

Ministry of Jihad-e Agriculture
Agricultural Research, Education & Extension
Organization

Iranian Research Institute of Plant Protection
Insect Taxonomy Research Department
Publ. No.20

INSECTS OF IRAN

The List of Hymenoptera in the Hayk Mirzayans Insect Museum,
Iranian Research Institute of Plant Protection

Suborder: Apocrita

Superfamily: Apoidea

(Spheciformis series)

Families: Ampulicidae, Sphecidae, Crabronidae

By:

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2014

Printing of this supplement was confirmed by the Publication Committee of Iranian Research Institute of Plant Protection at the third session on 31.10.2013.

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Identification of Book:

Insects of Iran: The List of Hymenoptera in the Hayk Mirzayans Insect Museum, Iranian Research Institute of Plant Protection, Suborder: Apocrita, Superfamily: Apoidea (Spheciformis series), Families: Ampulicidae, Sphecidae, Crabronidae Crabronidae

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Publisher: Iranian Research Institute of Plant Protection

Date of Publishing: 2014

Computer aided typing: E. Ebrahimi

Layout: Mahbanoo Shokri Mozhdehi

Cover illustration: *Chlorion regale* F. Smith (Iran: Jiroft, Mijan), photo: E. Ebrahimi

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In the Name of God

The List of Hymenoptera in the Hayk Mirzayans Insect Museum,
Iranian Research Institute of Plant Protection
Hymenoptera: Ampulicidae, Sphecidae, Crabronidae

By:

Ebrahim Ebrahimi

The family Sphecidae *sensu lato* is a large family of aculeate wasps, comprising a total of 9704 described species worldwide (Pulawski, 2013). Known as solitary wasps, the sphecids prey on arthropods, mostly on spiders and insects. The adult female carries her semi-paralyzed prey into the nest to use as provisioned food for her larvae.

Sphecidae had been previously classified as the sole family within the superfamily Sphecoidea and the sister group to Apoidea. Latreille (1802) established the superfamilies Apoidea and Sphecoidea based on the posterior rounded lobes on their pronotum. A number of hymenopterologists, including Gauld & Bolton (1988), Melo (1999), Brothers (1999), Pulawski (2013), believed that the both superfamilies should be placed in the superfamily Apoidea that contains the families Heterogynaidae, Ampulicidae, Sphecidae *sensu stricto*, Crabronidae and Apidae *sensu lato*. Recently, some apidologists argued that the rank of the taxa lower than Apidae could be categorized as family, leading to the division of Apoidea into two series: sphecid wasps or Spheciformis series, and bees or Apiformis series (including Megachilidae, Halictidae, Andrenidae, Apidae, *etc.*) (Michener, (2007). Here, the Sphecidae *sensu lato*, has been treated as four families of the superfamily Apoidea: Heterogynaidae, Ampulicidae, Sphecidae *sensu stricto* and Crabronidae.

Up to now, about 270 sphecid species have been reported from Iran (Esmaili & Rastegar, 1954; Ebrahimi *et al.*, 1995; Ebrahimi, 1993, 2000a, 2000b, 2005; Ghazi Soltani *et al.*, 2006, 2009, 2010; Fallahzadeh *et al.*, 2005,

2009; Sakenin *et al.*, 2010, 2011; Morice, 1921; Gussakovskij, 1933; de Beaumont, 1957, 1970; Pulawski, 1971, 1984, 1992, 2013).

This list includes 2200 specimens belonging to 108 species, 40 genera, 10 subfamilies and three families, which were collected by Iranian and foreign entomologists through various expeditions in Iran.

The specimens were partly identified by Drs. Christian Schmid-Egger (Berlin, Germany), the late G. E. Nixon (Great Britain), the late K. M. Guichard (Great Britain) and the late V. V. Gussakowskij to whom I do acknowledge. The specimens were primarily identified by the author unless otherwise mentioned.

THE LIST OF HYMENOPTERA FROM IRAN

(2)

Suborder: **Apocrita**

Superfamily: **Apoidea**

(Spheciformis series)

Families: Ampulicidae, Sphecidae, Crabronidae

1. Family: **Ampulicidae** Shuckard, 1840

Subfamily: **Ampulicinae** Shuckard, 1840

Genus: ***Triogma*** Westwood, 1841

Triogma caerulea Westwood, 1841

Material examined:

Markazi:

Khomein: Varche, 24.VII.2011, leg. Hādi.

Tehrān:

Tehrān: 4.IX.1992, 13.IX.1992, leg. Ebrāhimi.

2. Family: **Sphecidae** Shuckard, 1840 *sensu stricto*

Subfamily: **Ammophilinae** André, 1886

Genus: **Ammophila** Kirby, 1798

Ammophila dives Brullé, 1833

Material examined:

Āzarbāijān-e Sharghi:

Tabriz: VII, 1959, leg. Goudarzi, det. Bouček 1971.

Fārs:

Shirāz: 8.V.1951, leg. Mirzāyāns.

Ammophila heydenii Dahlbom, 1845

Material examined:

Alborz :

Karaj: Sira, Kalvan, 2050m alt., 24.VI.1991, leg. Ebrāhimi.

Tāleghān: Parachan, 27.VI.1991, leg. Ebrāhimi, det. Guichard; Tāleghāndam, 1650m. alt.,
17.VI.1992, leg. Ebrāhimi /Badii.

Ardebil:

Germi: Ziveh, 565m alt., 14.VII.2011, leg. Ebrāhimi.

Neor lake, 2350m alt., 17.VIII.1991, leg. Hāshemi/Parchami.

Āzarbāijān-e Sharghi :

Kaleybar: Ainānlu, 1345m alt., 10.VIII.2005, leg. Gilāsiān/Ebrāhimi; Gheshlāgh, 1280m
alt., 9.VIII.2005, leg. Gilāsiān/Ebrāhimi;

Osku: Kandeavān, 2800m alt., 8.VII.2005, leg. Gilāsiān/Ebrāhimi.

Tabriz: Lighvān, Sahand, 2440m alt., 3.VIII.1992, leg. Parchami/Badii.

Sarāb: 15.VII.1970, 25.VII.1975, leg. Naim.

Esfahān:

Semirom, 2200m., 27.VIII.1941, leg. Ebrāhimi/Badii.

Ghazvin:

Alamut, Gāzorkhān, 2000m alt., 3.VI.1994, leg. Ebrāhimi.

Ghazvin: 25 km. N. East, 2150m alt., 11.VI.1995, leg. Parchami/Ardeh/ Ebrāhimi;

Ghazvin, 30.VI.1970, leg. Āyatollāhi/Abāii.

Golestān:

Golestān National Park: Tang-e Gol, 630m alt., 15.IV.1997, leg. V.Nazari.

Hormozgān :

Bandar-Abbās: Hājiābād, 1050m alt., 3.V.1996, leg. Badii/Ardeh/V.Nazari.

Lorestān :

Aznā: Savar, 1750m alt., 5.X.1991, leg. Hāshemi.

Brujerd, VIII.1947, leg. Sharif.

Kermān :

Jiroft: Abbārik, 23.III.1965, leg. Safavi.

Māzandarān :

Behshahr: Amirābād, 5m alt., 27.VI.2001, leg. Mofidi/ Ebrāhimi/Osten.

Tehrān :

Shahriār: Anjom-Ābād, 19.X.1991, leg. Ebrāhimi; Malārd, Khoshnām, 13.XI.1991, leg. Ebrāhimi.

Robāt-Karim, 900m alt., 19.X.1991, Badii/Ebrāhimi.

***Ammophila sabulosa* (Linnaeus, 1758)**

Material examined:

Alborz:

Karaj: Fardis, 24.VIII.1991. leg. Ebrāhimi; Shahrestānak, 30.V.1991, 2100m alt., leg.

Ebrāhimi; Malārd: Khoshnām, 27.X.1991. leg. Ebrāhimi, det. Guichard.

Āzarbāijān-e Sharghi:

Kaleybar: Ainānlu, 1345m alt., 10.VIII.2005, Gilāsiān/Ebrāhimi; Gheshlāgh, 1280m. alt., 9.VIII.2005, Gilāsiān/Ebrāhimi; Vāyeghān, 1400m.alt., 5.VIII.1992, Parchami/Badii.

Fārs :

Kāzerun: Nowdān, Kuhmohreh, 26.VI.1975, leg. Abāii.

Gilān :

Assālem, 3.V.1965, leg. Dezfuliān.

Fuman: Māsuleh, 1400m. alt., 12.VIII.1991, leg. Hāshemi/Parchami.

Golestān :

Golestān National Park: Sulgerd, 1250m. alt., 28.VII.2001, leg. Ghayourfar/Gilāsiān

/Moghaddam; Sulgerd, 1250m. alt., 28.VII.2001, leg. Ghayourfar/Gilāsiān

/Moghaddam; Koylar, 1250m. alt., 16.VI.2000, leg. Ebrāhimi.

Maraveh-Tappeh: Ghazan-Chayeh, 900m. alt., 26.IV.1997, leg. Barāri/Badii/Sarafrāzi.

Hormozgān :

Hājiābād: Gohreh, 9.III.1971, leg. Pāzuki/Āyatollāhi.

Ilām :

Mehrān, V.1943, leg. Sarkissiān.

Khuzestān :

Andimeshk, 8.V.1969, leg. Zairi/Āyatollāhi.

Dezful: Shāhiun, Sālenhuh, 1250m. alt., 8.V.2001, leg. Gilāsiān/Mofidi/Hājiesmailiān.

Behbahān: 29.IV.1969, leg. Āyatollāhi/Zairi.

Kohkiluyeh-Boyerahmad:

Gachsārān, 28.IV.1967, leg. Āyatollāhi.

Lorestān:

Aznā: Darband, 1700m. alt., 5.VI.2000, leg. Badii/Mofidi.

Poldokhtar, 20.IV.1974, leg. Zarii.

Māzandarān :

Bābolsar, VIII.1949, leg. Farahbakhsh.

Nur: Kojur, Nichkuh, 1900m. alt., 12.IX.1990, leg. Ebrāhimi/Badii.
Tonekābon: Sehezār, Jirbālān, 1100m. alt., 7.IX.1990, leg. Ebrāhimi/Badii; Dohezār,
Daryāsar, 2000m. alt., 4.IX.1990, leg. Ebrāhimi/Badii.
Rāmsar: Javāherdeh, 1700m. alt., 8.IX.1990, leg. Ebrāhimi/Badii.
Kelārdasht, 8.VIII.1967, leg. Zairi; Rudbārak, 1800m. alt., 1.IX.1990, leg.
Ebrāhimi/Badii; Rudbārak, Vandārbon, 2000m. alt., 31.VIII.1990, leg. Ebrāhimi/Badii.
Chālūs, 27.VI.1965, Dezfuliān; 23.V.1965, leg. Safavi.

Semnān:

Shāhrud: Shāhkuh-e Pāin, 2700m. alt., 18.VII.2003, leg. Ālipanāh/Ebrāhimi

Tehrān :

Kahrizak: Ghal-eNo, 18.X.2004, leg. Ebrāhimi.
Varāmin: Mohammad Ābād, 19.XI.1991. leg. Ebrāhimi.
Damāvand: 24.VII.1970, leg. Safavi/Hāshemi.
Shahriār: Anjom-Ābād, 19.X.1991, leg. Ebrāhimi.

Genus: *Hoplammophila* de Beaumont, 1960

***Hoplammophila armata* (Illiger, 1807)**

Material examined:

Golestān:

Golestān National Park: Tang-e Rāh, 230m. alt., 5.VII.2001, leg. Ebrāhimi/Mofidi/Osten,
det. Schmid-Egger.

Genus: *Parapsammophila* Taschenberg, 1869

***Parapsammophila erythrocephala* (Fabricius, 1871)**

Material examined:

Hormozgān:

Bandar-Abbās: 20.IV.1950, leg. Fassihi, det. Bouček.

Sistān-Baluchestān:

Bampur: 2.VI.1950, leg. Sarkissian.

Parapsammophila turanica F. Morawitz, 1890

Material examined:

Ghom:

Ghom: 28.VI.1970, leg. Safavi/Hāshemi, det. Schmid-Egger.

Genus: ***Podalonia*** Fernald, 1927

Podalonia affinis (W. Kirby, 1798)

Material examined:

Ardebil:

Meshgin-Shahr: Sabalan, 1.VIII.1970, leg. Naim, det. Schmid-Egger.

Podalonia hirsuta (Scopoli, 1763)

Langavan ?? , 26.VII.1970, leg. Naim.

Alborz:

Tāleghān: Kalānak, 1800m. alt., 26.VI.1991, leg. Ebrāhimi, det. Guichard.

Āzarbāijān-e Sharghi:

Osku: Kandevar, 2800m. alt., 8.VII.2005, leg. Gilāsian/Ebrāhimi.

Miāneh: Bozghush, 27.VII.1970, leg. Naim.

Zanjān:

Zanjān: Gilvān, 17.VII.2005, leg. Abbāsi.

Kordestān:

Divāndareh: Saral, 3.VII.1968, leg. Dezfūliān /Irānshahr.

Lorestān:

Aznā: 1.V.2001, leg. Amāni.

Broujerd: VIII.1947, leg. Sharif.

Dorud: Galrgirchak, 2.VI.2004, leg. Zahiri/Nematiān.

***Podalonia hirsuta mervensis* Rad.**

Material examined:

Alborz:

Karaj: 12.VI.2004, leg. Ebrāhimi; Fashand, 14.V.1990. leg. Ebrāhimi; Kandovān, 2800m alt., 4.VII.1990. leg. Ebrāhimi, Dizin, leg. Ebrāhimi, det. Guichard; Fashand, 14.V.1990, leg. Ebrāhimi.

Āzarbāijān-e Gharbi:

Khoy, 10.V.1965, leg. Ārghand.

Takāb: Tāzekand, 9.V.1964.leg. Dāmanābi, det. Bouček.

Āzarbāijān-e Sharghi:

Ahar: 5.VI.1978, leg. Hāshemi/Zairi

Jolfā: Siārud, Komār, 1400m., 11.VIII.2005, Gilāsiān /Ebrāhimi

Lighvān: Sahand, 27.VI.1970, leg. Pāzuki.

Miāneh: Bozghush, 2250m. alt., 29.VII.1992, leg. Parchami/Badii.

Osku: Kandevān, 2800m.alt., 8.VII.2005, leg. Gilāsiān/Ebrāhimi.

Tabriz, 1.V.1965, leg. Ārghand.

Chārmahāl-Bakhtiāri:

Ardal: Lashtar, Kouhe-Meili, 2100-2150m alt., 11.VI.1973.

Gilān:

Rudbār, Arbenaf, Dorfak, 2400m. alt., 30.VII.1999, leg. Ebrāhimi/Mofidi.

Assālem: 12.VIII.1970, leg. Naim.

Golestān:

Golestān National Park: Sulgerd, 1250m. alt., 28.VII.2001, leg. Ghayourfar/Gilāsiān/Moghaddam, 14.IV.1997, leg. Nazari; Tang-e Gol, 600m alt., 27-30.X.1979, leg. Pāzuki/Badii; 15.IV.1997, leg. Nazari.

Gonbad: 30.VII.1965, leg. Safavi/Āyatollāhi.

Gorgān: 1.V.1965, leg. Safavi.

Hamadān:

Kabudarāhang, 1520m alt., 12.VI.1997, leg. Sarafrāzi/Badii/Nazari.

Lorestān:

Aleshtar, Dare-Esbar, 1550m alt., 7.VII.2000, leg. Badii/Mofidi; Kahmān, Takhteshād, 1750m alt., 14.VI.2000, leg. Badii/Mofidi.

Aznā: 1.V.2001, leg. Amani.

Dorud: Dareh-Esbar, 1550-1700m alt., 7.VI.2000, leg. Badii/Mofidi.

Mālāvi, 610m alt., 5.V.1994, leg. Sarafrāzi/Hāshemi.

Khorāsān-e Razavi:

Mashhad: Torogh,

Sarakhs: Bezangān, Kolbibi lake, 200m alt., 8.IV.1997, leg. Nazari.

Māzandarān:

Kelārdasht: Rudbārak, Vandārbon, 2000m alt., 31.VIII.1990, leg. Ebrāhimi/Badii.

Tonekabon: Sehezār, Jirbālān, 1100m alt., 7.IX.1990, leg. Ebrāhimi/Badii.

Tehrān:

Rudbār-e Ghasrān: Garmābdar, 27.V.2004, leg. Ebrāhimi.

Damāvand: 23.VII.1970, leg. Safavi/Hāshemi; Tār lake, 2700m alt., 25.VIII.1992, leg. Ebrāhimi.

Kahrizak: Ghaleno, 850m alt., 16.V.1992, leg. Ebrāhimi.

Shahriār: Anjom-Ābād, 19.X.2004, leg. Ebrāhimi; Khoshnām, 1070m alt., 18.V.1992, leg. Ebrāhimi.

Lavāsān: Nārān, 30.IV.1991, 30.IV.2005, leg. Ebrāhimi; Dasht-e Lār, 2500m alt., 26.V.2004, leg. Ebrāhimi; 12.VII.1993, leg. Parchami/Ebrāhimi.

Tehran: Evin, 1650m alt., 11.IV.1976, leg. Lavallee.

Varāmīn, Pishvā, Karim-Ābād, 19.XI.1991, leg. Ebrāhimi

Sistān-Baluchestān:

Bampur: Shamsābād, 500m alt., 4.III.1997, leg. Mirzāyāns/Badii/Sarafrāzi.

Khāsh: Kousheh, 3.V.1969, leg. Pāzuki/Hāshemi.

***Podalonia minax* (Kohl, 1901)**

Material examined:

Hormozgān:

Bandar-e Lengeh: 23.III.1965, leg. Safavi, det. Bouček.

***Podalonia morawitzi* Ed. André, 1886**

Material examined:

Khorāsān:

Khorāsān (Russian label), 1945, det. V. Gussakowskij.

***Podalonia tydei* (Le Guillou, 1841)**

Material examined:

Alborz:

Karaj: 28. I.1989, leg. Ebrāhimi, det. Schmid-Egger.

Karaj:Eshtehārd, 900m. alt., 21.X.1991, leg. Ebrāhimi.

Karaj:Khoshnām, XI.1991, leg. Ebrāhimi, det. Guichard.

Māzandarān:

Behshahr: Tāzekand, VII.2005, leg. Zarghāmnejād.

Tehrān:

Shahriār: Anjom-Ābād, 19.X.1991, leg. Ebrāhimi.

Kahrizak:Ghaleno, 18.X.1991, leg. Ebrāhimi; 16.IX.2005, leg. Ebrāhimi.

Varāmin: Ali-Ābād, 4.XI.2004, leg. Ebrāhimi; Mohammad-Ābād, 19.XI.1991; Ali-Ābād-

e Shorun, 18.XI.1991, leg. Ebrāhimi, Mohsen-Ābād, 21.XI.1991, leg. Ebrāhimi, det.

Schmid-Egger; Pishvā, Karim-Ābād, 20.X.1991, leg. Ebrāhimi.

Ghom:

Ghom: 28.VI.1970, leg. Safavi/Hāshemi.

Subfamily: **Chloriontinae** Fernald, 1905

Genus: **Chlorion** Latreille, 1802

Chlorion magnificum F. Morawitz, 1887

Material examined:

Markazi:

Khomein: Farnagh, 23.VII.2011, leg. Hādi, det. Schmid-Egger.

Khomein: Seyyedābād, 4.VIII.2011, leg. Hādi, det. Schmid-Egger, (kept in Dr. Schmid-Egger collection, Berlin).

Chlorion regale F. Smith, 1873

Material examined:

Hormozgān:

Bandar-e Lengeh: 8.IV.1950, leg. Fasihi, det. G.E.J. Nixon.

Bashāgerd: Senderk. 220m alt. 12.V.1977, leg. Safavi/Pāzuki.

Mināb: 12.V.1969, Pāzuki/Hāshemi; 1.V.1970, Behboodi.; Fāryāb, 8.V.1973, Hāshemi/Broumand.

Sirik: 40m alt., 13.V.1977, leg. Safavi/Pāzuki.

Kermān:

Jiroft: Esfandagheh, 7.V.1973, leg. Broumand/Hāshemi; Esfandagheh, Dowlat-Ābād, 1950m alt., 21.V.1977, leg. Safavi/Pāzuki/Abāii; Mijān, 9.V.1969, leg. Pāzuki/Hāshemi.

Sirjān: Soghān, 8.V.1973, leg. Broumand/Hāshemi, det. Schmid-Egger.

Sistān-Baluchestān:

Dashtiāri: 14.IV.1950, leg. Famuri.

Espakeh: 24.IV.1964, leg. Pāzuki/Hāshemi.

Bampour: V.1950, leg. Sarkissiān.

Nikshahr: Espakeh, 450m alt., 20.V.2001, leg. Ebrāhimi/Osten.

Irānshahr: 1993, leg. Omarā

Khāsh: 26.XI.1949, leg. Salavātiān.

Semnān:

Garmsār, VI.1949.

Fārs:

Bakhtegān lake: 7.VII.70, Safavi/Hāshemi.

***Chlorion splendidum* Fabricius, 1804**

Material examined:

Markazi:

Khomein: Farnagh, 23.VII.2011, leg. Hādi, det. Schmid-Egger.

Subfamily: **Sceliphrinae** Ashmead, 1899

Genus: ***Chalybion*** Dahlbom, 1843

***Chalybion femoratum* (Fabricius, 1781)**

Material examined:

Alborz:

Karaj: Mardābād, 24.VII.1991, leg. Ebrāhimi; Meshkin-Dasht, 22.IX.1991, leg.

Ebrāhimi; Sirā, Kalvān, 2050m alt., 23.IV.1991, leg. Ebrāhimi; Malārd, Khoshnām,
12.X.1991, 6.X.1991, leg. Ebrāhimi.

Tāleghān: Tāleghān dam, 25.9.1991, leg. Ebrāhimi; Perāchān, 2200m alt.
26.VI.1991, leg. Ebrāhimi

Golestān:

Golestān National Park: Cheshmekhān, 1060m alt., 29.VI.2001, leg.
Mofidi/Osten/Ebrāhimi.

Zanjān:

Gilvān: 17.VII.2005, Abbāsi.

Darrām: 2005.VII.16, Abbāsi.

Āzarbāijān-e Sharghi:

Jolfā: Siāhrud, Iri, 1200m alt., 12.VIII.2005, leg. Gilasiān/Ebrāhimi; Siāhrud-

Komār. 1400m alt., 11.VIII.2005, leg. Gilasiān/Ebrāhimi.

***Chalybion walkeri* (Kohl, 1889)**

Material examined:

Esfahān:

Kāshān: V.1946, det. G.E.J. Nixon .

Fārs:

Kāzerun: Sep. 1992, leg. Parchami.

Hormozgān:

Mināb: Rāvang, 80m alt., 24.V.2001, leg., Ebrāhimi/Mofidi.

Semnān:

Shāhrud: Shāhkuh-e Pāiin, 2702m alt., 18.VII.2003, leg. Ālipanāh/Ebrāhimi.

Genus: ***Sceliphron*** Klug, 1801

***Sceliphron arabs* (Lepeletier de Saint Fargeau, 1845)**

Material examined:

Tehrān:

Tehrān: Evin, 16.7.1958, leg. Bābāi; 18.VII.1990, leg. Ebrāhimi, det. Guichard;

4.VII.1994, leg. Ebrāhimi; Velenjak, 6.VI.1993, leg. Ebrāhimi, det. Schmid-Egger.

Varāmin: VI.1947, (Russian label).

Golestān:

Gorgān: Dasht-e Gorgān, 5.VII.1948, leg. Mirzāyāns/Salavātiān, det. Bouček.

Khuzestān:

Ahvāz: 26.VII.1954, leg. Salavātīān.

Rāmhormoz: 18.V.1946, leg. Damāvandi.

Fārs:

Kāzerun: Dasht-e-Arjān, VII.1946, leg. Farahbakhsh.

***Sceliphron destillatorium* (Illiger, 1807)**

Material examined:

Gilān:

Asālem: 5.VII.1965, leg. Dezfuliān; Pisāson, 1150m alt., 7.VIII.1975, leg. Mirzāyāns.

Āzarbāijān-e Sharghi:

Tabriz: Shādbād, 19.IV.1954.

Osku: Kandovān, 2800m alt., 8.VII.2005, leg. Gilāsiān/Ebrāhimi.

Māzandarān:

Chālus: 4.VII.1985.

Bābol: 24.VI.1949, leg. Bābāi.

Behshahr: Miankāleh, VI.2005, leg. Zarghāmnejād.

Sāri: 9.VI.1992, leg. Amiri.

Tonekābon: Nashtarud, 5.VII.1983, leg. Rudsari.

Hormozgān:

Persian Gulf, Fārur Island: 10m alt., 1.V. 2002, leg. Ebrāhimi.

Ardebil:

Moghān: 9.V.1961, Dāmanābi.; 14.VIII.1971, 11.IV.1971, leg. Ārghand.

Hamadān:

Nahāvand: Gāmāsiāb: 1750m alt., 7.VIII.1997, leg. Barāri/Mofidi.

Āvaj, 2080m alt., 11.VIII.1996, leg. Parchami/Barāri.

Kordestān:

Sanandadj: 14.VII.1969, leg. Pāzuki/Hāshemi.

Fārs:

Bamu: 1650m alt., 13-14.VI.1996, leg. Sarafrāzi/Badii.

Firuzābād: 27.V.1951, leg. Mirzāyāns.

Ghom:

Ghom: Vesf, 2000m alt., 5.VIII.1988, leg. Hāshemi.

Ghom: 8 km. S. Fordo, Vesb, 2320m alt., 26-28.VII.1983, leg. Pāzuki/Hāshemi.

Tehrān:

Tehrān: 4.VII.1973, leg. Abāii.

Zanjān:

Tārom: Darrān, 16.VII.2005, leg. Abbāsi.

Golestān:

Golestān National Park: Tang-e Rāh, 230m alt., 1.VII.2001, leg. Ebrāhimi/Mofidi.

Golestān National Park: Ālmeh, 1620m alt., 23-24.VIII.1983, leg. Brumand/Pāzuki.

Golestān National Park: Sulgerd, 1100m alt., 16-18.VII.1989, leg. Pāzuki.

Markazi:

Khomein: Shahābieh, Nur, 24.VI.2011, leg. Hādi; Varche, IX.2011, leg. Hādi.

Āshtiān: Āhu, Darreh-e Bidsukhteh, 2000m alt., 29.VII.1997, leg. Barāri/Mofidi.

***Sceliphron funestum* Kohl, 1918**

Material examined:

Markazi:

Khomein: Shahābieh, 27.VI.2011, leg. Hādi, det. Schmid-Egger.

***Sceliphron madraspatanum pictum* (F. Smith, 1856)**

Material examined:

Hormozgān:

Persian Gulf, Lāvān Island, 10m alt., 6.V.2002, leg. Mofidi/ Gilāsiān/Ebrāhimi.

Mināb: Gurband. 80m alt., 23.V.2001, leg. Mofidi /Osten/Ebrāhimi.

Bandar-e Lengeh: Kahurestān, 20m alt., 3.VI.1997, leg. V. Nazari.

Persian Gulf: Kish Island, 23-25.XI.1976, leg. Abāii; 15.V.1976, leg. Abāii.

Persian Gulf: Hormoz Island, 50m alt., 2.XI.2002, leg. Moghaddam/Serri.

Bushehr:

Borāzjān: Tang-e Fāryāb, 700m alt., 31.V.2001, leg. Mofidi/Ebrāhimi/Osten.

Fārs:

Kāzerun: Parishān lake, 790m alt., 2.X.1996, leg. Moghaddam/Parchami/Barāri.

Shirāz: 9.VII.1949, leg. Mirzāyāns.

Kermān:

Jiroft: Bahrāsemān, Bāgh-e-Nazari, 2600m alt., 30.IX.1993, leg. Hāshemi/Ebrāhimi.

Sistān-Baluchestān:

Chābahār: Guāter, Ramin, 16.V.2001, leg. Ebrāhimi; Kahir, 100m alt., 15.V.2001, leg. Osten/Ebrāhimi.

Ghasrghand: 9-27.IX.1990, leg. Pākdād.

Sarāvān: 3.VIII.1957, leg. B.El.(?).

Khorāsān-e Shomāli:

Bojnourd: 15.VIII.1967, leg. Āyatollāhi, det. G.E.J. Nixon.

Markazi:

Khomein: 10.VIII.2011, leg. Hādi, det. Schmid-Egger.

***Sceliphron rectum* Kohl, 1918**

Material examined:

Markazi:

Khomein: Varche, 22.VIII.2011, leg. Hādi, det. Schmid-Egger.

Khomein: Rezā-ābād, 23.VII.2011, leg. Hādi, det. Schmid-Egger.

Subfamily: **Sphecinae** Latreille, 1802

Genus: ***Chilosphex*** Menke, 1976

Chilosphex argyrius (Brullé, 1833)

Material examined:

Fārs:

Sepidān: Kākān, 7.VII.1949, leg. Mirzāyāns, det. Bouček.

Ilām:

Ilām, 18.IV.1952, leg. Salavātīān, det. Schmid-Egger.

Genus: ***Palmodes*** Kohl, 1890

Palmodes melanarius (Mocsáry, 1883)

Material examined:

Iran (other data on the label is not readable).

Palmodes occitanicus (Lepelletier & Serville, 1825)

Material examined:

Alborz:

Tāleghān: Tāleghān dam, 27.IV.1991, leg. Ebrāhimi.

Āzarbāijān-e Sharghi:

Jolfā: Asiāb-Kharābeh, 2005, det. M. Ohl.

Māzandarān:

Behshahr: Miānkāleh, VI.2005, leg. Zarghāmnejād.

Lārijān: North face of Damāvand peak, Nondal, 2370 m alt., 26.VIII.1992, leg. Ebrāhimi.

Tehrān:

Damāvand: 23.V.1970, leg. Safavi/Hāshemi.

Genus: ***Prionyx*** Vander Linden, 1827

Prionyx crudelis (F. Smith, 1856)

Material examined:

Kermān:

Jiroft, IV.1951, leg. Fasihi, det. Bouček.

Kermānshāh:

Ghasr-e Shirin: VIII.1947, leg. Fasihi.

Prionyx haberhaueri (Radoszkowski, 1871)

(Syn.: *Prionyx vittatus* (Kohl, 1885))

Material examined:

Hamadān:

Asadābad: 1.VIII.1987, leg. Mirzāyāns/Hāshemi.

Prionyx macula (Fabricius, 1804)

Material examined:

Bushehr:

Borazjān: Ābpakhsh, Shabānkāreh, 1946, leg. Farahbakhsh.

Sistān-Baluchestān:

Bampur, V.1950, leg. Sarkissīān, det. G.E.J. Nixon (as *Sphex eatoni* Saund.), det.

Schmid-Egger; 19.IV.1950, 3.V.1950, leg. Sarkissīān.

Ilām:

Dehlorān: 11.V.1973, leg. Soltāni.

Prionyx nigropectinatus (Taschenberg, 1869)

Material examined:

Sistān-Baluchestān:

Zābol: Jalālābād, VII.2008, leg. Arjmandinejād, det. Schmid-Egger.

***Prionyx niveatus* Dufour, 1854**

Material examined:

Māzandarān:

Behshahr: Miānkāleh, VI.2005, leg. Zarghāmnejād, det. Schmid-Egger.

***Prionyx nudatus* (Kohl, 1885)**

Material examined:

Alborz:

Karaj: Malārd, Khoshnām, 6.X.1991, 12.X.1991, leg. Ebrāhimi.

Karaj: Meshkin-Dasht, 30.VIII.1991, 27.VII.1991, leg. Ebrāhimi; Khākshenāsi, XI.1991, leg. Ebrāhimi, det. Guichard.

Ardebil:

Ardebil: Neor lake, 2350m alt., 30.VII.1997, leg. Nazari.

Āzarbāijān-e Sharghi:

Kaleybar: Gheshlāgh, 1280m alt., 9.VIII.2005, leg. Gilāsiān/Ebrāhimi; Darreh-ye Ghale-Bābak, 1500m alt., 5.VII.1997, leg. Barāri/Mofidi.

Marand: 18.VIII.1970, leg. Safavi/Hāshemi.

Sarāb: Sabalān, 30.VII.1970, leg. Naim.

Bushehr:

Persian Gulf: Alafdun (Negin) Island, 17.IV.1999, leg. Mofidi/Kalānaki.

Esfahān:

Kāshān: Niāsar, Saricheh, 1650m alt., 8.VIII.1988, leg. Hāshemi.

Ghazvin:

Alamut: Dezak-Sar, 28.IX.1982, leg. Hāshemi.

Gilān:

Rudbār: 20 km. E. Gilvān, 384m alt., 1.VII.2003, leg., Moghaddam/ Nāsserzādeh.

Golestān:

Golestān National Park: Ālmeh, 1600m alt., 1.IX.1987, leg. Pāzuki.

Kermān:

Shahrebābak: 13.IX.1972, leg. Safavi.

Māzandarān:

Behshahr: Miānkāleh, VI.2005, leg. Zarghāmnejād, det. Schmid-Egger.

Chālus: 27.VI.1965, leg. Dezfūliān.

Tehrān:

Tehrān: Sorkhehesār, 20.VII.1970, leg. Safavi/Hāshemi.

***Prionyx songaricus* (Eversmann, 1849)**

Material examined:

Khorāsān-e Razavi:

Mashhad: Khāje-Morād, 20.VII.1974.

Sarakhs: Mozdurān, 600m alt., 19.VIII.1993, leg. Ebrāhimi/Badii, det. Schmid-Egger;

Tajan, 250m alt., 17.VIII.1993, leg. Ebrāhimi/Badii.

Tehrān:

Karaj, 21.VI.2004, leg. Ebrāhimi.

Karaj: Meshkin-Dasht, 27.VII.1991.; Khākshenāsi, 22.VI.1991, leg. Ebrāhimi, det. Guichard.

Zanjān:

Zanjān: Gilvān, 17.VII.2005, leg. Abbāsi.

***Prionyx stschurowski* (Radoszkowski, 1877)**

Material examined:

Markazi:

Delijān: 2.VI.1970, leg. Mirzāyāna/Abāii.

Semnān:

Garmsār: Eyvāneki, 26.V.1982, leg. Hāshemi, det. Guichard.

Tehrān:

Damāvand: Navā, 14.VII.1976, leg. Lanalee.

***Prionyx subfuscatus* (Dahlbom, 1845)**

Material examined:

Ilām:

Mehrān: V.1948, leg. Sarkissiān.

Kermān:

Jiroft: Mijān, 9.V.1969, leg. Pāzuki/Hāshemi.

Kermānshāh:

Ghasr-e Shirin: III. 1949, leg. Fassihi.

Māzandarān:

Ghāem-Shahr: Shirgāh, 300m alt., VII.2005, leg. Zarghāmnejād, det. Schmid-Egger.

***Prionyx viduatus* (Christ, 1791)**

Material examined:

Māzandarān:

Behshahr: 7.VI.1967, leg. Ābāii, det. G.E.J. Nixon.

Tehrān:

Kahrizak, Ghale-No, 800m alt., 17.X.1991, leg. Ebrāhimi.

Sistān-Baluchestān:

Sarāvān: 3.VIII.1957, det. Bouček.

Genus: *Sphex* Linnaeus, 1758

***Sphex flavipennis* Fabricius, 1793**

Material examined:

Alborz:

Karaj: Fardis, 27.VII.1991, leg. Ebrāhimi, det. K.M. Guichard; Āzādbar, 2350m alt., 28.VIII.1996, leg. Badii/Barāri/Sarafrāzi; Kalhā, 2000m alt., 26.VIII.1996, leg. Barāri/Badii/Sarafrāzi.

Tāleghān: Kalānak, 1850m alt., 13.VII.1996, leg. Badii/Barāri.

Ardebil:

Khalkhāl: 20.VI.1972, leg. Ārghand.

Meshgin-Shahr: Sabalān, 1.VIII.1970, leg. Naim.

Āzarbāijān-e Gharbi:

Khoy: Seyyed-Tājoddin, 1550m alt., 19.VIII.1994, leg. Ebrāhimi/Sarafrāzi.

Āzarbāijān-e Sharghi:

Ahar: 20.VII.1968, leg. Abāii/Mojib, det. Bouček.

Esfahān:

Natanz: Lākaj, 1550m alt., 23.IX.1996, leg. Parchami/Barāri.

Fārs:

Shirāz: Bamu, 1700m alt., 25.IX.1996, leg. Barāri/Parchami/Moghaddam, det. Schmid-Egger; Bamu, 1940m alt., 9.VI.1990, leg. Ebrāhimi/Badii.

Gilān:

Tālesh: , 100m alt., 14.VIII.1991, leg. Hāshemi/Parchami, det. Schmid-Egger.

Golestān:

Golestān National Park: 23.VI.1965, leg. Dezfuliān; Ālmeh, 1650m alt., 18.VII.1996, leg. Ebrāhimi/Nazari; Sulgerd, 16.VII.1964; Sulgerd, 1150m alt., 21.VII.1996, leg. Ebrāhimi/Nazari.

Gonbad: 10.VI.1956, leg. Āgah/Safavi.

Gorgān: 24.VIII.1949, leg. Mirzāyāns, det. Bouček.

Hamadān:

Nahāvand: Giān, 1720m alt., 20.VIII.2001, leg. Ebrāhimi.

Kermānshāh:

Sarepolestohāb: Rijāb, 1050m alt., 16.VIII.1996, leg. Nazari/Barāri/Parchami.

Khorāsān-e Razavi:

Daregaz: Tandureh National Park, Chelmir, 656m alt., 5.VIII.1971, leg. Āyatollāhi/Pāzuki.

Mashhad: Zoshk, 1700m alt., 15.VIII.1993, leg. Ebrāhimi/Badii, det. Schmid-Egger.

Lorestān:

Aznā: Oshtorānkuh, Kamandān, 2050-2300m alt., 24.VIII.1994, leg.
Mirzāyāns/Sarafrāzi.

Borujerd: VIII.1947, leg. Sharif.

Markazi:

Khomein: Khorzān, VII.2011, leg. Hādi, det. Schmid-Egger.

Māzandarān:

Rāmsar: Eshkatechāl, 1500m alt., N 36° 50' 47.5", E 050° 33' 28.5".

Tonekābon: 0m alt., 22.VI.2001, leg. Ghayourfar.

Russian label: Iran, Khorāsān, 1945.

Sistān-Baluchestān:

Khāsh: 25.VI.1948, leg. Esfandiāri.

Tehrān:

Damāvand: 3.VIII.1970, leg. Safavi/Hāshemi.

Rudbār-e Ghasrān: Āhār, 20.VII.1968, leg. Abāii/Mojib, det. Bouček.

Tehrān: Evin, 1.VIII.1969, leg. Abāii.

***Sphex funerarius* Gussakovskij, 1934**

= *Sphex maxillosus* Fabricius, 1793

Material examined:

Alborz:

Tāleghān: Kalānak, 1850m alt., 13.VII.1996, leg. Badii/Barāri.

Karaj: Āzādbar, 2350m alt., 28.VIII.1996, leg. Badii/Barāri/Sarafrāzi.

Ardebil:

Ardebil: Neor lake, 2350m alt., 30.VII.1997, leg. Nazari.

Āzarbāijān-e Sharghi:

Kaleybar: Mardānghom, 395m alt., 10.VIII.2005, leg. Gilāsīān/Ebrāhimi; Gheshlāgh, 1280m alt., 9.VIII.2005, leg. Gilāsīān/Ebrāhimi.

Golestān:

Golestān National Park: 23.VI.1965, leg. Dezfuliān; Tang-e Gol, 700m alt., 27.VII.1996, leg. Ebrāhimi/Nazari; Dasht-e Shad, 1390m alt., 26.VII.1996, leg. Ebrāhimi/Nazari.

Hamadān:

Āvaj: 2300m alt., 10.VIII.1968, leg. Mirzāyāns, det. Bouček (as *S. maxillosus*).
Hamadān: 75 km. N. Hamadān, Charbolāgh mountains, 2080-2600m alt., 6.VII. 1974, leg. Termeh/Mousavi.

Kordestān:

Marivān: 4.VIII.1967, leg. Dezfuliān, det. Bouček (as *S. maxillosus*).

Tehrān:

Damāvand: Malār, 17.IX.1971, leg. Hāshemi/Zairi.

***Sphex melas* Gussakovskij, 1930**

Material examined:

Gorgān:

Gorgān: 14.VIII.1949, leg. Mirzāyāns.

Kermān:

Jiroft: 11.V.1969, leg. Pāzuki/Hāshemi.

Khorāsān-e Razavi:

Mashhad: Khājah-Morād, 19.VII.1974.

Markazi:

Khomein: Dehno, 6.VII.2011, leg. Hādi, det. Schmid-Egger.

Sistān-Baluchestān:

Khāsh: Kousheh, 3.V.1969. leg. Pāzuki/Hāshemi.

***Sphex pruinosus* Germar, 1817**

Material examined:

Āzarbāijān-e Sharghi:

Tabriz: Douzal, 15.VII.1961. leg. Dāmanābi, det. Bouček.

Āzarbāijān-e Gharbi:

Khoy: 9.IV.1949.

Markazi:

Khomein: Farnagh, 10.VII.2011, leg. Farzāneh, det. Schmid-Egger.

3. Family: Crabronidae Latreille, 1802

Subfamily: Astatinae Lepeletier de Saint Fargeau, 1845

Genus: ***Astata*** Latreille, 1796

***Astata affinis* Vander Linden, 1829**

Material examined:

Markazi:

Khomein: Khorzān, 16.VI.2011, leg. Hādi, det. Schmid-Egger.

***Astata boops* (Schrank, 1781)**

Material examined:

Alborz:

Karaj: Mohammad-Shahr, 16.VI.1991, leg. Ebrāhimi.

Malārd; Khoshnām, 8.X.1991, 28.X.1991, leg. Ebrāhimi.

Ardebil:

Ardebil: Neor lake, 2350m alt., 18.VIII.1991, leg. Hāshemi/Parchami.

Tehrān:

Varāmin: 10.VI.1948, leg. Safavi.

Astata graeca de Beaumont, 1965

Material examined:

Markazi:

Khomein: Majdiān, 5.VIII.2011, leg. Hādi, det. Schmid-Egger.

Astata kashmirensis Nurse, 1909

= *Astata stecki* de Beaumont, 1942

Material examined:

Khorāsān-e Razavi:

Mashhad: Ābkouh, 21.VI.1973, leg. Āyatollāhi, det. Pulawski (as *A. stecki*).

Astata minor Kohl, 1885

Material examined:

Alborz:

Malārd: Khoshnām, 3.XI.1991, leg. Ebrāhimi.

Genus: ***Dryudella*** Spinola, 1843

Dryudella tricolor (Vander Linden, 1829)

Material examined:

Tehrān:

Varāmin: 4.VI.1947, (Russian label, damaged specimen), det. Gussakovskij (as *Astata tricolor*).

Subfamily: **Bembicinae** Latreille, 1802

Genus: ***Argogorytes*** Ashmead, 1899

Argogorytes fargeii (Shuckard, 1837)

Material examined:

Ardebil:

Khalkhāl: Asālem-Khalkhāl road, Almās, 2100m alt., 29.VI.1985, leg. Mirzāyāns/Pāzuki,
det. Schmid-Egger.

Genus: *Bembecinus* A. Costa, 1859

Bembecinus asiaticus iranicus Schmid-Egger, 2004

Material examined:

Khorāsān-e Razavi:

Kāshmar: Rivosh, 10.VIII.1973, leg. Āyatollāhi, det. Schmid-Egger.

Bembecinus gracilicornis (Handlirsch, 1892)

Material examined:

Khorāsān-e Razavi:

Ghāen: Noghand, 22.VI.1973, leg. Āyatollāhi, det. Schmid-Egger.

Bembecinus tridens (Fabricius, 1781)

Material examined:

Āzarbāijān-e Sharghi:

Tabriz: Khalatpushān, 2005, leg. Ghāzisoltāni, det. M. Ohl.

Ahar: Kleybar, 2005, leg. Ghāzisoltāni, det. M. Ohl.

Genus: *Bembix* Fabricius, 1775

Bembix bicolor Radoszkowski, 1877

Material examined:

Lorestān:

Dorud: Oshtorānkuh, N. Kamandān, 2040m alt., 24.VII.1981, leg. Pāzuki/Borumand, det.
Schmid-Egger.

Markazi:

Khomein: Rezā-Ābād, 23.VII.2011, leg. Hādi, det. Schmid-Egger.

***Bembix bidentata* Vander Linden, 1829**

Material examined:

Golestān:

Goletān National Park: Ālmeh, 1650m alt., 18. VII.1996, leg. Ebrāhimi/Nazari; Dasht-e

Shad, 1390m alt., 26. VII.1996, leg. Ebrāhimi/Nazari; 23.VII.2001, leg.

Ghayourfar/Gilāsīān/Moghaddam; 25-26.VII. 1996, leg. Ebrāhimi/Nazari.

Āzarbāijān-e Sharghi:

Kaleybar: Vinagh, 800m alt., 8.VIII.1992, Parchami/Badii; Gheshlāgh, 1250m alt.,

9.VIII.2005, leg. Gilāsīān/Ebrāhimi.

Sarāb: 25.7.1970, leg. Naim.

Tabriz: VI.1959, leg. Khājei; Vaniār, 18.IV.1954, det. Schmid-Egger.

Alborz:

Karaj: Baraghān, 7.VI.1975; Kondor, 10.VII.1990, leg. Ebrāhimi, det. K.M. Guichard.

Karaj, 8.VI.1975, det. Schmid-Egger.

Chārmahāl-Bakhtiāri:

Brujen: 5 km. S.W. Shalamzār, Tangchezhghān, 7-10.VII.1983, Mirzayāns/Broumand.

Esfahān:

Dāran: 30.VI.1970, leg. Hāshemi/Safavi.

Khorāsān-e Razavi:

Mashhad: Aghomye, 23.6.1973, leg. Āyatollāhi.

***Bembix eburnea* Radoszkowski, 1877**

Material examined:

Golestān:

Goletān National Park: Cheshmekhān, 1060m alt., 29.VI. 2001, leg.
Mofidi/Osten/Ebrāhimi.

Khorāsān-e Razavi:

Ferdows: 23.IV.1965, leg. Safavi/Āgah.

***Bembix oculata* Panzer, 1801**

Material examined:

Golestān:

Goletān National Park: Ālmeh, 1650m alt., 18.VII.1996, leg. Ebrāhimi/Nazari.

Hormozgān:

Persian Gulf: Abu-Musā Island, 0-15m alt., 19.IV.1980.

Khorāsān-e Razavi:

Mashhad: 14.VII.1974, det. Schmid-Egger.

Māzandarān:

Bābolsar: VII. 2004, det. Schmid-Egger.

Markazi:

Khomein: Kārkhāne-ye Ārd, 17.VII.2011, leg. Hādi, det. Schmid-Egger.

Khomein: Shahābieh, 5.VIII.2011, leg. Hādi, det. Schmid-Egger.

***Bembix rostrata* (Linnaeus, 1758)**

Material examined:

Iran, 15.V.1947, 2000m alt., (Russian label, not completely readable), det. Gussakovski,
1947.

Lorestān:

Khormābād, 1945.

***Bembix transcaspica* Radoszkowski, 1893**

Material examined:

Hormozgān:

Bandar-Abbās: Siāhu, Sikhorān, 830m alt., 25.V.2001, leg. Mofidi/ Ebrāhimi/Osten.

Mināb: Gurband, 80m alt., 23.V.2001, leg. Mofidi/Osten/Ebrāhimi; Rāvang, 80m alt.,
24.V.2001, leg. Mofidi/Osten/Ebrāhimi.

Khorāsān-e Razavi:

Torbat-e Heydariyeh: Nough, 6.VIII.1974, on *Haloxylon*, 27.VIII.1974, on *Tamarix*.

Sistān-Baluchestān:

Chābahār: Guāter, Ramin, 16.V.2001, leg. Osten/Ebrāhimi.

Bampur: Sardegāl, 450m alt., 19.V.2001, leg. Osten/Ebrāhimi; Nokjub, 500m alt.,
19.V.2001, leg. Osten/Ebrāhimi.

Genus: *Gorytes* Latreille, 1805

***Gorytes albidulus* (Lepeletier, 1832)**

Material examined:

Āzarbāijān-e Sharghi:

Marand: 29.V.1974, leg. Dāmanābi, det. Schmid-Egger.

***Gorytes sulcifrons* A. Costa, 1867**

Material examined:

Tehrān:

Tehrān: Shemshak, 12.VIII.1981, leg. Hāshemi, det. K. M. Guichard.

Āzarbāijān-e Sharghi:

Tabriz: N. Sahand mountain, 2440m alt., 3. VIII.1992, leg. Parchami/Badii, det. Schmid-Egger.

Kordestān:

Ghorveh: Dehgalān, 30.V.2001, leg. Soleymāni, det. Schmid-Egger.

Genus: *Harpactus* Shuckard, 1837

***Harpactus laevis* (Latreille, 1792)**

Material examined:

Alborz:

Karaj: Malārd, Khoshnām, 11.XI.1991, leg. Ebrāhimi.

Āzarbāijān-e Sharghi:

Tabriz: Yām, 5.VII.2005, leg. Ghāzisoltāni.

Sistān-Baluchestān:

Chābahār: Vashnām, 15 km. N. E. Chābahār, 50m alt., 6.III.1997, leg.
Mirzāyāns/Badii/Sarafrāzi.

Genus: ***Sphecius*** Dahlbom, 1843

***Sphecius antennatus* Klug, 1845**

Material examined:

Fārs:

Firuzābād: Sargar, 6.V.1957, leg. Mirzāyāns, det., Schmid-Egger.

Shirāz: Sādeghieh (Guyom), 22.VI.1945, det., Schmid-Egger.

Genus: ***Stizus*** Latreille, 1802

***Stizus bizonatus* Spinola, 1839**

Tehrān:

Varāmin: Abardezh, 16.VII.1990, leg. Ebrāhimi, det. K. M. Guichard.

Subfamily: ***Crabroninae*** Latreille, 1802

Genus: ***Crabro*** Fabricius, 1775

***Crabro pugillator* A. Costa, 1867**

Material examined:

Ardebil:

Meshgin-Shahr: Ghotursuei, 2300m alt., 28.VI.1985, leg. Mirzāyāns/Pāzuki, det. Schmid-Egger.

Genus: *Crossocerus* Lepeletier and Brullé, 1835

Crossocerus exiguus (Vander Linden, 1829)

Material examined:

Alborz:

Karaj: College of agriculture campus, in the stem of *Viburnum opulus*, 21.IX.1991, leg. Ebrāhimi; in the stem of *Kerria japonica*, 30.VIII.1991, leg. Ebrāhimi.

Crossocerus pullulus (A. Morawitz, 1866)

Material examined:

Alborz:

Karaj: College of agriculture campus, IX.1991, leg. Ebrāhimi, (det. Guichard, as *C. imitans* Kohl).

Genus: *Ectemnius* Dahlbom, 1845

Ectemnius cephalotes (Olivier, 1792)

Material examined:

Kermānshāh:

Eslāmābād-e Gharb, 3.VII.1979, 1500m alt., leg. Boroumand/Abāii, det. Schmid-egger.

Ectemnius continuus (Fabricius, 1804)

Material examined:

Markazi:

Khomein: Agricultural Research Campus, 4.VI.2011, leg. Hādi, det. Schmid-Egger.

Iraq:

Salāhuddin: 17.X.1967, leg. H. Knopf, det. Nixon.

Genus: *Larra* Fabricius, 1793

***Larra anathema* (Rossi, 1790)**

Material examined:

Alborz:

Karaj: VII.1991, leg. Ebrāhimi.

Tāleghān: Tāleghān dam, 27.VI.1991, leg. Ebrāhimi.

Āzarbāijān-e Gharbi:

Orumieh: Bālānej, 12. XI.1958.

Ardebil:

Ardebil: 24.V.1969, leg. Abāii.

Gilān

Rasht: 22.XI.1949, leg. Taghizādeh.

Khuzestān:

Rāmhormoz: 18.V.1946, leg. Damavandi.

Māzandarān:

Bābolsar: VIII.1949, leg. Farahbakhsh.

Fārs:

Ābādeh: Surmagh, 1750m alt., 26.IX.1996, leg. Parchami/Barāri/Moghaddam.

Genus: *Lestica* Billberg, 1820

***Lestica clypeata* (Schreber, 1759)**

Material examined:

Āzarbāijān-e Sharghi:

Miāneh, VI.2003, leg. Abbāsi Yānbolāgh, det. Schmid-Egger.

Kaleybar: 1200m alt., 27.VII.2006, leg. Ghāzisoltāni, det. Schmid-Egger.

Tabriz: Sardroud, 16.VII.2006, leg. Ghāzisoltāni, det. Schmid-Egger.

Sistān-Baluchestān:

Zabol, Zehak, 557m alt., 28.X.2004, leg. Moghaddam/Hājiesmailiān/Nāsserzādeh.

Ilām:

Ilām: Ghalājeh, 1810m alt., 19.VIII.1996, leg. Barāri/Parchami/Nazari.

Markazi:

Khomein: Shahābieh, 5.VIII.2011, leg. Hādi, det. Schmid-Egger.

Khomein: Varche, 22.VIII.2011, leg. Hādi, det. Schmid-Egger.

Māzandarān:

Shirgāh: 300m alt., VII. 2004, leg. Zarghāmnejād, det. Schmid-Egger.

Chālus: 27.VI.1965, leg. Dezfuliān.

Genus: *Liris* Fabricius, 1804

***Liris atrata* Spinola, 1805**

Material examined:

Tehrān:

Varāmin, Ali-Ābād, Showrun, 18.XI.1991, leg. Ebrāhimi, det. Schmid-Egger.

***Liris braueri* Kohl, 1884**

Material examined:

Sistān-Baluchestān:

Irānshahr: 25.III.1949, leg. Salavātian, det. Schmid-Egger.

Chābahār: Pishin, Suldān, 150m alt., 14.XII.1992, leg. Ebrāhimi/Badii; Sarbāz, Jahli

Tangdar, 1.V.2003, leg. Moghaddam/Serri.

Ghasreghand: 27.IX.1990, leg. Pākdād.

Hormozgān:

Mināb: 55m alt., 13.IV.2004, leg. Moghaddam/Serri.

***Liris haemorrhoidalis* (Fabricius, 1804)**

Material examined:

Bushehr:

Dashtestān: Shabānkāreh, 1946, leg. Farahbakhsh.

Sistān-Baluchestān:

Irānshahr: Bampur, 1993, leg. Omarā, det. Schmid-Egger.

Ghasreghand, 500m alt., 12.XI.1996, leg. Sarafrāzi/Barāri/Parchami.

Tehrān:

Varāmin: Ali-Ābād-e Showrun, 20.XI.1991, leg. Ebrāhimi.

***Liris niger* (Fabricius, 1775)**

Material examined:

Alborz:

Karaj: Anjomābād, 22.X.1991, leg. Ebrāhimi; Malārd, Khoshnām, X.1991, leg.

Ebrāhimi.

Ardebil:

Moghān: 24.IX.1967, leg. Dāmanābi.

Bushehr:

Kangān: Jam, 600m alt., 7.I.1996, leg. Badii/Ardeh/Nazari.

Māzandrān:

Kordkuy: Rādkān, Jahān-Namā, 1600m alt., 24.IX.1992, leg. Ebrāhimi/Badii.

Golestān:

Gorgān: Incheborun, Dāneshmand, 0m alt., 27.IX.1992, leg. Ebrāhimi/Badii.

Tehrān:

Varāmin: Ali-Ābād-e Showrun, 20.XI.1991, leg. Ebrāhimi; Filestān, 19.XI.1991, leg.

Ebrāhimi; Kahrizak, Ghaleno, 20.XI.1991, leg. Ebrāhimi; Mohsen-Ābād, 20.XI.1991,

leg. Ebrāhimi.

***Liris subtessellatus* (F. Smith, 1856)**

Material examined:

Kermān:

Jiroft: 11.IX.1967.

Markazi:

Khomein: 10.VIII.2011, leg. Hādi, det. Schmid-Egger.

Tehrān:

Varāmin: Mohsenābād, 21.XI.1991, leg. Ebrāhimi; Aliābād-e Shorun, 21.XI.1991, leg. Ebrāhimi.

Genus: *Miscophus* Jurine, 1807

Miscophus ater Lepeletier, 1845

Material examined:

Alborz:

Karaj: Malārd, Khoshnām, 29.IX.1991, leg. Ebrāhimi.

Genus: *Oxybelus* Latreille, 1796

Oxybelus lamellatus Olivier, 1811

Material examined:

Sistān-Baluchestān:

Khāsh: 90 km to Zahedan, 27.III.1973, leg. Broumand/Safavi.

Oxybelus latro Olivier, 1812

Material examined:

Khorāsān-e Razavi :

Mashhad: Torogh, 4.6.1973, leg. Āyatollāhi, det. Pulawski.

Neyshābur: Fathābād, 14.VIII.1973, leg. Shahriān, det. Pulawski.

Oxybelus quatuordecimnotatus Jurine, 1807

Material examined:

Khorāsān-e Razavi:

Mashhad; Torogh, 14.V.1973, leg. Āyatollāhi, det. Pulawski.

Genus: *Palarus* Latreille, 1802

Palarus variegatus (Fabricius, 1781)

Material examined:

Āzarbāijān-e Gharbi:

Orumieh: 24. VII.1956, det. Schmid-Egger.

Khorāsān-e Razavi:

Mashhad: Torogh, 18.VI.1973, leg. Āyatollāhi.

Genus: *Tachysphex* Kohl, 1883

Tachysphex brullii (F. Smith, 1856)

Material examined:

Tehrān:

Lavāsān: Galanduak, 10.VI.1991, leg. Ebrāhimi.

Fārs:

Kāzerun: Nowdān, Kuhmareh, 26.VI.1975, leg. Abāii.

Tachysphex incertus (Radoszkowski, 1877)

Material examined:

Ardebil:

Moghān: 15.VIII.1967, leg. Dāmanābi.

Sistān-Baluchestān:

Irānshahr: Dāmen, 13.IV.1969, leg. Hāshemi/Pāzuki.

Golestān:

Golestan National Park: Khājenarenj, 1400m alt., 21.VII.2001, leg.

Ghayuorfar/Gilāsīān/Moghaddam.

***Tachysphex mocsaryi* Kohl, 1884**

Material examined:

Khorāsān-e Razavi:

Torbat-e Jām: Bākhaz, 2.VI.1973, leg. Āyatollāhi.

Ghom:

Ghom: 20.IV.1969, leg. Abāii.

***Tachysphex pompiliformis* (Panzer, 1805)**

Material examined:

Alborz:

Karaj: Malārd, Khoshnām, 8.XI.1991, leg. Ebrāhimi; Kondor, 2.VI.1991, leg. Ebrāhimi.

Khorāsān-e Razavi:

Mashhad: Torogh, 18.VII.1973, leg. Āyatollāhi.

Tehrān:

Damāvand: 24.VII.1970, leg. Safavi/Hāshemi.

Shahriār: 20.X.1991, leg. Ebrāhimi.

Āzarbāijān-e Sharghi:

Miāneh, Bozghush, 2250m alt., 29.VII.1992, leg. Parchami/Badii.

Kaleybar: Gheshlāgh, 1280m alt., 9.VIII.2005, leg. Gilāsiān/Ebrāhimi.

Ardebil:

Khalkhāl: Khalkhāl-Asālem road, Almās, 2100m alt., 29.VI.1965, leg. Mirzāyāns/Pāzuki.

***Tachysphex unicolor* (Panzer, 1809)**

Material examined:

Alborz:

Karaj: Eshtehārd, 21.X.1991, leg. Ebrāhimi; Malārd, Khoshnām, X.1991, leg. Ebrāhimi.

Ardebil:

Moghān: 11.VII.1968, leg. Ārghand.

Sistān-Baluchestān:

Irānshar: Bampur, Agricultural Research Campus, 1993, leg. Omarā.

Sarāvān: 17.III.1947.

Māzandarān:

Shirgāh: 30.VI. 2005, leg. Zarghāmnejād.

Genus: *Tachytes* Panzer, 1806

Tachytes etruscus (Rossi, 1790)

Material examined:

Āzarbāijān-e Gharbi:

Orumieh: 22. VII.1965, leg. Ārghand.

Sistān-Baluchestān:

Irānshahr: Bampur, Agricultural Research Campus, 1993, leg. Omarā.

Genus: *Trypoxylon* Latreille, 1796

Trypoxylon albipes F. Smith, 1856

Material examined:

Markazi:

Khomein: Shahābieh, 24.VIII.2011, leg. Hādi, det. Schmid-Egger.

Trypoxylon attenuatum F. Smith, 1851

Material examined:

Alborz:

Karaj: Malārd, Khoshnām, 12.XI.1991, leg. Ebrāhimi.

Āzarbāijān-e Sharghi:

Tabriz: Yām, 5.VII.2006, leg. Ghāzisoltāni, det. Schmid-Egger.

Ilām:

Ilām: Sarābleh, 6.VIII.2004, leg. Ghayourfar/Nematiān.

Trypoxylon clavicerum Lepeletier de Saint Fargeau and Audinet-Serville, 1828

Material examined:

Ilām:

Ivān: Chekān, 2004.

Tehrān:

Tehrān: Darband, 27.VII.1990, leg. Ebrāhimi.

Trypoxylon scutatum Chevrier, 1867

Material examined:

Māzandarān:

Shirgāh: 300m alt., VII. 2004, leg. Zarghāmnejād, det. Schmid-Egger.

Alborz :

Karaj: Malārd, Khoshnām, 8.XI.1991, leg. Ebrāhimi, det. K. M. Guichard; College of Agriculture Campus, Botanical garden (inside the stem of *Kerria japonica*), 1.IX.1991, leg. Ebrāhimi.

Ardebil:

Moghān: 23.VII.1971, leg. Ārghand.

Subfamily: **Pemphredoninae** Dahlbom, 1835

Genus: ***Diodontus*** Curtis, 1834

Diodontus minutus (Fabricius, 1793)

Material examined:

Alborz:

Karaj: Khoshnām, 23.XI.1991. leg. Ebrāhimi.

Tehrān:

Varāmin: Mohammad Ābād-e Arabhā, 19.XI.1991, leg. Ebrāhimi.

Diodontus tristis (Vander Linden, 1829)

Material examined:

Tehrān:

Varāmin: Aliābād-e Shoroun, 18.XI.1991, leg. Ebrāhimi.

Alborz:

Karaj: Khoshnām, 23.XI.1991. leg. Ebrāhimi; 11.XI.1991, leg. Ebrāhimi, det Guichard.

Genus: ***Mimesa*** Shuckard, 1937

Mimesa grandii Maidl, 1933

Material examined:

Alborz:

Karaj: Malārd, Khoshnām, 3.XI.1991, leg. Ebrāhimi; Eshtehārd, Halghedar, 17.V.1968, leg. Āyatollāhi.

Genus: ***Passaloecus*** Shuckard, 1837

Passaloecus gracilis (Curtis, 1834)

Material examined:

Tehrān:

Tehrān: Shemirān, Darband, in a rotten trunk of *Salix* sp., 25.VII.1991, leg. Shāhmansouri.

Genus: ***Pemphredon*** Latreille, 1796

Pemphredon lethifer (Shuckard, 1837)

Material examined:

Alborz:

Karaj: Colleg of Agriculture, Botanical garden, in the stems of *Berberis vulgaris*, 31.V.1991, leg. Ebrāhimi.

Esfahān:

Esfahān: 1990, leg. Shāhmansouri.

Shahrezā: V.1990, leg. Shāhmansouri.

Tehrān:

Tehrān: Evin, 23.IV.1991, in the stems of *Jasminum*, leg. Ebrāhimi.

Genus: ***Psenulus*** Kohl, 1897

Psenulus meridionalis de Beaumont, 1937

Material examined:

Alborz:

Karaj: Colleg of Agriculture, Botanical garden, in the stems of *Berberis vulgaris*,
31.V.1991, leg. Ebrāhimi.

Tehrān:

Tehrān: Shemirān, Darband, in a rotten trunk of *Salix* sp., 25.VII.1991, leg.
Shāhmansouri.

Rudbār-e Ghasrān: Garmābdar, in the stems of *Rosa canina*, 29.V.1991, leg. Ebrāhimi.

Psenulus pallipes (Panzer, 1797)

Material examined:

Kermān:

Kermān: 16.IX.2003, leg. Ramezāni, det. Schmid-Egger.

Subfamily: **Philanthinae** Latreille, 1802

Genus: ***Cerceris*** Latreille, 1802

Cerceris flavilabris (Fabricius, 1793)

Material examined:

Alborz:

Tāleghān, Kalānak, 1800m alt., 25.VI.1991, leg. Ebrāhimi.

Khorāsān-e Razavi:

Mashhad: Torogh, 4.VI.1973, leg. Āyatollāhi, det. W.J. Pulawski.

Tehrān:

Robāt Karim, 20.X.1991. leg. Ebrāhimi, det., Guichard.

***Cerceris media* Klug, 1835**

Material examined:

Kermānshāh:

Sar-e Pol-e Zohāb: Rijāb, 12.VI.1968, leg. Dezfuliān, det. Schmid-Egger.

***Cerceris quadricincta* (Panzer, 1799)**

Material examined:

Alborz:

Shahriār: Malārd, Khoshnām, 13.X.1991, leg. Ebrāhimi, det. Guichard.

Āzarbāijān-e Sharghi:

Tabriz: Yām, 2005, leg. Ghāzisoltāni, det. M. Ohl.

***Cerceris sabulosa* (Panzer, 1799)**

Material examined:

Khorāsān:

Khorāsān: 1945, Russian label, det. Gussakovskij (as *Cerceris emarginata*).

Alborz:

Shahriār: Malārd, Khoshnām, 4.XII.1991, 27.IX.1991, 4.X.1991, leg. Ebrāhimi, det.
K.M.Guichard.

***Cerceris solitaria* Dahlbom, 1845**

Material examined:

Hormozgān:

Bandar-e Lengeh: 25.IV.1950, leg. Fassihi, det. Bouček.

***Cerceris spinipectus accola* Kohl, 1915**

Material examined:

Khorāsān:

Khorāsān: Russian label, det. Gussakovskij (as *Cerceris accola*).

***Cerceris tricolorata* Spinola, 1839**

Material examined:

Sistān-Baluchestān:

Irānshahr: Bampur, Sardegāl, 450m alt., 19.V.2001, leg. Osten/Ebrāhimi, det. M. Ohl.

***Cerceris tuberculata* (de Villers, 1789)**

Material examined:

Alborz:

Tāleghān: Garāb, Asalak, 2100m alt., 29.VIII.1996, leg. Badii/Barāri/Sarafrāzi.

Genus: ***Philanthus*** Fabricius, 1790

***Philanthus coarctatus* Spinola, 1839**

Material examined:

Sistān-Baluchestān:

Irānshahr: Bampur, 1993, leg. Omarā, det. Schmid-Egger.

***Philanthus dufourii* Lucas, 1849**

Material examined:

Markazi:

Khomein: Shahābieh, 14.VI.2011, leg. Hādi, det. Schmid-Egger.

***Philanthus pallidus* Klug, 1845**

Material examined:

Hormozgān:

Bandar-e Lengeh, 23.III.1965, leg. Sabzevāri, det. Bouček.

***Philanthus triangulum* (Fabricius, 1775)**

Material examined:

Alborz:

Karaj: Meshkin-Dasht, 14.VII.1991, leg. Ebrāhimi.

Gilān:

Āstārā: 30.VII.1967, leg. Pāzuki/Mirzāyāns.

Golestān:

Gorgān, 25.VIII.1948, leg. Salavātiān, det. G.E.J. Nixon.

Golestān National Park: Cheshmekhān, 1060m alt., 29.VI.2001, leg. Mofidi/Osten/Ebrāhimi; Tang-e Rāh, 230m alt., 1.VII.2001, Ebrāhimi/Mofidi/Osten; Koylar, 1250m alt., 23.VII.1996, leg. Ebrāhimi/Nazari; Dasht-e Shad, 1390m alt., 26.VII.1996, leg. Ebrāhimi/Nazari; Tang-e Gol, 600m alt., 15.VII.1985, leg. Pāzuki.

Hormozgān:

Persian Gulf: Abu-Musā Island, 0-15m alt., 6.II.2001, leg. Ebrāhimi/Mofidi, det. Schmid-Egger.

Māzandarān:

Behshahr: VI.2005, leg. Zarghāmnejād, det. Schmid-Egger.

Nekā: Goharbārān, VI.2005, leg. Zarghāmnejād, det. Schmid-Egger.

Nur: Panjāb, 1940m alt., 8.IX.1983, leg. Hāshemi.

Esfahān:

Natanz: Abyāneh, 2300m alt., 29.VI.1981, 11.VIII.1988, leg. Hāshemi.

Khānsār: Golestān-Kuh, 2700m alt., 29.VII.1981, leg. Pāzuki/Hāshemi.

Ardebil:

Meshgin-Shahr: Sabalān, Ghotursuie, 2270m alt., 26.VII.2007, leg. Sarafrāzi.

Āzarbāijān-e Gharbi:

Khoy: Habash-e Solfā, 1825m alt., 20.VIII.1994, leg. Sarafrāzi/Ebrāhimi.

Orumieh: Ghāsemlu, 1350m alt., 18.VIII.1994, leg. Sarafrāzi/Ebrāhimi, det. Schmid-Egger.

Tehrān:

Damāvand: 24.VII.1970, leg. Safavi/Hāshemi.

Fārs:

Shirāz: Mahārlu, 1400m alt., 4.VI.2001, leg. Ebrāhimi/Osten/Mofidi.

Āzarbāijān-e Sharghi:

Zonuz: 22.VIII.1967, leg. Ārghand.

Markazi:

Khomein: Shahābieh, 5.IX.2011, leg. Hādi, det. Schmid-Egger.

***Philanthus variegatus* Spinola, 1838**

Material examined:

Ardebil:

Meshgin-Shahr: Sabalān, 31.VII.1968, leg. Abāii/Mojib, det. Bouček.

Kermān :

Sirjān: 27.IV.1948, leg. Esfandiāri, det. Schmid-Egger.

Māzandarān:

Juybār: Siāhrud, 2005, det. M. Ohl.

Bibliography (with emphasis on Iranian fauna)

- Brothers, D. J., (1999): Phylogeny and evolution of wasps, ants and bees, pp. 233-249, in F. Ronquist, Phylogeny of the Hymenoptera (Insecta): The state of the art. *Zoologica Scripta* 28.
- de Beaumont, J., (1957): Sphecidae du nord de l'Iran (Hym.). *Mitteilungen der Schweizerischen Entomologischen Gesellschaft* 30, 127-139.
- de Beaumont, J., (1970): Sphecidae de l'Iran (Hym.). *Stuttgarter Beiträge zur Naturkunde* 220, 1-18.
- Ebrahimi, E., (1993): The sphecid wasps of subfamily Sphecinae in Iran. *Journal of Entomological Society of Iran* 12&13, 87-104. [In Persian with English summary].
- Ebrahimi, E., (1993): Introduction of *Pemphredon lethifera* and its biological study in Iran, Proceedings of 11th plant protection congress of Iran, p.250.
- Ebrahimi, E., (2000): The first report on three orthopteran predator wasps in Iran, Proceedings of 14th plant protection congress of Iran, p.361.
- Ebrahimi, E., (2000): The first record of three predator wasps in Iran, Proceedings of 14th plant protection congress of Iran, p.362.
- Ebrahimi, E., (2005): An identification guide to the Sphecidae of Iran (Insecta, Hymenoptera). *Journal of Entomological Society of Iran* 24(2), 109-135.
- Ebrahimi E., (2008): A contribution to the sphecid wasps of Iran (Hymenoptera: Sphecidae), including first record of six species. *Journal of Entomological Society of Iran* 28(1): 93-97.
- Ebrahimi, E., Kharazi Pakdel, A. & Esmaili, M., (1995): The first record of four aphid predator wasps in Iran, Proceedings of 12th plant protection congress of Iran, p.290.
- Esmaili, M. & Rastegar, R., (1974): Identified species of Aculeate Hymenoptera of Iran. *Journal of Entomological Society of Iran* 2(1), 41-52.
- Fallahzadeh, M., Ostovan, H., and Shojaei, M., (2005): First record of four sphecid wasps from Iran. *Applied Entomology and Phytopatology* 73:43.

- Fallahzadeh, M., Ostovan H., and Saghaei N., (2009): A contribution to the fauna of Sphecidae and Crabronidae (Hymenoptera) in Fars Province, Iran. *Plant Protection Journal* 1:234-248.
- Gauld, I., and Bolton, B., (1988): *The Hymenoptera*. xi_332 pp. Oxford: Oxford University Press
- Ghahari, H., Hayat, R., Tabari, M., Ostovan, H., and Imani, S., (2008): A contribution to the predator and parasitoid fauna of rice pests in Iran,, and a discussion on the biodiversity and IPM in rice fields. *Linzer Biologische Beiträge* 40:735-764 [contains data on seven species of Sphecidae s.s.]
- Ghazi-Soltani, G., Ebrahimi, E. & Iranipur, Sh., (2006): A new record of a crabronid wasp (Hym.: Sphecidae) for Iran from East Azarbaijan province. *VIIIth European Congress of Entomology, Izmir, Turkey, Supplementary Abstract Book 2*, RVPP-08.
- Ghazi-Soltani G., Ebrahimi, E. & Iranipur, Sh., (2009): Sphecidae (Sphecinae and Crabronidae: Hymenoptera) wasp fauna of East Azarbaijan Province, Iran. *Agricultural Science*, Scientific Journal of Faculty of Agriculture, University of Tabriz, Vol. 19, No. 1: 281-292.
- Ghazi-Soltani, G., Khaghaninia, S., and Shahim, Kh., (2010): An introduction to sphecid wasps of Horand Forests – Iran (Hymenoptera). *Munis Entomology & Zoology* 5:636-641.
- Ghazi-Soltani G., Iranipur, Sh. & Ebrahimi, E., (2010): The family Sphecidae (Hymenoptera), subfamilies Pemphredoninae, Astatinae, Larrinae, Nyssoninae and Philanthinae from east Azerbaijan province, Iran. *Iranian Journal of Plant Protection Science* 41(2):179-186.
- Ghazi-Soltani G., Ebrahimi, E., Iranipur, Sh. & Farshbaf Pour Abad R., (2010): Sphecid wasps from East Azarbaijan Province, Iran (Hymenoptera: Sphecidae), *Munis Entomology & Zoology* 5(2): 796-803.
- Gussakovskij, V., (1933): Sphecidae et Psammocharidae (Hymenoptera) a cl. N. Zarudnyi in Persia orientali collectae. *Travaux de l'Institut Zoologique de l'Académie des Sciences de l'USSR* 1: 269-304.

- Hadi, F., Ebrahimi, E., Modarres, S. & Goldasteh, S., (2012): First report of *Sceliphron funestum* Kohl, 1918 (Hym: Sphecidae) from Iran, Proceedings of 20th plant protection congress of Iran, p.123.
- Melo, G. A. R., (1999): Phylogenetic relationships and classification of the major lineages of Apoidea (Hymenoptera), with emphasis on the crabronid wasps. *Scientific Papers, Natural History Museum, the University of Kansas* no. 14: 1-55.
- Michener, C. D., (2007): The bees of the world. The John Hopkins University Press, Second edition: 953 pp.
- Morice, F. D., (1921): Annotated lists of aculeate Hymenoptera and chrysidids recently collected in Mesopotamia and north-west Persia. *Journal of Bombay Natural History Society* 27, 816-826.
- Pulawski, W. J., (1971): Les *Tachysphex* Kohl (Hym., Sphecidae) de la région paléarcticoccidentale et centrale. *Zaklad Zoologii Systematycznej I Doswladczalnej Polskiej Akademii Nauk*, 464 pp.
- Pulawski, W. J., (2013): Catalog of Sphecidae. Available from: http://research.calacademy.org/ent/catalog_sphecidae (accessed 20 January 2013).
- Radoszkowski, O. (1871): Hyménoptères de l'Asie. Description et énumération de quelques espèces reçues de Samarkand, Astrabad, Himalaya et Ning-Po, en Chine. *Horae Societatis Entomologicae Rossicae* 8:187-200.
- Sakenin, H., Samin, N. and Bagriacik N., (2010): A contribution to the aculeate Hymenoptera (Insecta) from Iran. *Efflatounia* 10: 15-20.
- Sakenin, H., Najmeh, S., Bagriacik, N. & Rastegar, J., (2011): A study of the Sphecidae (Hymenoptera) from various regions of Iran. *Calodema* 161: 1-4.

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<i>Argogorytes</i>	29	<i>destillatorium, Sceliphron</i>	17
<i>argyrius, Chilosphex</i>	20	<i>Diodontus</i>	43
<i>armata, Hoplammophila</i>	9	<i>dives, Ammophila</i>	6
<i>asiaticus iranicus, Bembicinus</i> ..	30	<i>Dryudella</i>	29
<i>Astata</i>	28	<i>dufourii, Philanthus</i>	47
<i>Astatinae</i>	28	<i>eburnea, Bembix</i>	31
<i>ater, Miscophus</i>	39	<i>Ectemnius</i>	35
<i>atrata, Liris</i>	37	<i>erythrocephala, Podalonia</i>	10
<i>attenuatum, Trypoxylon</i>	42	<i>etruscus, Tachytes</i>	42
<i>Bembicinae</i>	29	<i>exiguus, Crossocerus</i>	35
<i>Bembicinus</i>	30	<i>fargeii, Argogorytes</i>	29
<i>Bembix</i>	30	<i>femoratum, Chalybion</i>	15
<i>bicolor, Bembix</i>	30	<i>flavilabris, Cerceris</i>	45
<i>bidentata, Bembix</i>	31	<i>flavipennis, Sphecius</i>	24
<i>bizonatus, Stizus</i>	34	<i>funerarius, Sphecius</i>	26
<i>boops, Astata</i>	28	<i>funestum, Sceliphron</i>	18
<i>braueri, Liris</i>	37	<i>Gorytes</i>	33
<i>brullii, Tachysphex</i>	40	<i>gracilicornis, Bembicinus</i>	30
<i>caerulea, Trirogma</i>	5	<i>gracilis, Passaolecus</i>	44
<i>cephalotes, Ectemnius</i>	35	<i>graeca, Astata</i>	29
<i>Cerceris</i>	45		

<i>grandii</i> , <i>Mimesa</i>	44	<i>Oxybelus</i>	39
<i>haemorrhoidalis</i> , <i>Liris</i>	37	<i>Palarus</i>	40
<i>Harpactus</i>	33	<i>pallidus</i> , <i>Philanthus</i>	47
<i>heydenii</i> , <i>Ammophila</i>	6	<i>pallipes</i> , <i>Psenulus</i>	45
<i>hirsuta mervensis</i> , <i>Podalonia</i>	11	<i>Palmodes</i>	20
<i>hirsuta</i> , <i>Podalonia</i>	10	<i>Parapsammophila</i>	9
<i>Hoplammophila</i>	9	<i>Passaolecus</i>	44
<i>incertus</i> , <i>Tachysphex</i>	40	<i>Pemphredon</i>	44
<i>kashmirensis</i> , <i>Astata</i>	29	<i>Pemphredoninae</i>	43
<i>laevis</i> , <i>Harpactus</i>	33	<i>Philanthinae</i>	45
<i>lamellatus</i> , <i>Oxybelus</i>	39	<i>Philanthus</i>	47
<i>Larra</i>	36	<i>Podalonia</i>	10
<i>Latro</i> , <i>Oxybelus</i>	39	<i>pompiliformis</i> , <i>Tachysphex</i>	41
<i>Lestica</i>	36	<i>Prionyx</i>	21
<i>lethifer</i> , <i>Pemphredon</i>	44	<i>pruinosis</i> , <i>Sphex</i>	28
<i>Liris</i>	37	<i>Psenulus</i>	45
<i>macula</i> , <i>Prionyx</i>	21	<i>pugillator</i> , <i>Crabro</i>	34
<i>madraspatanum pictum</i> , <i>Sceliphron</i>	18	<i>pullulus</i> , <i>Crossocerus</i>	35
<i>Magnificum</i> , <i>Chlorion</i>	14	<i>quadricincta</i> , <i>Cerceris</i>	46
<i>media</i> , <i>Cerceris</i>	46	<i>quatuordecimnotatus</i> , <i>Oxybelus</i>	39
<i>melanarius</i> , <i>Palmodes</i>	20	<i>rectum</i> , <i>Sceliphron</i>	19
<i>melas</i> , <i>Sphex</i>	27	<i>regale</i> , <i>Chlorion</i>	14
<i>meridionalis</i> , <i>Psenulus</i>	45	<i>rostrata</i> , <i>Bembix</i>	32
<i>Mimesa</i>	44	<i>sabulosa</i> , <i>Cerceris</i>	46
<i>minax</i> , <i>Podalonia</i>	13	<i>sabulosa</i> . <i>Ammophila</i>	7
<i>minor</i> , <i>Astata</i>	29	<i>Sceliphrinae</i>	15
<i>minutus</i> , <i>Diodontus</i>	43	<i>Sceliphron</i>	16
<i>Miscophus</i>	39	<i>scutatum</i> , <i>Trypoxylon</i>	43
<i>mocsaryi</i> , <i>Tachysphex</i>	41	<i>solitaria</i> , <i>Cerceris</i>	46
<i>morawitzi</i> , <i>Podalonia</i>	13	<i>songaricus</i> , <i>Prionyx</i>	23
<i>niger</i> , <i>Liris</i>	38	<i>Sphecidae</i>	5
<i>nigropectinatus</i> , <i>Prionyx</i>	21	<i>Spheciformis</i>	5
<i>niveatus</i> , <i>Prionyx</i>	21	<i>Sphecinae</i>	20
<i>nudatus</i> , <i>Prionyx</i>	22	<i>Sphecius</i>	34
<i>occitanicus</i> , <i>Palmodes</i>	20	<i>Sphex</i>	24
<i>oculata</i> , <i>Bembix</i>	32	<i>spinipectus accola</i> , <i>Ceceris</i>	47
		<i>Splendidum</i> , <i>Chlorion</i>	15
		<i>Stizus</i>	34

<i>stschurowski, Prionyx</i>	23	<i>tristis, Diodontus</i>	44
<i>subfuscatus, Prionyx</i>	23	<i>Trypoxylon</i>	42
<i>subtessellatus, Liris</i>	38	<i>tuberculata, Cerceris</i>	47
<i>sulcifrons, Gorytes</i>	33	<i>turanica, Parapsammophila</i>	9
<i>Tachysphex</i>	40	<i>tydei, Podalonia</i>	13
<i>Tachytes</i>	42	<i>unicolor, Tachysphex</i>	41
<i>transcaspica, Bembix</i>	32	<i>variegatus, Palarus</i>	40
<i>triangulum, Philanthus</i>	48	<i>variegatus, Philanthus</i>	49
<i>tricolor, Dryudella</i>	29	<i>viduatus, Prionyx</i>	24
<i>tricolorata, Cerceris</i>	47	<i>vittatus, Prionyx</i>	24
<i>tridens, Bembicinus</i>	30	<i>walkeri, Chalybion</i>	16
<i>Trirogma</i>	5		

Old and new names of Localities

<u>Old name</u>	<u>New name</u>
Aliābād, Shāhi	Ghāemshahr
Ardekān (Fars province)	Sepidān
Astarābād	Gorgān
Ashraf	Behshahr
Bahrāmābād	Rafsanjān
Bandar-e Farahnāz	Kiāshahr
Bandar-e Māhshahr	Emāmshahr
Bandar-e Pahlavi	Bandar-e Anzali
Bandar-e Shāh	Bandar-e Torkeman
Bandar-e Shāpur	Bandar-e Emām Khomeyni
Bārforush	Bābol
Biābān	Sirik
Dasht-e Mishān	Dasht-e Abbās
Dozdāb	Zāhedān
Estahbānāt	Estahbān
Geh	Nikshahr
Gharaziāeddin	Chāldorān
Ghomsheh	Shahrezā
Golshan	Tabas
Kahak	Nofel le Shāto
Kamareh	Khomeyn
Khāneh	Pirānshahr
Khār	Garmsār
Mashhadsar	Bābolsar
Mohamareh	Khorramshahr
Motelghu	Salmānshahr
NāSerrieh	Ahvāz
Pahlavidezh	Āghghaleh
Persepolis	Takht-e Jamshid
Rezāieh	Orumieh
Saādatābād	Saādatshahr
Sabzevārān	Jiroft
Sakhtsar	Rāmsar
Sangsar	Mehdishahr
Shāhābād-e Gharb	Eslāmābād
Shāhindezh	Sāinghaleh
Shāhpasand	Āzādshahr
Shāhpur	Salmās
Shahsavār	Tonekābon

In order to facilitate the transliteration of the Iranian localities in Latin characters and also to provide the correct pronunciation of these names for foreigners, the following signs are proposed.

<u>Sign</u>	<u>Loc.</u>	<u>Persian pronounc.</u>
a	Sanandaj, Karaj	آ
ā	Tehrān, Kāshān	آ
ay	Taybād, Bandar-e Dayyer	آی
āy	Malāyer, Golpāyegān	آی
ch	Sirch, Chamanbid	چ
e	Kermān, Bāneh	اِ
ey	Meymeh, Eyvānekey	ای
g	Gorgān, Angurān	گی
gh	Ghom, Ghazvin	ق - غ
h	Hamadān, Dehbid	ه - ح
i	Isin, Sāri	ای
j	Javarg, Bijār	ج
k	Kākān, Arāk	ک
kh	Khorramābād, Khāsh	خ
o	Osku, Borāzjān	أ
ow	Dowlatābād	أو
s	Sistān, Rāmsar	ص - ث - س
sh	Shirāz, Mashhad	ش
t	Tabas, Alamut	ت - ط
u	Bushehr, Orumieh	او
v	Āvaj, Varāmin	و
y	Yazd, Yāsuj	ی
z	Zāhedān, Alborz	ض - ز - ذ - ظ
zh	Dashte Arzhan	ژ

بنام خدا

فهرست بال‌غشاییان موجود در موزه‌ی حشرات هایک میرزایانس

موسسه‌ی تحقیقات گیاه‌پزشکی کشور

Hymenoptera: Ampulicidae, Sphecidae, Crabronidae

از: ابراهیم ابراهیمی

خانواده‌ی *Sphecidae sensu lato* گروهی نسبتاً بزرگ از زنبورهای گروه *Aculeata* را شامل می‌شود که دارای گسترش جهانی هستند و ۹۷۰۴ گونه‌ی توصیف شده را دربرمی‌گیرند (Pulawski, 2013). زنبورهای این خانواده انفرادی و شکارگر راسته‌های مختلف حشرات و عنکبوت‌ها هستند. گونه‌های مختلف در نقاط گوناگون مانند داخل خاک، حفره‌های دیوارهای گلی، درز دیوارهای آجری و ساقه‌ی توخالی گیاهان لانه می‌کنند و بعضی گونه‌ها لانه‌های کوزه‌مانند می‌سازند. زنبور مادر شکار خود را با نیش زدن فلج کرده و به لانه حمل می‌کند و روی آن تخم می‌گذارد. لارو زنبور پس از خروج از تخم از این غذای آماده شده توسط مادر تغذیه می‌کند. بسیاری از گونه‌ها با شکار از حشرات گیاه‌خوار در حفظ تعادل طبیعی و مهار گونه‌های آفت مؤثر هستند و گونه‌های زیادی از طریق گرده‌افشانی گیاهان مفید واقع می‌شوند.

رده‌بندی زنبورهای این گروه در سال‌های اخیر موضوع اختلاف‌نظرهایی میان متخصصان رده‌بندی زنبورها بوده است. Latreille (1802) بالاخانواده‌های *Apoidea* و *Sphecoidea* را ایجاد کرد و گروهی از زنبورهای *Aculeata* را که بخش جانبی پیش‌قفس سینه در آنان دارای یک لبه‌ی نیم‌دایره است در این دو تاکسون جای داد. Brues (1976) خانواده‌ی *Sphecidae* را به‌عنوان تنها بالاخانواده‌ی *Sphecoidea* ذکر کرده و آن را در نه زیرخانواده و ۲۴ قبیله جای داده است. Richards (1981) نه زیرخانواده برای *Sphecidae* ذکر کرده است و بهترین روش طبقه‌بندی بالاخانواده‌ی *Sphecoidea* را قرار دادن یک

خانواده و نه زیرخانواده در آن می‌داند. زنبورهای Sphecidae و زنبورهای گرده‌افشان در بیشتر رده‌بندی‌های امروزی در بالاخانواده‌ی Apoidea قرار می‌گیرند. (Michener, Gauld & Bolton (1988), (2007)، (Melo (1999)، (Borthers (1999 و (Pulawski (2013 بالاخانواده‌ی Apoidea را به پنج خانواده‌ی Heterogynaidae، Ampulicidae، Sphecidae، Crabronidae و Apoidae تقسیم کردند. این رده‌بندی امروزه مورد قبول بسیاری از متخصصین رده‌بندی می‌باشد و در این نوشتار مورد استفاده قرار گرفته است. (Michener (2007 بالاخانواده‌ی Apoidea را در دو سری جای داده است، سری Apiformis برای زنبورهای گرده‌افشان (bees) و سری Spheciformis برای زنبورهای خانواده‌ی Sphecidae sensu lato. در فهرست حاضر این خانواده در معنای وسیع آن (Sphecidae sensu lato) به صورت چهار خانواده‌ی Heterogynaidae، Ampulicidae، Sphecidae sensu stricto و Crabronidae در بالاخانواده‌ی Apoidea در نظر گرفته شده است. از خانواده‌ی Heterogynaidae نمونه‌ای در این بررسی یافت نشد.

تاکنون حدود ۲۷۰ گونه از زنبورهای این گروه توسط محققان داخلی و خارجی از ایران گزارش شده است که این منابع عمدتاً در بخش Bibliography این نوشتار ذکر شده‌اند. فهرست حاضر ۱۰۸ گونه، متعلق به ۴۰ جنس، ۱۰ زیرخانواده و سه خانواده را که از سالیان دور تاکنون توسط افراد مختلف جمع‌آوری شده‌اند دربرمی‌گیرد.

شناسایی بخشی از نمونه‌ها توسط دکتر Christian Schmid-Egger از برلین آلمان، مرحوم دکتر Nixon و مرحوم دکتر K. M. Guichard هر دو از بریتانیا و مرحوم V. V. Gussakovskij از روسیه انجام گرفته است که زحمات ایشان شایسته‌ی تقدیر است. نام تشخیص‌دهنده در این موارد ذکر شده است و سایر تشخیص‌ها توسط نگارنده انجام گرفته است. صفحه‌آرایی این مجموعه توسط خانم ماه‌بانو مژده‌ی انجام شده است که از دقت و حوصله‌ی ایشان قدردانی می‌شود.

چاپ این نشریه در سومین جلسه‌ی مورخ ۹۲/۸/۱۱ شورای انتشارات مؤسسه تحقیقات گیاهپزشکی کشور مورد تأیید قرار گرفت.

اعضای شورای انتشارات:

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شناسنامه نشریه:

عنوان نشریه: حشرات ایران: فهرست بال‌غشاییان موجود در موزه‌ی حشرات هایک میرزایانس

مؤسسه‌ی تحقیقات گیاهپزشکی کشور، Suborder: Apocrita, Superfamily:

Apoidea (Spheciformis series), Families: Ampulicidae, Sphecidae, Crabronidae Crabronidae

نام کامل نویسنده: ابراهیم ابراهیمی

نام ناشر: مؤسسه تحقیقات گیاهپزشکی کشور

تاریخ انتشار: ۱۳۹۳

تایپ رایانه‌ای: ابراهیم ابراهیمی - مؤسسه تحقیقات گیاهپزشکی کشور

طرح روی جلد: *Chlorion regale* F. Smith (Iran: Jiroft, Mijan), از ابراهیم ابراهیمی

این نشریه تحت شماره ۴۴۴۰۰ در تاریخ ۱۳۹۲/۱۱/۲۳ در مرکز اطلاعات و مدارک علمی کشاورزی به ثبت رسیده است.

نشانی: مؤسسه تحقیقات گیاهپزشکی کشور - صندوق پستی ۱۴۵۴ - ۱۹۳۹۵

تلفن: ۲۲۴۰۳۳۲۶ و ۱۶-۲۲۴۰۳۰۱۲ (۰۲۱) فاکس: ۲۲۴۰۳۶۹۱ - (۰۲۱)

مؤسسه تحقیقات گیاهپزشکی کشور

وزارت جهاد کشاورزی

بخش تحقیقات رده‌بندی حشرات

سازمان تحقیقات، آموزش و ترویج

نشریه شماره ۲۰

کشاورزی

حشرات ایران:

فهرست بال‌غشاییان موجود در موزه‌ی حشرات هایک میرزایانس

مؤسسه تحقیقات گیاهپزشکی کشور

Suborder: Apocrita

Superfamily: Apoidea

(Spheciformis)

Families: Ampulicidae, Sphecidae, Crabronidae

از:

ابراهیم ابراهیمی

۱۳۹۳