh toward Gonabad, km 24, 1250 m, 20.4.1986, Ayatollahi & Zangooei 13683, 13707 [FUMH]; – S Torbat-e Heydarieh, Kheirabad, 900 m, 4.5.1991, Joharchi & Zangooei 19893 [FUMH]; – SW Gonabad, Senu, Houz-e Beigi, 1350 m, 26.4.1991, Faghihnia & Zangooei 19631 [FUMH]; – SW: Boshruyeh, Fathabad dam, Arask, 1120 m, 18.4.1987, Ayatollahi & Zangooei 15229 [FUMH]; – Ferdous toward Boshruyeh, km 14, 1400 m, 16.4.1995, Raafee & Zangooei 24826 [FUMH]; – N Tabas, Ozbagu, Alimorad mine, 1000 m, 22.4.1986, Ayatollahi & Zangooei 13883 [FUMH]; – Tabas toward Boshruyeh, km 51, 830 m, ZOKAEI 645 [FUMH]; – SE: Birjand, between Hojjatabad and Gazdez, 1700 m, 29.4.1998, Faghihnia & Zangooei 30205 [FUMH]; – Birjand on the way to Ghayen, km 20, 1550 m, 18.5.1986, Ayatollahi & Zangooei 29834 [FUMH].
Distribution in Iran: W, S, E, C.

Distribution in Iran: W, S, E, C.


**Typha angustifolia** L., Sp. Pl. 2: 971 (1753).
Khorassan: NW: Bojnord on the way to Shirvan km 15, Baba-Aman, HAMDI 80888 [TARI]; – N: NW Neyshabur, Bar, Hamdi 80901 [TARI]; – E Neyshabur, Khav-e Olia, 1500 m, Termeh & TEHRANI s.n. [IRAN]. – NE: Kalat-e Naderi toward Mashhad, km 25, ZARGANI s.n. [TARI]; – ibid. km 35, HAMDI 80892 [TARI]; – ibid. km 65, HAMDI 80891 [TARI]; – Between Mashhad and Sarakhs, Bazangan, Hamdi 80890 [TARI].
Distribution in Iran: N, W, S, E, C.

Khorassan: NE: Kalat-e Naderi, Archangan, 950 m, HAMDI 80898 [TARI]; – Kalat-e Naderi toward Darrehgaz, near Soltanabad, Assadi & Maassoumi 55806 [TARI].
Distribution in Iran: W, E, C.

**Typha minima** Funk, in Hoppe, Bot. Taschenb. 118, 181, 187 (1794).
Khorassan: NE: Kalat-e Naderi, Archangan, 830 m, 23.4.1989, Joharchi & Zangooei 17092 [FUMH]; – ibid. 950 m, Hamdi 80894 [TARI].
Distribution in Iran: N, W, E, C.

---

**Dicotyledons**


**Astrodaucus persicus** (Boiss.) Drude, in Engler & Prantl, Natürl. Pflanzenfam. 111, 8: 157 (1898).
Khorassan: NE: Mashhad, Dehbar, 1900–2000 m, Saghafi & Ramazani 22 [TARI].
Distribution in Iran: N, W, E, C.
Khorassan: N: Neyshabur, Bujan, 1500–2700 m, Mozaﬀarian 48998 [TARI]. – C: N Torbat-e Heydarieh, km 30, 1900 m, Assadi & Maassoumi 21320 [TARI].
Distribution in Iran: N, W, E, C.

Khorassan: SW: SW Tabas, Mazino mine, 1200 m, 16.4.1996, Raafæei & Zangooæi 26359 [FUMH]; – Tabas on the way to Yazd, km 95, near the Robat-e Kalmard, 1200 m, Mozaﬀarian 77277 [TARI].
Distribution in Iran: C, E. – Endemic to Iran.

Distribution in Iran: N, W, S, E, C. – Endemic to Iran.


**Carlina vulgaris** L., Sp. Pl. 2: 828 (1753).
Khorassan: NW: SW Bojnord, Rein, Alkhass valley, 1900 m, 8.8.2007, Arjmandi & Zangooæi 39205 [FUMH].
Distribution in Iran: N, W, E.

**Centaurea kotschyi** var. persica (Boiss.) WAGENITZ, Bot. Jahrb. 82: 169 (1963).
Khorassan: NW: W Bojnord, Qorkhud protected area, Kanisaran valley, 1830 m, 22.6.2010, Joharchi & Memariani 44059 [FUMH].
Distribution in Iran: N, W, E, C.

**Crepis micrantha** Czerep. Fl. URSS. 29: 684 (1964).
Distribution in Iran: N, W, S, E, C.

Khorassan: NW: NW Bojnord, Shahrabad, 500 m, 8.10.1991, Faghîhnia & Zangooæi 21091 [FUMH].
Distribution in Iran: N, W, S, E.

**Echinops cephalotes** DC., Prodr. 6: 526 (1838).
Khorassan: NW: N Nehbandan, 1200 m, 16.5.2006, Joharchi & NASSERH 37490 [FUMH].
Distribution in Iran: W, E, C. – Endemic to Iran.

Khorassan: SE: Birjand, Robat-e Hassanabad, 2035 m, Aliabadi 22127 [TUH].
Distribution in Iran: SE, E, C. – Endemic to Iran.
Khorassan: E: Between Torbat-e Jam and Salehabad, S Banitak, 1000 m, 30.4.2003, Zangooei 34431 [FUMH].
Distribution in Iran: W, E.

Khorassan: NW: SW Bojnord, Rein, Sarigiv valley, 1723–1822 m, 7.5.2006, Memariani & Arjmandi 37422 [FUMH].
Distribution in Iran: W, E. – Endemic for Iran & Iraq.

Distribution in Iran: W, S, E, C. – Endemic to Iran.

**Scorzonerapapposa** DC., Prodr. 7: 119 (1838).
Khorassan: NE: Sarakhs, Ghorghoreh bifurcation, 900 m, 30.5.1992, Joharchi & Zangooei 21917 [FUMH]; – ibid. km 12, 900 m, 21.5.1985, Ayatollahi & Joharchi 13158 [FUMH]; – Between Mazdavand and Shorlogh, 770 m, 12.5.2004, Zangooei 35371 [FUMH].
Distribution in Iran: W, S, E.

**Scorzoneraphaeopappa** (Boiss.) Boiss., Fl. Orient. 3: 764 (1875).
Distribution in Iran: W, S, E, C.

Khorassan: SE: Nehbandan on the way to Birjand, km 100, 1600 m, 13.4.1992, Faghihnia & Zangooei 21423 [FUMH].
Distribution in Iran: W, S, E.

Scorzonera szovitsii DC., Prodr. 7: 117 (1838).
Khorassan: NW: Ghezel Hessar-e Sofia, 1297 m, 13.5.2009, Memariani & Zangooei 42353 [FUMH].
Distribution in Iran: W, E.

Tanacetum chiliophyllum (Fisch. & C.A.Mey.) Sch.Bip., Tanacet. 47 (1844).
subsp. chiliophyllum.
Khorassan: W: NW Sabzevar, between Sarough and Nazar-Gah Summit, 2482 m, 30.5.2009, Joharchi 42728 [FUMH].
Distribution in Iran: W, E.

Khorassan: N: Chenaran, Radkan, Goroh, 2500–2700 m, Termeh & al. 36860 [IRAN].
Distribution in Iran: W, E, C.

Tanacetum tenuisectum (Boiss.) Podlech, Fl. Iranica, 158: 103 (1986).
Khorassan: NW: Bojnord, Salouk Summit, 2940–2950 m, 7.7.2010, Joharchi & Memariani 44132 [FUMH].
Distribution in Iran: N, E, C. — Endemic to Iran.

Khorassan: NW: Bojnord, Jowzak, Cheshmeh-Eshgh, 1179 m, 7.5.2007, Memariani & Zangooei 38771 [FUMH]; — Bojnord, Rein, Sarig valley, 1723–1892 m, 7.5.2006, Memariani & Arjmandi 37423 [FUMH]; — NE Bojnord, between Gharleigh and Baba-Aman, around of the tunelle, 1013 m, 12.5.2009, Memariani & Zangooei 42319 [FUMH]; — NE Jajarm, Shoghan bifurcation toward Shoghan, km 7, 1306 m, 20.5.2009, Memariani & Zangooei 42615 [FUMH]; — NE: Mashhad, 950 m, 8.6.1974, Zargari 2518 [FUMH]; — C: Gonabad toward Ferdous, km 32, Kajabad village, 1800 m, 11.5.1998, Raafeei & Zangooei 30584 [FUMH]. — SE: Birjand, between Esfezar and Mask, 2300 m, Faghihnia & Zangooei 30310 [FUMH].
Distribution in Iran: N, E, C. — Endemic to Iran.

Tragopogon buphthalmoides (DC.) Boiss., Fl. Orient. 3: 750 (1875).
var. buphthalmoides.
Distribution in Iran: N, W, S, E, C.
**Tragopogon buphthalmoides var. latifolius** Boiss., Fl. Orient. 3: 751 (1875).
Khorassan: NW: E Bojnord, Sisab, arund of the research center, 1355 m, 15.6.2008, Joharchi & Zangooei 40814 [FUMH].

**Tragopogon collinus** DC., Prodr. 7: 115 (1838).
Khorassan: NW: W Bojnord, Qorkhod protected area, Arund o of the research center, 1355 m, 15.6.2008, Joharchi 40814 [FUMH].


Distribution in Iran: W, S, E, C.

Khorassan: C: N Torbat-e Heydari, Robat-Sang, Mazar-e Ghonchi, 1800 m, 22.8.1990, Faghihnia & Zangooei 19078 [FUMH]; - ibid. NW Bakavol, 1800 m, 17.9.1984, Joharchi 11754 [FUMH]; - W Torbat-e Heydari, Bayg, 1530 m, 18.9.1984, Joharchi 11758 [FUMH].

Distribution in Iran: W, E. – Endemic for Iran & Iraq.

Distribution in Iran: N, W, E, C.


Distribution in Iran: W, E.


Distribution in Iran: N, W, S, E.


Distribution in Iran: C, E.


Distribution in Iran: C, E.


Distribution in Iran: S, E. – Endemic for Iran, Afghanistan & Pakistan.

Ghahremaninjad & al.: New plant records for Khorassan (Iran)

- Taibad on the way to Torbat-e Heydarieh, km 30, 900 m, 25.4.1975, Zargari 318 [FUMH];
- Taibad toward Torbat-e Jam, km 35, 1050 m, 18.4.1990, Faghihnia & Zangooei 18238 [FUMH];
- N Gonabad, Omrani, 900 m, 8.4.1987, RASHED & Zangooei 15091 [FUMH];
- E Torbat-e Jam, Mallu hills, 950 m, 28.4.1991, Joharchi & Zangooei 19700 [FUMH];
- Kaf on the way to Taibad, km 10, 1200 m, 27.4.1975, Zargari 316 [FUMH];
- SE: N Tabas, 1200 m, 4.5.1992, Faghihnia & Zangooei 21602 [FUMH].

Distribution in Iran: N, W, S, E, C.

Nonea pulla (L.) DC., Fl. Franc. ed. 3, 626 (1805).

Khorassan: NW: Ashkhaneh toward Shahrabad, km 72, near the Garmab, 680 m, Assadi & Maassoumi 55615 [TARI]. - NE: W Kalat-e Naderi, near the Soltanabad, 880 m, Assadi & Maassoumi 55799 [TARI].

Distribution in Iran: N, W, C, E.


Khorassan: W: SE Sabzevar, Ghorgh-e Yahya-Abad, 1020 m, Amirabadi 1313 [TARI]. - C: N Torbat-e Heydarieh, Ghonchi, 1700–1800 m, Borhan 418 [TARI].

Distribution in Iran: W, E, C. – Endemic to Iran.


Khorassan: NW: W Bojnord, Almeh, 1200 m, Termeh 33019- E [Holotype IRAN]; - ibid. Almeh, 1650 m, 26.6.1989, Faghihnia & Zangooei 176861 [FUMH];
- Qorkhud protected area, 1515 m, 18.5.2010, Memariani & Zangooei 42596, 42623 [FUMH];
- NW Bojnord, Emam-Darreh, Zo, 1363 m, 27.5.2008, Joharchi & Zangooei 40422 [FUMH];
- NE Jajarm, between Jajarm and Shoghan, 1306 m, 20.5.2009 m, Memariani & Zangooei 42596, 42623 [FUMH];
- SE Bojnord, Chenaran, Zo, 1363 m, 27.5.2008, Joharchi & Zangooei 40422 [FUMH];
- NW Kalat-e Naderi, Archangan, 830 m, 23.4.1989, Joharchi & Zangooei 17074 [FUMH].

Distribution in Iran: E. – Endemic to Iran.

Trachelanthus cerinthoides (Boiss.) Kunze, Bot. Zeit. 8: 665 (1850).

Khorassan: NW: W Bojnord, Jowzak toward Chamanbid, km 3, 1230–1300 m, 9.5.2010, Memariani 43620 [FUMH].

Distribution in Iran: N, W, S, E, C. – Endemic to Iran.


Khorassan: N: NE Chenaran, Boghneh toward Hezar-Masjed, km 56, 2000 m, Hojjat & Zangooei 32735 [FUMH]. - NE: NW Mashhad, Hezar-Masjed summit, 3132 m, 4.8.2010, Joharchi 44189 [FUMH];
Khorassan: C: N Torbate Heydarieh, 1750 m, 15.7.2007, Joharchi & Zangooei 39152 [FUMH].


Khorassan: N: Chenaran, between Ferizi and Mohalleh-Sorkh, 1720–1810 m, 8.6.2005, Emadzadeh & Memariani 36551 [FUMH].

Khorassan: NW: W Bojnord, Qorkhud protected area, 1355 m, 25.5.2010, Memariani & Arjmandi 43805 [FUMH].


Khorassan: NW: NW Bojnord, Kal-Imani town toward Buzdaghi, km 5, 835–850 m, 30.5.2007, Memariani & Zangooei 39060 [FUMH]; – W Bojnord, between Robat-e Gharabil and Jajarm bifurcation, 1498 m, 20.9.2007, Memariani 39280 [FUMH]; – SW Bojnord, N Jajarm, Garmeh toward Marghzar, km 20, 1400 m, 30.5.1984 Joharchi & Zangooei 11401 [FUMH]; – Bojnord on the way to Gifan, km 15, near the Surk
village, 1000 m, Assadi & Maassoumi 50116 [TARI]. – C: Nayshabur toward Kashmar, km 70, 1550–1950 m, Assadi & Mozaffarian 35459 [TARI].

Distribution in Iran: N, W, E, C.

**Cistaceae** – Ref.: Rechinger 1967; Gholamian 2011.

**Helianthemum nummularium** (L.) Miller, Gard. Dict. No. 12 (1768).

Khorassan: NW: W Bojnord, Qorkhud protected area, Kanisaran valley, 1830 m, 22.6.2010, Joharchi & Memariani 44060 [FUMH]; – ibid. 1850–1920 m, 23.6.2010, Joharchi & Memariani 44088 [FUMH].

Distribution in Iran: N, W, E, C.

**Convolvulaceae** – Ref.: Rechinger 1963; Nowroozi 2002.


Khorassan: NW: W Bojnord, Badranlu, Sharif 13118 [IRAN]; – Bojnord toward Gifan, 1000 m, Assadi & Maassoumi 50228 [TARI]; – Bojnord toward Esfarayen, km 14, 1050 m, Pabot 26631 [TARI]; – ibid. km 24, 1700 m, Termeh 13103 [IRAN]; – N: NW Shirvan, Sevaldi, 1600 m, Assadi & Maassoumi 50373 [TARI].

Distribution in Iran: W, S, E, C.


Distribution in Iran: W, S, E, C.


Distribution in Iran: S, E, C.


Khorassan: NW: W Bojnord, between Haver and Barfandil, 1700–1900 m, 6.6.2004, Joharchi & Aydani 35478 [FUMH, FAR]; – ibid. Chamanbid toward Bojnord, km 14, 1100 m, Wendelbo & Kobham 14362 [TARI]; – NE Esfarayen, Noshirvan, Mozaffarian 48584 [TARI]; – NE: Mashhad toward Kalat-e Naderi, Sandooqhshekan pass, 1550 m, 24.7.2007, Zangooei & SOOZANI 39172 [FUMH]; – ibid. km 45, 1800 m, Assadi & Maassoumi 21375 [TARI].

Distribution in Iran: E.

**Sedum hispanicum** L., Cent. Pl. 1: 12 (1755).


Distribution in Iran: N, W, S, E, C.
**Sedum pentapetalum** Boiss., Fl. URSS. 9: 481 (1939).
Khorassan: NW: Bojnord, W Jowzak, 1320–1370 m, 23.5.2010, Memariani & Arjmandi 43693 [FUMH].
Distribution in Iran: N, E.

**Sedum rubens** L., Sp. Pl. 1: 432 (1753).
Khorassan: N: W Darrehgaz, Gadakanlu, 1200 m, 1.5.1988, Joharchi & Zangooei 16379 [FUMH]; – S Darrehgaz, Gherkh-Ghez hills, 450 m, 2.5.1988, Joharchi & Zangooei 16489 [FUMH]; – SE Darrehgaz, Hatam-Ghala, 300 m, 16.5.1993, Joharchi & Zangooei 23140 [FUMH]; – NW Darrehgaz Chelmir, 980 m, 11.5.1999, Hojjat & Zangooei 32403 [FUMH]; – Darrehgaz, Tandoureh national park, between Shekarab and Chehelmir, 1600–1900 m, Assadi & Maassoumi 50739 [TARI]. – C: N Kashmar, Kashmar on the way to Neyshabur, km 15, 1300 m, 22.4.2002, Faghihnia & Zangooei 34025 [FUMH].
Distribution in Iran: N, W, S, E, C.

**Sempervivum iranicum** Bornm. & Gauba, Feddes Repert. 49: 257 (1940).
Distribution in Iran: N, E, C. – Endemic to Iran.


Khorassan: W: S Sabzevar, 880 m, 18.4.1966, POBOT 7491 [TARI].
Distribution in Iran: N, W, E, C.

Distribution in Iran: N, E. – Endemic for Iran, Turkmenistan & Afghanistan.

Khorassan: NE: Mashhad, Zoshk, Rudkhan-e Abdollah, 2100–3000 m, Mozaffarian 48890 [TARI].
Distribution in Iran: N, E, C. – Endemic to Iran.

**Astragalus vicarius** Lipsky, Acta Horti Petrop. 18: 25 (1900).
Distribution in Iran: N, E.

**Lens cyanea** (Boiss. & Hohen.) Alef., Bonplandia 9: 129 (1861)
Olia, the eastern mountains, 1750 m, 13.5.1990, Joharchi & Faghihnia 18538 [FUMH]. – NE: N Mashhad, between Kardeh and Aal, Sich, 1610 m, 9.5.2008, Zangooei 39884 [FUMH]; – Mashhad, Torghabeh, 1350 m, FOROUGHI 1350 [TARI].

Distribution in Iran: N, W, S, E, C.


Khorassan: NW: W Bojnord, Qorkhud protected area, 1590–1600 m, 18.5.2010, (in flower) Memariani & Arjmandi 43667 [FUMH]; – ibid. 7.6.2010 (in fruit), Memariani & Arjmandi 43827 [FUMH].

Distribution in Iran: W, E, C. – Endemic to Iran.


Distribution in Iran: N, W, S, E, C.


**Gentiana aquatica** L., Sp. PI. 1: 229 (1753).

Khorassan: C: NE Kashmar, km 50, Bezgh Mt., 2500 m, Assadi & Mozaffarian 35747 [TARI].

Distribution in Iran: S, E.


Khorassan: C: Neyshabur, Binaloud Mt., 1350–2100 m, Termeh & Tehrani s.n. [IRAN].

Distribution in Iran: N, W, S, E.

**Lamiaceae** – Ref.: Hegde & al. 1982.

**Calamintha officinalis** Moench, Meth. 409 (1794).

Khorassan: NW: W Bojnord, Darkash, Kanderazu valley, 1180–1400 m, 18.7.2011, Joharchi & Memariani 44594 [FUMH].

Distribution in Iran: N, W, E, C.


Khorassan: NW: W Bojnord, Qorkhud protected area, 1355 m, 25.5.2010, Memariani & Arjmandi 43809 [FUMH]; – ibid. Aghmazar pass, 2350–2470 m, 16.6.2010, Memariani & Arjmandi 44001 [FUMH].

Distribution in Iran: W, E.


Distribution in Iran: S, E. – Endemic to Iran.

*Satureja laxiflora* C.Koch, Linnaea 21: 668 (1848).  
Khorassan: N: S Chenaran, Dowlatabad, southern mountains of dam, 2181 m, 12.10.2010, Joharchi 44223 [FUMH].

Distribution in Iran: W, E.


var. persarum  
Khorassan: NE: Toward Mashhad, Rechinger 4858, 4861, 4862 [IRAN, W].

Distribution in Iran: E. – Endemic to Iran.

Khorassan: NW: Ashkhaneh toward Shahrabad, km 72, near the Garmab, 680 m, Assadi & Maassoumi 55612a [TARI].

Distribution in Iran: N, W, E.


Distribution in Iran: W, N, E, C.

subsp. tetragonum.  

Distribution in Iran: W, N, E, C. This taxon is recorded from Khorassan in *Flora Iranica* but the specimen (Koelz 16740) belongs to Golestan province (Gorgan), not to Khorassan. Now this species is confirmed with a correct locality.


Khorassan: NW: SW Bojnord, N Garme, 1050 m, 15.5.1988, Joharchi & Zangooei 16593 [FUMH]; – SW: Naybandan, between Aliabad and Tangal-e shend, 1536 m, 13.4.2004, Faghihnia 35275 [FUMH]; – Taq Plain, 2.9.1940, Koelz 16804 [W, in Fl. Iran cited as *C. tubulosa*].

Distribution in Iran: W, S, E, C.
Distribution in Iran: W, S, E, C.

Orobanche stocksii Boiss., Fl. Orient. 4: 505 (1879).
Khorassan: W: Sabzvar on the way to Neyshabur, km 20, 1300 m, Assadi & Mozaffarian 35405 [TARI]. – C: Torbat-e Heydarieh toward Mashhad, km 60, Robat-Sefid, 1750–1900 m, Assadi & Mozaffarian 35856 [TARI].
Distribution in Iran: W, E, C.

Orobanche schultzii Mutel, Fl. Franc. 2: 352 (1835).
Khorassan: NE: Mashhad toward Kalat-e Naderi, 800 m, Iranshahr & Zargani 31747 [IRAN].
Distribution in Iran: N, W, S, E, C.


Distribution in Iran: E. – Endemic for Iran & Afghanistan.

Khorassan: SW: Tabas, Esfahak., 950 m, 30.4.1981, Zokaei 694 [FUMH].
Distribution in Iran: S, E.

Distribution in Iran: E. – Endemic for Iran & Afghanistan.


Khorassan: NW: NW Bojnord, Qorkhud protected area, 2000–2500 m, 16.6.2010, Memariani & Arjmandi 43994, 44033 [FUMH].
Distribution in Iran: N, E, C.


Khorassan: NW: W Bojnord, Darkash, Ghartal valley, 1570 m, 20.7.2004, Joharchi & Aydani 35707 [FUMH, FAR].
Distribution in Iran: N, W, E.

Khorassan: NW: W Bojnord, Mirzabaylo toward Soulgerd, km 11, Qorkhud protected area, 1650–1700 m, 24.5.2010, Memariani & Arjmandi 43737 [FUMH].
Distribution in Iran: N, W, E.

Distribution in Iran: N, S, E, C.

Distribution in Iran: N, W, E, C.

Khorassan: NW: NW Bojnord, between Ghorry-Meidan and Dashtak, 650–700 m, 28.4.2001, Joharchi & Zangooei 33368 [FUMH]; – Between Raz and Gholaman, Guynik, 1213 m, 18.5.2008, Joharchi & Zangooei 40172 [FUMH]; – Western hills of Shirin-Darre dam, 700–750 m, 26.4.2009, Memariani & Zangooei 41931 [FUMH]; – Northern slopes of Bouzdaghi mountain, Cheshme, Golabi valley, 1000–1070 m, 3.5.2007,

Distribution in Iran: N, W, S, E, C.


Distribution in Iran: N, W, E.


Distribution in Iran: E.


Distribution in Iran: N, W, E.

**Distribution in Iran:** N, E, C.


Khorassan: NE: Mashhad, Dehbar, 2050 m, 11.7.1988, Saghafi & Ramazani s.n. [FUMH].

**Linaria chalepensis** (L.) Miller, Gard. Dict. ed. 8: no. 12 (1768).
subsp. *chalepensis*.
Khorassan: NE: Mashhad, Shandiz, 1050 m, 27.5.1983, Rezaei 10324 [FUMH].

Khorassan: NE: Mashhad, Pivajen, 1800 m, 8.6.1983, Rezaei & Zangoeei 10408 [FUMH].

Khorassan: N: Ghuchan on the way to Darregaz, km 40, 1730 m, 27.5.1972, Foroughi 8481 [TARI].

**Scrophularia syriaca** Benth. in DC., Prodr. 10: 316 (1846).

Khorassan: NW: N Bojnord, Amirabad, 1200 m, Saeidi 24036 [TARI].

Khorassan: NW: Bojnord toward Gifan, km 70, Amirabad, 1200 m, Saeidi 24197 [TARI]; – NE: W Mashhad, Kang Mts., 1500–1600 m, 1.6.2005, Joharchi & Zangoeei 36508 [FUMH].

**Solanaceae** – Ref.: Schönböck-Temesy 1972.

**Physalis alkekengi** L., Sp. Pl. 1: 183 (1753).
Khorassan: NW: W Bojnord, Darkash, Kanderazu, 1097 m, 25.7.2011, Joharchi & Memariani 44603 [FUMH].

**Distribution in Iran:** N, W, S, E, C.


Distribution in Iran: W, E.

*Valerianella coronata* (L.) DC., Fl. Franc. 4: 241 (1805).


Distribution in Iran: W, S, E, C.


Khorassan: W: NE Bardaskan, Sir, 1500 m, 13.4.1995, Faghhiinia & Zangooei 24748 [FUMH]; – SW: Ferdous on the way to Boshruyeh, km 14, Amirabad, 1400 m, 16.4.1995, Raafieei & Zangooei 24821 [FUMH].

Distribution in Iran: N, W, E.


Khorasan: NW: NW Bojnord, between Ghorry Meidan and Dashtak, 650-700 m, 28.4.2001, Joharchi & Zangooei 33392 [FUMH]; - N: Darrehgaz, Tandoureh national park, Chehelmir, 1000 m, Moussavi & Parryab 5619 [TARI]; - S: Darrehgaz, Gherkh-ghez hills, 450 m, 2.5.1988, Joharchi & Zangooei 16484 [FUMH]; - NE: Kalat-e Naderi, Archangan, 830 m, 23.4.1989, Joharchi & Zangooei 17094 [FUMH],

Distribution in Iran: N, W, S, E, C.


Khorasan: NW: NW Bojnord, between Ghorry Meidan and Dashtak, 650-700 m, 28.4.2001, Joharchi & Zangooei 33392 [FUMH]; - N: Darrehgaz, Tandoureh national park, Chehelmir, 1000 m, Moussavi & Parryab 5619 [TARI]; - S: Darrehgaz, Gherkh-ghez hills, 450 m, 2.5.1988, Joharchi & Zangooei 16484 [FUMH]; - NE: E Fariman, between Sefidsang and Razmgah, 1500 m, 25.4.1985, Joharchi & Safavi 12269-1 [FUMH], - C: Kashmar, N Bahariyeh, 1350 m, Paryab & Hamdi 5021 [TARI]; - E: Khaf, Band-e Salami, 1250 m, 29.4.1989, Joharchi & Zangooei 17277 [FUMH].

Distribution in Iran: N, W, S, E, C.


Khorasan: NW: W Bojnord, between Chamanbid and Jowzak, 1300 m, 15.5.1988, Joharchi & Zangooei 16634 [FUMH]; - N Bojnord, Naveh toward Ghatlish, km 2, 1195 m, 19.5.2009, Memariani & Zangooei
Valerianella sclerocarpa Fisch. & C.A.Mey., Ind. Sem. II Horti Petrop. 53 (1835).

Distribution in Iran: N, W, E, C.


Distribution in Iran: W, S, E, C.

Valerianella uncinata (M.Bieb.) Dufr., Hist. Valer. 60 (1811).
Khorassan: NW: Bojnord toward Chamanbid, km 6, Heydarabad, 1200 m, 11.5.1992, Faghiihnia & Zangooei 21732 [FUMH]; - W Bojnord, Haver, 1000 m, 10.5.2000, Joharchi & Zangooei 32788 [FUMH].

Distribution in Iran: N, E, C.


Fagonia bruguieri DC., Prodr. 1: 704 (1824).
var. bruguieri.

_Fagonia bruguieri_  
var. _rechingeri_ Hadidi, Candollea 27: 91 (1972).  
Khorassan: SW: S Tabas, between Dig-e Rostam and Naibandan, 800 m, 16.4.2002, Joharchi 34000 [FUMH].  
Distribution in Iran: W, S, E, C.

Khorassan: SW: between Tabas and Naibandan, 900 m, 17.4.1995, Raafeei & Zangooei 24868 [FUMH].  
Distribution in Iran: W, E.

Distribution in Iran: W, S, E, C.

**New records for Iran with specimen/s in Khorassan**

The following 22 taxa belonging to 7 families have been recorded for the flora of Iran with specimen/s from Khorassan province since the publication of Flora Iranica for the relevant family. They are noted here to give an overview of subsequent changes of knowledge of the flora of Khorassan province.

**Monocotyledons**

*Amaryllidaceae*

Ref.: Frisch & Maroofi 2010.  
Khorassan: NE: SW Sarakhs, Shorlugh, 800 m, 26.5.1977, Rechinger 55732 [W]; – Mashhad towards Salehabad, 15 km after Mashhad-Sarakhs bifurcation, 700–900 m, 26.5.1977, Rechinger 55765 [W]; – NE Mashhad, W Sanganeh, 670 m, 10.6.2009, Joharchi 42974 [FUMH].  
Distribution in Iran: E.
Dicotyledons

Asteraceae

Ref.: MEMARIANI & JOHARCHI 2011.
Khorassan: NW: NW Bojnord, NW Gholaman, Sangsar Mt., near Turkmenistan border at opposite side of Kenekesir (Kohnhe-Kesir), 2.7.1985, Joharchi & Zangooei 13288 [FUMH].
Distribution in Iran: E. – Endemic for Iran & Turkmenistan & Iran.

Ref.: MEMARIANI & JOHARCHI 2011.
Distribution in Iran: E. – Endemic for Iran & Turkmenistan.

Ref.: AMIRI & JOHARCHI 2010.
Khorassan: NE: Darrehgaz, S Zangelanlo, 879 m, 29.5.2009, Amir 42175 [FUMH].

Brassicaceae

Ref.: KAVOUSI & al. 2010.
Distribution in Iran: E. – Endemic for Iran & Turkey.

Ref.: KAVOUSI & al. 2011.
Khorassan: N: N Chenaran, Boghmech toward Hezar-Masjed summit, km 31, 2506 m, 8.5.2008, Nazari & Zangooei 39871, 39872 [FUMH]; – NE S Mashhad, between Moghan and Moghan cave, 2000 m, 25.5.2009, Joharchi & Zangooei 42680, 42684 [FUMH]; – Between Mashhad and Neyshabur, Pivajen, 2100 m, 13.5.1983, Rashed & Rezaei 10244a [FUMH]; – N Mashhad, NW Mareshk, Hezar-Masjed protected area, 2500 m, 24.6.1996, Faghilnia & Zangooei 27570 [FUMH]; – W: NW Sabzevar, between Sarough and Nazargah Mt., 2482 m, 30.5.2009, Joharchi 42719 [FUMH].
Distribution in Iran: E. – Endemic for Iran & Turkey.

Ref.: KAVOUSI & al. 2010.
Distribution in Iran: E. – Endemic for Iran & Turkey.

Ref.: KAVOUSI & al. 2011.
Distribution in Iran: E. – Endemic for Iran & Turkey.

Ref.: KAVOUSI & al. 2011.

Distribution in Iran: E. – Endemic for Iran & Turkey.


Ref.: Kavousi & al. 2011.

Khorassan: N: S Mashhad, Maj Mts., 2300 m, 16.5.2001, Joharchi 33581b [FUMH].

Distribution in Iran: E. – Endemic for Iran & Turkey.


Ref.: Kavousi & al. 2011.


Distribution in Iran: E. – Endemic for Iran & Turkey.


Ref.: Kavousi & al. 2011.


Distribution in Iran: E. – Endemic for Iran & Turkey.


Ref.: Kavousi & al. 2011.


Distribution in Iran: E. – Endemic for Iran & Turkey.


Ref.: Ghaahremaninejad & Joharchi 2011.


Distribution in Iran: E.


Ref.: Ghaahremaninejad & Joharchi 2011.


Distribution in Iran: E.
Caprifoliaceae -- Ref.: **Wendelbo 1965b; Khatamsaz 1995a.**

*Lonicera korolkovii* **Stapf, Gard. & For.** 7: 34 (1894).
Ref.: **Khatamsaz 1995a.**
Khorassan: NW: W Bojnord, Haver, 1500 m, Borhan & Ramazani 100 [TARI]; – ibid. Zo, 1600 m, 27.6.2000 Zangoeei 32991 [FUMH]; – ibid. between Darkash and Haver, 1600 m, 2.7.2000, Faghihnia & Zangoeei 33030 [FUMH]; – ibid. 1200 m, 1.4.2000, Joharchi & Hojjat 33161 [FUMH]; – Ashkhaneh, toward Chakhmaghlu, 1600 m, 28.6.2000, Zangoeei 33014 [FUMH].
Distribution in Iran: E, C.

Caryophyllaceae

Ref.: **Edalatiyan & al. 2010.**
Distribution in Iran: E. – Endemic for Iran & Afghanistan.

Fabaceae

Ref.: **Maassoumi 2003.**
Khorassan: C: NW Neyshabur, Dahan-e Heydari, 1580 m, Shad & al. 1516 [TARI].
Distribution in Iran: E. – Endemic for Iran, Afghanistan & Pakistan.

Ref.: **Maassoumi 2003.**
Khorassan: C: NW Neyshabur, Dahan-e Heydari, 1700 m, Shad & al. 1514 [TARI].
Distribution in Iran: E. – Endemie for Iran & Turkmenistan.

Ref.: **Nasseh & Joharchi 2009.**
Khorassan: NE: N Salehabad, Zalu Mt., 1250–1300 m, Joharchi & Zangooeei 34598 [FUMH].
Distribution in Iran: E. – Endemie for Iran, Afghanistan & Turkmenistan.

Ref.: **Amirabadizadeh 2011.**
Khorassan: N: Ghuchan to Darrehgaz, near Alibolagh road, 1500 m, Amirabadizadeh & Paryab 5943 [TARI]. – Chenaran, Boghmech towards Hezar Masjed Mt., before the Watershed boundary, 2840 m, Mozaffarian & al. 11833 [TARI]. – NE: 97 km NW Mashhad, between Karimabad and Hezar-Masjed, 2450 m, Joharchi & Zangoeei 15700 [FUMH].
Distribution in Iran: E. – Endemic for Iran & Turkmenistan.

Zygophyllaceae

Ref.: **Akhiani 1993.**
Khorassan: C: Torbat-e Heydarih on the way to Mashhad, km 60, 1750–1900 m, Assadi & Mozaffarian 35830 [TARI].
Distribution in Iran: E.
Taxa new to science

The following 20 taxa from 11 genera and 5 families have been described as new since publication of the relevant Flora Iranica treatments. They are listed here to give a completed overview of subsequent changes to the flora of Khorassan. The type localities of 18 of them are located in the province, and up to now these taxa are endemic in the province.

Monocotyledons

Liliaceae

Ref.: ZARREI & al. 2010.
Distribution in Iran: N, E. – Endemic for Iran & Afghanistan.

Dicotyledons

Asteraceae

Ref.: NASSEH et al. 2010.
Khorassan: N: S Chenaran, between Ab-ghad and Fereizi, 1500 m, 12.8.1985, Ayatollahi & Joharchi 13532 [holotype FUMH].
Distribution in Iran: E. – Endemic to Iran.

Ref.: ASSADI 2010.
Khorassan: NE: Mashhad, Robat Sefid, 1750 m, 4.6.2006, Djavadi, Eskandari & Torabi 43535 [holotype IRAN].
Distribution in Iran: E. – Endemic to Iran.

Khorassan: NE: Mashhad, Robat Sefid, 1750 m, 4.6.2006, Djavadi, Eskandari & Torabi 43535 [holotype IRAN].
Distribution in Iran: E. – Endemic to Iran.

Ref.: ASSADI 2011.
Khorassan: C: 30 km N of Torbat-e Heydarieh, 1900 m, 15.7.1976, Assadi & Maassoumi 21318 [holotype TARI].
Distribution in Iran: E. – Endemic to Iran.
Ref.: **DJAVADI & al. 2006**.
Khorassan: N: Darrehgaz towards Emamgholi, Rahman-Gholibaig, 1050 m, 8.6.2006, Djavadi, Eskandari & Torabi 43544 [holotype IRAN].
Distribution in Iran: E. – Endemic to Iran.

Ref.: **ASSADI 2011**.
Distribution in Iran: E. – Endemic to Iran.

Ref.: **DJAVADI & ATTAR 2005**.
Khorassan: NE: Mashhad towards Sarakhs, Mozdouran pass, 900–1000 m, 1.6.2001, Djavadi 31208 [holotype IRAN].
Distribution in Iran: E. – Endemic to Iran.

Ref.: **DJAVADI & al. 2006**.
Khorassan: E: Khaf towards Taybad, 45 km to Taybad, 1400 m, 3.6.2006, Djavadi, Eskandari & Torabi 43543 [holotype IRAN].
Distribution in Iran: E. – Endemic to Iran.

Ref.: **MOZAFFARIAN 2002**.
Khorassan: N: Shirvan on the way to Namanlu, Palkanlu, 1620 m, Mozaffarian 79762 [Holotype TARI]; – ibid. Palkanlu-e Sofia, 1550 m, Mozaffarian & Maassoumi 79127 [TARI]; – N Neyshabur, km 20 Mirabad, 1800–2000 m, Assadi & Maassoumi 21246 [TARI].
Distribution in Iran: E. – Endemic to Iran.

**Heteroderis pusilla**

Ref.: **NASSEH et al. 2010**.
Distribution in Iran: E. – Endemic to Iran.

**Brassicaceae**

Ref.: **KHOSRAVI & JOHARCHI 2011**.
Khorassan: W: NW Sabzevar, Joqatai Mts., Kotal Khakestari, 1784 m, 29.5.2009, Joharchi 43831 [Holotype FUMH].
Distribution in Iran: E. – Endemic to Iran.

**Neotorularia dentata**

Ref.: **KHODASHENAS & al. 2010**.
Khorassan: NE: NE Torbat-e Jam, East of Salehabad, between Salehabad and Garmab-e Olia, 540 m, 29.4.2009, Joharchi & Memariani 42008 [Holotype, FUMH, Isotype TARI]; – Sarakhs, after Mazdavand

Distribution in Iran: E. – Endemic to Iran.

**Caryophyllaceae**


Ref.: EDALATIYAN & al. 2011.

Khorassan: N: SW Darrehgaz, w Kapkan, 1550 m, 30.4.1988, Joharchi & Zangoeei 16294 [FUMH, FAR]; – W Darrehgaz, Zinadanlo, 1000 m, 1.5.1988, Joharchi & Zangoeei 16413 [FUMH, FAR]; – NE: Sarakhs, Shoorlogh, 700 m, 27.4.1992, Faghhiinia & Zangoeei 21552 [FUMH, FAR]; –Sarakhs-Mashhad road, 20 km, SW of Shoorlogh village, 28.4.1994, Faghhiinia & Zangoeei 23846 [holotype FUMH, isotypes FUMH, FAR].

Distribution in Iran: E. – Endemic to Iran.


Ref.: EDALATIYAN & al. 2010.


Distribution in Iran: E. – Endemic to Iran.

**Fabaceae**


Ref.: NASSEH & al. 2010.

Khorassan: SE: Nehbandan, 1 km of Khonik-e Paeen toward Sefidabeh, 1350 m, 24.4.1984, Joharchi & Zangoeei 10914 [holotype FUMH, isotype TARI].

Distribution in Iran: E. – Endemic to Iran.


Ref.: RANJBAR & al. 2011


Distribution in Iran: E. – Endemic to Iran.


Ref.: NASSEH & al. 2010.


Distribution in Iran: E. – Endemic to Iran.


Ref.: RANJBAR 2010.


Distribution in Iran: E. – Endemic to Iran.


Khorassan: N: Sabzevar toward Guchan, 97 km after Sabzevar, 1492 m, 5.6.2007, RANJBAR & HAJMORADI 12899 [holotype BASU, isotypes MO, TARI].

Distribution in Iran: E. – Endemic to Iran.
Additional note

The following taxon has got a new status.

Fabaceae


Distribution in Iran: E, C. – Endemic to Iran.

References


Djavadi S.B., Attar F. & Eskandiari M., 2006: Two new species of the genus Cousinia from Iran. – Rostaniha, 7 (suppl. 2) 165–175.


MOZAFFARIAN V., 2007: Umbelliferae. – In: ASSADI M. & al. (eds.): Flora of Iran, no. 54: 1–596.


