



List of species of blister beetles (Coleoptera: Meloidae) in Kerman province, Iran

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ABSTRACT. The family Meloidae Gyllenhaal, 1810 (Coleoptera), commonly known as blister beetles, exist in warm, dry, and vast habitats. This family was studied in Kerman province of Iran during 2018–2019. The specimens were collected using sweeping net and via hand-catch. They were identified by the morphological characters, genitalia, and acceptable identification keys. To improve the knowledge of the Meloidae species of southeastern Iran, faunistic investigations on blister beetles of this region were carried out. Totally, 30 species belonging to 10 genera from two subfamilies (Meloinae and Nemognathinae) were identified. Among the identified specimens, 22 species were new for fauna of Kerman province.

Key words: Meloidae, Southeastern Iran, Meloinae, Nemognathinae, Fauna

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Introduction

The family Meloidae has more than 3000 species in approximately 120 genera (Dettner et al., 1997; Arnett et al., 2002; Bologna & Pinto, 2002; Nikbakhtzadeh & Tirgari, 2002; Bologna & Di Giulio, 2011) and has four subfamilies (Bologna & Pinto, 2001; Bologna & Di Giulio, 2011) including: Meloinae, Nemognathinae, Tetraonycinae, and Eleticinae, among these subfamilies, Meloinae and Nemognathinae exist in Iran (Serri et al., 2006). The species of family Meloidae are widespread throughout the world except for New Zealand, Antarctic and Polynesian islands (Dettner et al., 1997; Arnett et al., 2002; Bologna & Di Giulio, 2011). They are distributed in arid or semiarid and mountainous regions, temperate steppes, and subtropical savannas (Bologna & Pinto, 2002; Bologna & Di Giulio, 2011). They have soft bodies which are generally elongate. Pronotum is usually narrower than the base of elytra. Antennae has 11 antennomeres, reduced to 7-10 in tribes Mylabrini and Cerocomini. Elytra have very different colourful patterns. Male genitalia with elongate aedeagus, either with 1-2 distal dorsal hooks and one ventral endophallic hook. Parameres only fused at base. Female genitalia short, lacking long membranous tube-like ovipositor (Arnett et al., 2002; Nikbakhtzadeh & Tirgari, 2002).

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The Meloidae is one of the interesting families in Coleoptera, because of their interesting biology (hypermetamorphic), having a valuable chemical compound (Cantharidin), parasitic larvae, and their complex behavior mating (Selander, 1984; Bologna & Pinto, 2002). Fauna of the family Meloidae has been studied in many regions (Kaszab, 1955, 1958, 1970, 1983; Bologna & Pinto, 2002; Bologna, 2009; Bologna & Turco, 2007; Bologna et al., 2018a, 2018b). Moreover, taxonomy of Meloidae was studied in north, center and south of America (Pinto & Bologna, 1999; Selander & Bouseman, 1960; Barrows, 1980; Peck et al., 2002; Bologna & Pinto, 2002; Quintino & Monne, 2009; Campos-Soldini, 2011). The fauna of Meloidae were studied in some regions of Iran (Kaszab, 1957, 1959, 1965, 1968; Mirzayans, 1970; Aksentjev, 1984; Nikbakhtzadeh & Tirgari, 2002; Serri et al., 2006; Faraji et al., 2012; Fekrat & Modaress Awal, 2012; Moslemi et al., 2015). However, The Meloidae fauna of Iran is poorly known, especially in Kerman province, which is an arid and mountainous region. This province has an appropriate climate for the family Meloidae. The aim of this study was to identification of Meloidae in Kerman province, Iran and their geographical distribution was considered.

Material and methods

The specimens of Blister beetles (Meloidae) were collected in spring and summer in 2018-2019 from the different areas of Kerman province. Samples of Meloidae were collected either by netting them directly from flowers and leaves of their host-plants or via hand-catch. The collected specimens were preserved in Ethanol 70%. Then they were transferred to the lab of the university and placed on filter paper to dry. The dried specimens were pinned and labeled. The identification keys were used for identifying of collected species of Meloidae such as Kaszab (1957, 1959, 1965, 1968), Mirzayans (1970), Aksentjev (1984), Pinto & Bologna (1999), Bologna & Pinto (2002), Nikbakhtzadeh & Tirgari (2002), Serri et al. (2006), Bologna (2009), Bologna & Turco (2007), Faraji et al. (2012), Fekrat & Modaress Awal (2012), Moslemi et al. (2015) and Bologna et al. (2018a). The collected species were identified by using morphological characters, genitalia and acceptable identification keys. Morphological characters such as mesosternum, antennae, pronotum, and male reproductive organ were the main identification characters that were used. Gupta's method (1971) was used to study of male reproductive organ to identification of species. Professor Marco A. Bologna (University of Rome, Italy) identified most of the studied species in this research. The studied specimens are deposited in the Insect Museum of College of Agriculture and Natural resources, University of Tehran.

Results

In this research, 30 species of 10 genera in two subfamilies of Meloidae were reported.

Subfamily NEMOGNATHINAE Laporte, 1840

Tribe Nemognathini Laporte, 1840

Genus *Ctenopus* Fischer Von Waldheim, 1823

Ctenopus cf. *persicus* Semenov, 1893

Material examined: Iran, Kerman province, Bam (29.0985° N, 58.3375° E, 1060m a.s.l), 25.V.2018, 1♀, 1♂; Joopar (30.093339° N, 57.022851° E, 1893m a.s.l), 14.VI.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Sistan & Baluchestan (Kaszab, 1968), Kerman (current study).

General distribution: Iran (Löbl & Smetana, 2008).

Subfamily MELOINAE Gyllenhal, 1810**Tribe Lyttini Solier, 1851****Genus *Alosimus* Mulsant, 1857*****Alosimus armeniacus* Faldermann, 1837**

Material examined: Iran, Kerman province, Sirjan (29.4218° N, 55.6690° E, 1766m a.s.l), 15.IX.2018, 1♀, 3♂♂; Anar (30.8707° N, 55.2757° E, 1152m a.s.l), 26.IX.2018, 1♀, 2♂♂; Bam, Dehbakri (29.050765° N, 57.909971° E, 1050m a.s.l), 29.V.2018, 1♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Fars (Kaszab, 1968), Tehran (Serri et al., 2006), Kerman (current study).

General distribution: Iran, Iraq, Syria, Turkey, Jordan, Azerbaijan, Armenia, Romania and Bulgaria (Löbl & Smetana, 2008).

***Alosimus chalybaeus* (Tauscher, 1812)**

Material examined: Iran, Kerman province, Kerman (30.5757° N, 58.0072° E, 1760m a.s.l), 3.VI.2019, 1♀, 3♂♂; Anbarabad (28.4730° N, 57.8424° E, 601m a.s.l), 12.VI.2019, 1♀, 1♂; Rabor (28.459480° N, 56.361964° E, 2343m a.s.l), 8.VII.2018, 1♀, 1♂; Bardsir, Bidkhoon (29.612892° N, 56.508275° E, 2700m a.s.l), 22.IX.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Tehran (Serri et al., 2006), Kerman (current study).

General distribution: Iran, Iraq, Syria, Turkey, Azerbaijan, Armenia, Bulgaria, Greece, Macedonia, Kazakhstan, Romania and Russia (South European Territory, Central European Territory) (Löbl & Smetana, 2008).

***Alosimus syriacus* (Linnaeus, 1758)**

Material examined: Iran, Kerman province, Kerman (30.5757° N, 58.0072° E, 1760m a.s.l), 10.VIII.2018, 1♀, 2♂♂; Kerman, Dehbala (30.329097° N, 57.251643° E, 1755m a.s.l), 15.VII.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Tehran and Kermanshah (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Iraq, Syria, Turkey, Jordan, Armenia, Romania and Bulgaria (Löbl & Smetana, 2008).

Genus *Lydus* Dejean, 1821***Lydus praeustus* Redtenbacher, 1850**

Material examined: Iran, Kerman province, Rabor (29.2919° N, 56.9127° E, 2343m a.s.l), 1.IX.2018, 1♀, 1♂; Manujan (27.4042° N, 57.5058° E, 337m a.s.l), 22.IX.2018, 2♀♀, 2♂♂; Joopar (30.063017° N, 57.105887° E, 1893m a.s.l), 14.VI.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Fars and Sistan & Baluchestan (Kaszab, 1968), Hormozgan, Isfahan, Kermanshah, Khorasan, Khuzestan, Lorestan and Markazi (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Iraq and Syria (Löbl & Smetana, 2008).

***Lydus tarsalis* Abeille de Perrin, 1880**

Material examined: Iran, Kerman province, Zarand (30.7160° N, 56.4720° E, 1650m a.s.l), 11.VII.2018, 1♀, 2♂♂; Mahan (30.111797° N, 57.181527° E, 1969m a.s.l), 19.V.2018, 1♀, 2♂♂;

Kerman, Dehbala (30.329097° N, 57.251643° E, 1755m a.s.l), 26.IX.2018 , 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Khuzestan (Kaszab, 1959), Kermanshah (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Israel, Jordan, Syria, Turkey, Lebanon and Cyprus (Löbl & Smetana, 2008).

Lydus tenuitarsis Abeille de Perrin, 1880

Material examined: Iran, Kerman province, Rafsanjan (30.5058° N, 55.7578° E, 1527m a.s.l), 29.V.2018, 1♀, 1♂; Ravar (31.4679° N, 57.1013° E, 1181m a.s.l), 15.VIII.2018, 1♀, 2♂♂; Chatrood (30.604486° N, 56.913643° E, 1705m a.s.l), 4.VII.2018. 1♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: East Azarbaijan (Kaszab, 1968), Kermanshah and Kordestan (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Israel, Jordan, Lebanon, Egypt, Sinai, Syria and Turkey (Löbl & Smetana, 2008).

Genus *Muzimes* Fabricius, 1787

Muzimes luristanicus (Maran, 1940)

Material examined: Iran, Kerman province, Zarand (30.7160° N, 56.4720° E, 1650m a.s.l), 8.VII.2018, 1♀, 2♂♂; Bam (29.099029° N, 58.337788° E, 1050m a.s.l), 25.V.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Khuzestan and Lorestan (Kaszab, 1959), Tehran (Serri et al., 2006), Kerman (current study).

General distribution: Iran (Löbl & Smetana, 2008).

Genus *Oenas* Latreille, 1802

Oenas crassicornis (Illiger, 1800)

Material examined: Iran, Kerman province, Rabor (29.2919° N, 56.9127° E, 2343m a.s.l), 12.VIII.2019, 1♀, 1♂; Joopar (30.136058° N, 57.040232° E, 1893m a.s.l), 10.VII.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Kermanshah and Khuzestan (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Iraq, Syria and Turkey (Löbl & Smetana, 2008).

Genus *Teratolytta* Semenov, 1894

Teratolytta tricolor (Hagg-Rutenberg, 1880)

Material examined: Iran, Kerman province, Jiroft, Dalfard (28.9739° N, 57.6326° E, 2000m a.s.l), 2.VIII.2018, 1♀, 2♂♂; Joopar (29.5524° N, 57.1038° E, 1893m a.s.l), 28.VI.2018, 1♀, 2♂♂; Kerman, Sekonj (29.5959° N 57.2555° E, 1760m a.s.l), 01.IX.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Guilan, Mazandaran, Golestan, Khorasan, Kermanshah and Kerman (Bologna & Di Giulio, 2006; current study).

General distribution: Iran, Uzbekistan and Turkmenistan (Löbl & Smetana, 2008).

Tribe Meloini Gyllenhaal, 1810**Genus *Meloe* Linnaeus, 1758*****Meloe proscarabaeus* Linnaeus, 1758**

Material examined: Iran, Kerman province, Bardsir (29.7866° N, 56.6514° E, 2047m a.s.l), 18.VI.2019, 1♀, 3♂♂; Kerman, Joopar (30.136058° N, 57.040232° E, 1893m a.s.l), 27.VII.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Guilan (Kaszab, 1968), Chaharmahal & Bakhtiari, East Azarbaijan, Hamadan, Zanjan, Fars, Golestan and Kermanshah (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Afghanistan, Tajikistan and Kirghizstan (Löbl & Smetana, 2008).

Tribe Mylabrini Laporte, 1840**Genus *Croscherichia* Pardo Alcaide, 1950*****Croscherichia goryi* (Marseul, 1870)**

Material examined: Iran, Kerman province, Baft (28.8565° N, 56.5616° E, 2280m a.s.l), 14.VI.2018, 2♀♀, 3♂♂; Jiroft (29.680023° N, 57.502056° E, 720m a.s.l), 15.IX.2018, 2♀♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Hormozgan and Sistan & Baluchestan (Kaszab, 1968), Fars and Isfahan (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Arab Emirates, Iraq, Israel, Jordan, Oman, Pakistan, Syria and Saudi Arabia (Löbl & Smetana, 2008).

Genus *Hycleus* Latreille, 1817***Hycleus bipunctatus* (Olivier, 1811)**

Material examined: Iran, Kerman province, Kerman, Joupar (30.0568° N, 57.1182° E, 1893m a.s.l), 25.VI.2018, 1♀, 3♂♂; Rudbare jonubi (28.0293° N, 57.9930° E, 750m a.s.l), 17.VIII.2018, 2♀♀, 2♂♂; Bardsir, Lale zaar (29.513418° N, 56.822210° E, 2775m a.s.l), 11.IX.2018, 1♀, 1♂; Kerman, Rayen (29.607444° N, 57.444339° E, 2201m a.s.l), 23.VI.2018, 1♀, 1♂; Chatrood (30.607812° N, 56.904202° E, 1705m a.s.l), 4.VII.2018, 1♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Khuzestan (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Iraq and Saudi Arabia (Bologna & Turco, 2007).

***Hycleus cingulatus* (Faldermann, 1837)**

Material examined: Iran, Kerman province, Baft (28.8565° N, 56.5616° E, 2280m a.s.l), 26.VIII.2018, 1♀, 1♂; Kerman, Mahan (30.0630° N, 57.2875° E, 1969m a.s.l), 18.IX.2018, 2♀♀, 2♂♂; Bardsir (29.612444° N, 56.508372° E, 2047m a.s.l), 25.VI.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Khuzestan and Kuhgiluyeh & Boyerahmad (Kaszab, 1968), Kerman (current study).

General distribution: Iran, Turkestan and Saudi Arabia (Löbl & Smetana, 2008).

***Hycleus colligatus* (Redtenbacher, 1850)**

Material examined: Iran, Kerman province, Kerman, Ekhtiarabad (30.3261° N, 56.9183° E, 1740m a.s.l), 25.VIII.2018, 3♀♀, 3♂♂; Bardsir (29.7866° N, 56.6514° E, 2047m a.s.l), 11.IX.2018,

2♀♀, 3♂♂; Bardsir, Negar (29.857282° N, 56.796688° E, 2091m a.s.l), 2.IX.2018, 1♀, 1♂; Bardsir, Lale zaar (29.513418° N, 56.822210° E, 2775m a.s.l), 10.VII.2018, 1♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Fars, Qazvin, Hormozgan, Kordestan, Zanjan, Sistan & Baluchestan and Kerman (Mirzayans, 1970; current study).

General distribution: Iran (Löbl & Smetana, 2008).

Hycleus fuscus (Olivier, 1811)

Material examined: Iran, Kerman province, Baft (28.8565° N, 56.5616° E, 2280m a.s.l), 4.VIII.2018, 3♀♀, 3♂♂; Rabor (29.2919° N, 56.9127° E, 2343m a.s.l), 23.VIII.2018, 2♀♀, 3♂♂; Kerman, Gishigan (29.377855° N, 57.394359° E, 2201m a.s.l), 17.VII.2018, 2♀♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Ardabil (Kaszab, 1968), Sistan & Baluchestan, Boushehr, East Azarbaijan, Isfahan, Fars, Golestan, Hormozgan, Ilam, Kermanshah, Khorasan, Khuzestan, Kordestan and Tehran (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Azerbaijan, Armenia, Russia (Central European Territory, South European Territory), Iraq, Israel, Jordan, Kazakhstan, Syria, Turkmenistan and Turkey (Löbl & Smetana, 2008).

Hycleus scabiosae (Olivier, 1811)

Material examined: Iran, Kerman province, Zarand (30.7160° N, 56.4720° E, 1650m a.s.l), 3.IX.2018, 3♀♀, 3♂♂; Rigan (28.6468° N, 59.0164° E, 637m a.s.l), 24.IX.2018, 1♀, 3♂♂; Bardsir, Lale zaar (29.503634° N, 56.816287° E, 2775m a.s.l), 18.IX.2018, 1♀, 1♂; Kerman, Mahan (30.060427° N, 57.283314° E, 1969m a.s.l), 15.VII.2018, 2♀♀, 2♂♂; Kerman, Rayen (29.680023° N, 57.502056° E, 2201m a.s.l), 11.VIII.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Ardabil (Kaszab, 1968), East Azarbaijan, Fars, Golestan, Kermanshah, Tehran and Khuzestan (Mirzayans, 1970), Kerman (current study).

General distribution: Iran and Afghanistan (Löbl & Smetana, 2008).

Hycleus schauffelei (Kaszab, 1957)

Material examined: Iran, Kerman province, Jiroft, Dalfard (28.9739° N, 57.6326° E, 2000m a.s.l), 19.V.2018, 1♀, 1♂; Rafsanjan (30.5058° N, 55.7578° E, 1527m a.s.l), 12.VI.2018, 1♀, 2♂♂; Kerman, Rayen (29.225947° N, 57.357010° E, 2201m a.s.l), 3.IX.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Sistan & Baluchestan and Hormozgan (Kaszab, 1957), Fars, Khorasan, Khuzestan and Tehran (Mirzayans, 1970), Kerman (current study).

General distribution: Iran (Löbl & Smetana, 2008).

Hycleus schah (Reiche, 1866)

Material examined: Iran, Kerman province, Ravar (31.4679° N, 57.1013° E, 1181m a.s.l), 15.VII.2018, 2♀♀, 3♂♂; Kerman, Zangiabad (30.4098° N, 56.9155° E, 1750m a.s.l), 23.IX.2018, 3♀♀, 3♂♂; Rabor (29.292910° N, 56.913514° E, 2343m a.s.l), 1.VII.2018, 2♀♀, 2♂♂; Kerman, Joopar (30.061849° N, 57.108050° E, 1893m a.s.l), 5.VI.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Fars and Sistan & Baluchestan (Kaszab, 1957), Hormozgan, Khorasan, Khuzestan, Tehran and Kerman (Mirzayans, 1970; current study).

General distribution: Iran and Afghanistan (Löbl & Smetana, 2008).

Genus *Mylabris* Fabricius, 1775

***Mylabris apicenigra* Soumakov, 1915**

Material examined: Iran, Kerman province, Shahre Babak (30.1172° N, 55.1210° E, 1845m a.s.l), 27.VIII.2018, 1♀, 2♂♂; Qale ganj (27.5277° N, 57.8651° E, 450m a.s.l), 1.IX.2018, 2♀♀, 2♂♂; Bardsir (29.612444° N, 56.508372° E, 2047m a.s.l), 25.VI.2018, 1♀, 1♂; Bardsir, Negar (29.857282° N, 56.800507° E, 2091m a.s.l), 2.IX.2018, 1♀, 1♂; Bardsir, Lale zaar (29.905863° N, 56.652417° E, 2775m a.s.l), 18.IX.2018, 1♀, 1♂; Baft, Ghale asgar (29.528462° N, 56.668414° E, 2280m a.s.l), 12.VI.2018, 2♀♀, 2♂♂; Bardsir (29.3644° N, 56.3030° E, 2047m a.s.l), 23.VIII.2018, 1♀, 1♂; Kerman, Mahan (30.082413° N, 57.296027° E, 1969m a.s.l), 15.VII.2018, 2♀♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Isfahan, Fars and Tehran (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Syria and Turkey (Löbl & Smetana, 2008).

***Mylabris barezensis* Serri, Pan & Bologna, 2012**

Material examined: Iran, Kerman province, Bam (29.0985° N, 58.3375° E, 1060m a.s.l), 25.VI.2018, 3♀♀, 3♂♂; Bardsir, Lale zaar (29.521336° N, 56.815174° E, 2775m a.s.l), 18.IX.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Kerman (Serri et al., 2012; current study).

General distribution: Iran (Pan & Bologna, 2014).

***Mylabris calida* Pallas, 1782**

Material examined: Iran, Kerman province, Baft (28.8565° N, 56.5616° E, 2280m a.s.l), 4.IX.2018, 2♀♀, 2♂♂; Kerman (30.5757° N, 58.0072° E, 1760m a.s.l), 28.IX.2018, 1♀, 3♂♂; Bardsir, Lale zaar (29.521336° N, 56.815174° E, 2775m a.s.l), 18.IX.2018, 1♀, 1♂; Kerman, Gishigan (29.378416° N, 57.401869° E, 2201m a.s.l), 17.VII.2018, 2♀♀, 2♂♂; Jiroft, Jabal barez (28.905308° N, 57.880740° E, 2024m a.s.l), 25.VI.2018, 1♀, 1♂; Ravar (31.302930° N, 56.808528° E, 1181m a.s.l), 10.VIII.2018, 1♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: East Azarbaijan, Isfahan, Fars, Gilan, Golestan, Hormozgan, Kermanshah, Khorasan, Lorestan, Mazandaran, Tehran and Kerman (Mirzayans, 1970; current study).

General distribution: Iran, Syria, Pakistan, Saudi, Turkey, Ukraine, Afghanistan, Iraq, Israel, Jordan, Kazakhstan, Georgia, Greece, Macedonia, Russia (Southern European, Central European), Azerbaijan and Armenia (Löbl & Smetana, 2008).

***Mylabris cincta* Olivier, 1811**

Material examined: Iran, Kerman province, Kerman (30.5757° N, 58.0072° E, 1760m a.s.l), 10.VIII.2018, 3♀♀, 3♂♂; Bardsir (29.7866° N, 56.6514° E, 2047m a.s.l), 26.IX.2018, 2♀♀, 3♂♂; Bardsir, Lale zaar (29.520890° N, 56.815045° E, 2775m a.s.l), 18.IX.2018, 1♀, 1♂; Jiroft, Dalfard (29.007162° N, 57.596° E, 2000m a.s.l), 2.VIII.2018, 1♀, 2♂♂; Kerman, Chatrood (30.607812° N, 56.904202° E, 1705m a.s.l), 4.VII.2018, 1♀, 2♂♂; Kerman, Mahan (30.083520° N, 57.150171° E,

1969m a.s.l), 15.VII.2018, 2♀♀, 2♂♂; Bardsir, Golzar (29.719831° N, 57.025399° E, 2328m a.s.l), 23.IX.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: East Azarbaijan, Isfahan, Fars, Gilan, Golestan, Hormozgan, Kermanshah, Khorasan, Lorestan, Mazandaran, Tehran and Kerman (Mirzayans, 1970; current study).

General distribution: Iran, Algeria, Egypt, Libya, Morocco, Tunisia, Azerbaijan, Armenia, Georgia, Greece, Macedonia, Russia (Southern European, Central European), Turkey, Ukraine, Afghanistan, Iraq, Israel, Jordan, Kazakhstan, Syria, Pakistan, Saudi Arabia, Egypt (Sinai) and India (Uttarakhand, Himachal Pradesh) (Löbl & Smetana, 2008).

Mylabris fabricii Sumakov, 1924

Material examined: Iran, Kerman province, Kerman (30.5757° N, 58.0072° E, 1760m a.s.l), 8.VI.2019, 2♀♀, 2♂♂; Kuhbanan (31.4126° N, 56.2801° E, 2200m a.s.l), 29.VI.2019, 2♀♀, 1♂; Bardsir, Bidkhoon (29.612892° N, 56.508275° E, 2700m a.s.l), 22.IX.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Isfahan, Mazandaran and Tehran (Kaszab, 1968), Kerman (current study).

General distribution: Iran, Azerbaijan, Armenia, Albania, Italy (incl. Sardinia, Sicily, San Marino), Bulgaria, Georgia, Greece, Macedonia, Russia (Southern European, Central European), Turkey, Ukraine, Serbia and Montenegro, Iraq, Israel, Jordan, Kazakhstan, Syria, Tajikistan, Turkmenistan and Uzbekistan (Löbl & Smetana, 2008).

Mylabris groschkei Kaszab, 1957

Material examined: Iran, Kerman province, Kerman, Mahan (30.0630° N, 57.2875° E, 1969m a.s.l), 14.VI.2018, 1♀, 2♂♂; Sirjan (29.4218° N, 55.6690° E, 1766m a.s.l), 28.VII.2018, 3♀♀, 3♂♂; Jiroft (28.666421° N, 57.114485° E, 720m a.s.l), 15.IX.2018, 2♀♀, 2♂♂; Kerman, Sirch (30.176184° N, 57.412823° E, 1750m a.s.l), 24.IX.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Sistan & Baluchestan, Hormozgan (Kaszab, 1957), Fars, Tehran, Khuzestan, Kermanshah, Khorasan, Isfahan and Kerman (Mirzayans, 1970; current study).

General distribution: Iran and Afghanistan (Löbl & Smetana, 2008).

Mylabris klugi Redtenbacher, 1850

Material examined: Iran, Kerman province, Bardsir (29.7866° N, 56.6514° E, 2047m a.s.l), 23.VI.2018, 2♀♀, 2♂♂; Shahre Babak (30.1172° N, 55.1210° E, 1845m a.s.l), 01.VII.2018, 1♀, 2♂♂; Ravar (31.302930° N, 56.808528° E, 1181m a.s.l), 10.VIII.2018, 1♀, 1♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Sistan & Baluchestan and Tehran (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Kazakhstan, Tajikistan, Turkmenistan (Löbl & Smetana, 2008).

Mylabris magnoguttata iranica Kaszab, 1957

Material examined: Iran, Kerman province, Rabor (29.2919° N, 56.9127° E, 2343m a.s.l), 18.V.2019, 1♀, 2♂♂; Bardsir, Lale zaar (29.519170° N, 56.816890° E, 2775m a.s.l), 18.IX.2018, 1♀, 1♂; Kerman, Mahan (30.111797° N, 57.181527° E, 1969m a.s.l), 19.V.2018, 1♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Sistan & Baluchestan (Kaszab, 1957), Isfahan, Fars, Golestan and Tehran (Mirzayans, 1970), Kerman (current study).

General distribution: Iran (Löbl & Smetana, 2008).

Mylabris quadripunctata Linnaeus, 1767

Material examined: Iran, Kerman province, Rabor (29.2919° N, 56.9127° E, 2343m a.s.l), 5.IX.2018, 2♀♀, 3♂♂; Kerman, Koohpaye (30.375544° N, 57.145242° E, 1760m a.s.l), 22.IX.2018, 1♀, 2♂♂; Kerman, Sirch (30.176184° N, 57.412823° E, 1750m a.s.l), 24.IX.2018, 1♀, 1♂; Kerman, Dehbala (30.329097° N, 57.251643° E, 1755m a.s.l), 15.VII.2018, 1♀, 1♂; Kerman, Rayen (29.592069° N, 57.444849° E, 2201m a.s.l), 3.IX.2018, 1♀, 1♂; Bardsir (29.612733° N, 56.507449° E, 2047m a.s.l), 25.VI.2018, 1♀, 1♂; Bam, Dehbakri (29.049412° N, 57.923103° E, 1050m a.s.l), 29.V.2018, 1♀, 2♂♂; Kerman (30.412223° N, 56.905082° E, 1760m a.s.l), 2.VIII.2018, 1♀, 1♂; Ghale asgar (29.527957° N, 56.668478° E, 2280m a.s.l), 12.VI.2018, 2♀♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Sistan & Balouchestan, East Azarbaijan, Isfahan, Kermanshah, Mazandaran and Tehran (Mirzayans, 1970), Kerman (current study).

General distribution: Iran, Turkmenistan, Tadjhikistan, Afghanistan (Pan & Bologna, 2014).

Mylabris schrenki Gebler, 1841

Material examined: Iran, Kerman province, Kerman (30.5757° N, 58.0072° E, 1760m a.s.l), 11.VIII.2018, 1♀, 2♂♂; Fahraj (28.9445° N, 58.8834° E, 670m a.s.l), 4.IX.2018, 2♀♀, 3♂♂; Kerman (30.273471° N, 57.086169° E, 1760m a.s.l), 2.VIII.2018, 1♀, 1♂; Bardsir, Negar (29.900946° N, 56.682674° E, 2091m a.s.l), 2.IX.2018, 1♀, 1♂; Rabor (29.282865° N, 56.932910° E, 2343m a.s.l), 1.VII.2018, 2♀♀, 2♂♂; Bardsir, Bidkhoon (29.612444° N, 56.508372° E, 2700m a.s.l), 22.IX.2018, 1♀, 1♂; Kerman, Baghin (30.187182° N, 56.8132° E, 1760m a.s.l), 26.IX.2018, 1♀, 1♂; Kerman (30.412223° N, 56.905082° E, 1760m a.s.l), 2.VIII.2018, 1♀, 1♂; Kerman, Koohpaye (30.333292° N, 57.093075° E, 1760m a.s.l), 22.IX.2018, 1♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: Sistan & Balouchestan, Isfahan, Fars, Golestan, Hormozgan, Tehran and Kerman (Mirzayans, 1970; current study).

General distribution: Iran, Afghanistan, Kazakhstan, Tajikistan, Turkmenistan, Uzbekistan (Löbl & Smetana, 2008).

Mylabris variabilis Pallas, 1781

Material examined: Iran, Kerman province, Kuhbanan (31.4126° N, 56.2801° E, 2200m a.s.l), 21.V.2019, 3♀♀, 3♂♂; Jiroft (28.9385° N, 57.4627° E, 720m a.s.l), 3.VI.2019, 2♀♀, 3♂♂; Bam (29.0985° N, 58.3375° E, 1060m a.s.l), 27.VI.2019, 1♀, 1♂; Bardsir (29.900946° N, , 56.682674° E, 2047m a.s.l), 25.VI.2018, 1♀, 1♂; Bardsir (29.939680° N, 56.572680° E, 2047m a.s.l), 26.VII.2018, 1♀, 1♂; Jiroft, Dalfard (28.978551° N, 57.630513° E, 2000m a.s.l), 2.VIII.2018, 1♀, 2♂♂; Kerman, Sirch (30.153910° N, 57.405337° E, 1750m a.s.l), 24.IX.2018, 1♀, 1♂; Baft (29.242482° N, , 56.595084° E, 2280m a.s.l), 12.VI.2018, 2♀♀, 2♂♂; Kerman, Mahan (30.083816° N, 57.160900° E, 1969m a.s.l), 19.V.2018, 1♀, 2♂♂; Jiroft (28.666421° N, 57.114485° E, 720m a.s.l), 15.IX.2018, 2♀♀, 2♂♂; Leg.: S. Nezhad-Ghaderi.

Distribution in Iran: East Azarbaijan, Kermanshah, Siatan & Baluchestan, Golestan, Khorasan, Mazandaran, Tehran, Alborz, Isfahan and Lorestan (Mirzayans, 1970), Hamadan (Nikbakhtzadeh & Tirgari, 2002), Kerman (current study).

General distribution: Iran, Turkmenistan, Siberia, Kazakhstan, Afghanistan, Southern Europe and Russia (South European) (Pan & Bologna, 2014).

Discussion

The fauna of Meloidae were studied in some regions of Iran (Kaszab, 1957, 1959, 1965, 1968; Mirzayans, 1970; Aksentjev, 1984; Nikbakhtzadeh & Tirgari, 2002; Serri et al., 2006; Faraji et al., 2012; Fekrat & Modaress Awal, 2012; Moslemi et al., 2015). The list of Iranian Meloidae shows that Iran has a highly diverse fauna for this region. It is reported that 230 species and subspecies from two subfamilies, Meloinae (201 species within 22 genera) and Nemognathinae (29 species within 10 genera) exist in Iran (Ghahari & Campos-Soldini, 2019). The existence of many other species of Meloidae is highly probable in Iran, especially in Kerman province. The geographical characters and climate of this province cause proper habitats for the species of Meloidae.

This study is the first taxonomic study of the Meloidae family in Kerman province. The present study reported 30 species belonging to 10 genera from two subfamilies (Meloinae and Nemognathinae). Twenty nine species belong to the Meloinae subfamily and one species belongs to the Nemognathinae subfamily. Most of the collected species belong to the tribe Mylabrini. This tribe has 750 species, and is the largest tribe of Meloinae subfamily (Pan & Bologna, 2014). In this paper, 11 species of *Mylabris* genus and 7 species of *Hycleus* genus were identified. *Mylabris* is the largest genus of Meloidae (Bologna & Pinto, 2002). One *Ctenopus* species (*Ctenopus persicus* Semenov, 1893) has been found in this study. Fekrat and Modaress Awal (2012) found one species of *Ctenopus* (*Ctenopus sinuatipennis* Faimaire, 1892) in their study. Reitter (1896) and Reichardt (1934) reported four species of this genus from the Central Asia that are considered synonyms of *Ctenopus sinuatipennis* Faimaire, 1892. The genus *Ctenopus* is poorly known and it needs more study.

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Conflict of Interests

The authors declare that there is no conflict of interest regarding the publication of this paper.

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لیست گونه‌های سخت‌بال‌پوشان تاول‌زا (Coleoptera: Meloidae) در استان کرمان

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چکیده: خانواده Meloidae بطور معمول سخت‌بال‌پوشان تاول‌زا نامیده می‌شوند و در مناطق گرم و خشک و زیستگاه‌های وسیع وجود دارند. این خانواده در استان کرمان، طی سال‌های ۱۳۹۷-۱۳۹۸ مورد مطالعه قرار گرفت. نمونه‌ها با استفاده از تور حشره‌گیری و از طریق دستی جمع‌آوری شدند. آنها با استفاده از خصوصیات مورفولوژیک، ژنیتالیا و کلیدهای شناسایی معتبر، شناسایی شدند. این بررسی فونستیک به منظور ارتقای آگاهی در مورد سوسک‌های تاول‌زا در ناحیه جنوب شرقی ایران، انجام شد. در مجموع، ۳۰ گونه متعلق به ۱۰ جنس از دو زیرخانواده (Meloinae و Nemognathinae) شناسایی شدند. در بین گونه‌های شناسایی شده، ۲۲ گونه برای فون استان کرمان جدید بودند.

واژگان کلیدی: Meloidae، جنوب شرقی ایران، Meloinae، Nemognathinae.

فون