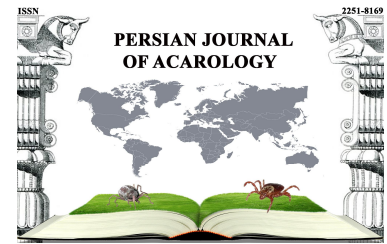




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## Article

### New records of the genus *Allopygmephorus* (Acari: Neopygmephoridae) with a list of the species of the family Neopygmephoridae in Iran

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#### ABSTRACT

A survey was carried out to investigate heterostigmatic mites associated with insects in Borujerd, Lorestan province, western Iran, in 2016. Insects were captured using light traps in the areas. Two species of the family Neopygmephoridae including *Allopygmephorus spinisetus* Khaustov & Sazhnev, 2016 and *A. punctatus* Khaustov & Sazhnev, 2016 were identified associated with beetles *Drasterius bimaculatus* (Rossi, 1790) (Coleoptera: Elateridae) and *Augyles* sp. (Col.: Heteroceridae). Both species are new records for mite fauna of Iran with the former being also new for Asia. Moreover, the association between mites of *Allopygmephorus* and elaterid beetles is new. A list of Iranian neopygmephorid mites is also provided.

**KEY WORDS:** *Allopygmephorus spinisetus*; *A. punctatus*; *Drasterius bimaculatus*; Heterostigmatina; host record; phoresy.

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## INTRODUCTION

Mites of the cohort Heterostigmatina comprise over 2000 described species and are one of the largest groups of prostigmatic mites (Acari: Trombidiformes) (Zhang *et al.* 2011). Heterostigmatic mites showcase various symbiotic associations with arthropods, especially insects, displaying phoretic relationship and parasitic way of life (Kaliszewski *et al.* 1995; Walter *et al.* 2009; Mortazavi *et al.* 2018). Most members of the superfamily Pygmephoroidae are free-living fungivores and are mostly phoronts of various insects (Kaliszewski *et al.* 1995; Walter *et al.* 2009). This superfamily encompasses four families, namely Scutacaridae, Microdispidae, Pygmephoridae and Neopygmephoridae, with the latter containing 25 genera and more than 250 species (Zhang *et al.* 2011; Khaustov and Frolov 2018; Khaustov and Minor 2018). Many members of the family Neopygmephoridae are rarely associated with non-insect arthropods (Chilopoda and Aranei) (Cross 1965) or insect orders including Hymenoptera, Coleoptera and Isoptera (Khaustov and Mandelshtam 2017).

Mites of the genus *Allopygmephorus* Cross, 1965 are more likely to occupy wet lands and are associated with beetles inhabiting such habitats, e.g. Hydrophilidae and Heteroceridae (Khaustov and Hajiqaanbar 2006; Khaustov and Sazhnev 2016). This genus includes 12 species: *Allopygmephorus matthesi* (Krczal, 1959), *A. nanhuiensis* Gao, Zou & Ma, 1989, *A. baoshanensis* Gao, Zou & Ma, 1989, *A. tuberosus* (Mahunka, 1969), *A. curiae* (Mahunka, 1970), *A. brasiliensis*

(Mahunka, 1970), *A. heterodactylus* Mahunka, 1973, *A. chinensis* Mahunka, 1975, *A. orimtahs* Mahunka & Mahunka -Papp, 1988, *A. persicus* Khaustov & Hajiqaanbar, 2006, *A. spinisetus* Khaustov & Sazhnev, 2016 and *A. punctatus* Khaustov & Sazhnev, 2016 (Khaustov and Hajiqaanbar 2006; Khaustov & Sazhnev, 2016). Of this genus, only *A. persicus* has been recorded from Iran, reported on some unidentified hydrophilid and heterocerid beetles and also on two hydrophilids namely *Cercyon laminates* Sharp, 1873 and *Enochrus bicolor* (Fabricius, 1792) (Khaustov & Hajiqaanbar, 2006; Katlav *et al.* 2015).

Following a study on heterostigmatic mites associated with insects carried out in Borujerd, western Iran, two species of the genus *Allopygmephorus* were found and identified as associates of beetles *Drasterius bimaculatus* (Rossi, 1790) (Col.: Elateridae) and *Augyles* sp. (Col.: Heteroceridae). These species are new to mite fauna of Iran, and so is the association between them and elaterid beetles. A list of all recorded species of the family is also provided.

## MATERIALS AND METHODS

The study was conducted in August 2016, in Borujerd, western Iran. The host insects were captured using light traps. After being transferred to laboratory, mites were directly separated from their hosts and the ethanol sediments containing hosts via an Olympus stereomicroscope, cleared in Nesbitt's solution, mounted in Hoyer's medium and studied with a phase contrast microscope (model BX51, Olympus). The elaterid beetles were identified with the help of Dr. Alexey V. Kovalev (Zoological Institute of the Russian Academy of Sciences, Saint Petersburg, Russia). All material was collected by the first author (AN) and deposited in the Acarological Collection, Department of Entomology, Faculty of Agriculture, Tarbiat Modares University, Tehran, Iran.

## RESULTS

### Superfamily Pygmephoroidae Cross, 1965 Family Neopygmephoridae Cross, 1965

#### Genus *Allopygmephorus* Cross, 1965

Type species: *Pygmephorus matthesi* Krczal, 1959, by original designation.

#### *Allopygmephorus spinisetus* Khaustov & Sazhnev, 2016

**World distribution** – RUSSIA, associated with *Heterocerus fenestratus* (Thunberg, 1784) (Col.: Heteroceridae) (Khaustov & Sazhnev 2016); IRAN, associated with *Drasterius bimaculatus* (Rossi, 1790) (Col.: Elateridae) and *Augyles* sp. (Col.: Heteroceridae) (current study).

**Material examined** – Borujerd, western Iran, 10 and three females from ventral body surfaces of two *Drasterius bimaculatus* and one *Augyles* respectively. The host insects attracted to light traps during an overnight sampling around pasture plants and apple gardens of the Sheykh Miri-ye Sadat village, near Borujerd, 2 August 2016.

#### Remarks

New record for mite fauna of Asia including Iran. Also, it is a new association between this genus and beetles of the family Elateridae. So far, beetles of families Hydrophilidae (superfamily Hydrophiloidea), Dryopidae (superfamily Byrrhoidea) and Heteroceridae have been reported as hosts of some *Allopygmephorus* spp. (Krczal 1959; Khaustov & Hajiqaanbar 2006; Katlav *et al.* 2015; Khaustov & Sazhnev 2016). Some references mention the presence of *D. bimaculatus* on

herbaceous plants near streams (Sert & Kabalak 2011) and it almost confirms association of *Allopygmephorus* spp. with host beetles living near wetlands.

### *Allopygmephorus punctatus* Khaustov & Sazhnev, 2016

**World distribution** – RUSSIA, associated with *Heterocerus fenestratus*; KAZAKHSTAN, associated with *Heterocerus flexuosus* Stephens, 1828 (Khaustov & Sazhnev 2016); IRAN, associated with *Drasterius bimaculatus* (Elateridae) and *Augyles* sp. (current study).

**Material examined** – Borujerd, western Iran, 16 and nine females from ventral body surfaces of five *Drasterius bimaculatus* and four *Augyles*, respectively. The host insects attracted to light traps during an overnight sampling around pasture plants and apple gardens of the Sheykh Miri-ye Sadat village, near Borujerd, 2 August 2016.

#### Remarks

This species is recorded from Iran for the first time. Also, it is a new association between this mite and beetles of the family Elateridae.

## DISCUSSION

Taking into account the two reported species of *Allopygmephorus* in this paper, 26 neopygmephorid species from eight genera have been recorded from Iran (see Table 1). These eight genera (with number of species recorded) are *Acinogaster* (one species), *Allopygmephorus* (three species), *Bakerdania* (three species), *Kerdabania* (four species), *Parapygmephorus* (four species), *Petalomium* (nine species), *Pseudopygmephorus* (one species), and *Troxodania* (one species). The most speciose genus of Iranian neopygmephorids is *Petalomium*, members of which are associated with ants or their nests. Of about 45 species of this genus in the world, nine have been recorded from Iran, constituting about 20% of all described species. The genera *Kerdabania* and *Parapygmephorus*, each with four species, hold the second rank of neopygmephorid genera in the country. The former (with 13 species) usually inhabits soil (Khaustov 2014) and the latter (with eight species) is associated with bees and/or their nests (Fan *et al.* 2014). Until now, *Kerdabania* and *Parapygmephorus* in Iran account for the 23 and 50 percent of world fauna, respectively. Next place belongs to two other genera (*Bakerdania* and *Allopygmephorus*) including three species each. The *Bakerdania* (with about 100 species) is the largest genus of Neopygmephoridae (Khaustov 2010) however, considering its habitat in soil and association of some with insects, it is not well addressed in the country (only about 3% of world fauna of the genus). Iranian *Allopygmephorus* now rise to 25% of world fauna of the genus. The rest of neopygmephorid genera in Iran (*Acinogaster*, *Pseudopygmephorus* and *Troxodania*) have only one representative in the country. The ant-associated genus *Acinogaster* (with 11 species) has less distribution than another ant-associated genus, *Petalomium*. The low number of identified *Pseudopygmephorus* species in Iran could be partly related to imperfect species descriptions of this genus. Finally, members of the genus *Troxodania* with at least five species in the world are associated with scarab beetles (Khaustov and Trach 2014), 20% of world fauna of the genus in Iran.

The above data reveal that more neopygmephorid mites could be found if more soil samples and insect hosts (particularly beetles, ants and bees) are collected in rich ecological regions of the Iran.

**Table 1.** List of neopygmephorid mites and their host/habitat in Iran.

Mite species	Host/Habitat	Reference
<i>Acinogaster microchaetosus</i> (Sevastianov, 1967)	<i>Tetramorium</i> sp. (Hym.: Formicidae)	Abbasi-Moqadam <i>et al.</i> (2016); Sobhi <i>et al.</i> (2017b)
<i>Allopygmephorus persicus</i> Khaustov & Hajiqanbar, 2006	Undetermined hydrophilid beetle (Col.: Hydrophilidae); <i>Cercyon laminates</i> Sharp, 1873 (Col.: Hydrophilidae); <i>Enochrus bicolor</i> (Fabricius, 1792) (Col.: Hydrophilidae); unidentified heterocerid beetle (Col.:	Khaustov & Hajiqanbar (2006); Katlav <i>et al.</i> (2015)
<i>Allopygmephorus punctatus</i> Khaustov & Sazhnev 2016	<i>Drasterius bimaculatus</i> (Rossi, 1790) (Col.: Elateridae); <i>Augyles</i> sp. (Col.: Heteroceridae)	This study
<i>Allopygmephorus spinisetus</i> Khaustov & Sazhnev 2016	<i>Drasterius bimaculatus</i> (Rossi, 1790) (Col.: Elateridae); <i>Augyles</i> sp. (Col.: Heteroceridae)	This study
<i>Bakerdania delanyi</i> (Evans, 1952)	Soil	Haddad Irani-Nejad <i>et al.</i> (2005)
<i>Bakerdania graciloides</i> Sevastianov, 1974	Soil	Kazemi & Khaustov (2008)
<i>Bakerdania tenuispina</i> Sevastianov, 1974	<i>Pleurophorus anaticus</i> Petrovitz, 1961 (Col.: Scarabaeidae)	Khaustov & Hajiqanbar (2004)
<i>Kerdabania inconspicuous</i> (Berlese, 1904)	Soil	Mirjamali <i>et al.</i> (2008)
<i>Kerdabania minuta</i> Khaustov, 2009	<i>Ophion obscuratus</i> Fabricius, 1798 (Hym.: Ichneumonidae)	Loghmani <i>et al.</i> (2014)
<i>Kerdabania quadrata</i> (Ewing, 1917)	Soil	Haddad Irani-Nejad <i>et al.</i> (2005)
<i>Kerdabania variabilis</i> Khaustov, 2009	Soil	Filekesh <i>et al.</i> (2014)
<i>Parapygmephorus crossi</i> Mahunka, 1974	<i>Halictus (Halictus) resurgens</i> Nurse, 1903 (Hym.: Halictidae)	Azhari <i>et al.</i> (2018)
<i>Parapygmephorus delyorum</i> Mahunka, 1980	Unidentified halictid bees (Hym.: Halictidae)	Hajiqanbar & Rakhshani (2011)
<i>Parapygmephorus khorasanicus</i> Hajiqanbar & Khaustov, 2011	<i>Halictus quadricinctus</i> (Fabricius, 1776) (Hym.: Halictidae)	Hajiqanbar <i>et al.</i> (2011b)
<i>Parapygmephorus magnisetosus</i> Khaustov & Zalozhnaya, 2011	<i>Amigella</i> sp. (Hym.: Apidae); <i>Lasioglossum</i> sp. (Hym.: Halictidae)	Hajiqanbar <i>et al.</i> (2011a); Loghmani <i>et al.</i> (2014); Sobhi <i>et al.</i> (2017b)
<i>Petalomium camponoti</i> Hajiqanbar & Khaustov, 2013	<i>Camponotus buddhae</i> Forel, 1892 (Hym.: Formicidae)	Hajiqanbar & Khaustov (2013)
<i>Petalomium fimbriatum</i> Ebermann & Rack, 1982	<i>Lasius</i> sp. (Hym.: Formicidae)	Abbasi-Moqadam <i>et al.</i> (2018)
<i>Petalomium gottrauxi</i> Mahunka, 1977	<i>Camponotus aethiops</i> (Latreille, 1798); <i>Camponotus</i> sp. (Hym.: Formicidae)	Hajiqanbar & Khaustov (2013); Sobhi <i>et al.</i> (2017b)
<i>Petalomium heterotrichus</i> Mahunka, 1970	<i>Camponotus</i> sp. (Hym.: Formicidae)	Abbasi-Moqadam <i>et al.</i> (2018)
<i>Petalomium mazandaranicum</i> Abbasi-Moqadam & Hajiqanbar, 2018	<i>Aphaenogaster</i> sp. (Hym.: Formicidae)	Abbasi-Moqadam <i>et al.</i> (2018)
<i>Petalomium pseudomyrmecophilus</i> Mahunka, 1970	<i>Lasius umbratus</i> (Nylander, 1846) (Hym.: Formicidae)	Sobhi <i>et al.</i> (2017b)
<i>Petalomium rarus</i> (Sevastianov, 1967)	<i>Camponotus</i> sp. (Hym.: Formicidae)	Abbasi-Moqadam <i>et al.</i> (2018)
<i>Petalomium sawtschuki</i> (Sevastianov, 1967)	<i>Tetramorium</i> sp. (Hym.: Formicidae)	Abbasi-Moqadam <i>et al.</i> (2018)
<i>Petalomium scyphicum</i> (Sevastianov, 1967)	<i>Lasius emarginatus</i> (Hym.: Formicidae)	Abbasi-Moqadam <i>et al.</i> (2018)

**Table 1.** Continued.

Mite species	Host/Habitat	Reference
<i>Pseudopygmephorus tarsalis</i> (Hirst, 1921)	Soil	Haddad Irani-Nejad <i>et al.</i> (2005); Mirjamali <i>et al.</i> (2008)
<i>Troxodania decumanus</i> (Krczal, 1959)	<i>Onthophagus furcatus</i> Fabricius (Col.: Scarabaeidae)	Sobhi <i>et al.</i> (2017a)

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### REFERENCES

- Abbasi-Moqadam, F., Hajiqanbar, H. & Mehrabadi, M. (2016) First record of the ant-associate genus *Acinogaster* (Acari: Neopygmephoridae) from Asia with redescription of *A. microchaetosus* (Sevastianov, 1967). *Persian Journal of Acarology*, 5(2): 99–107.
- Abbasi-Moqadam, F., Hajiqanbar, H. & Mehrabadi, M. (2018) Contribution to the knowledge of the genus *Petalomium* (Acari: Neopygmephoridae) associated with ants from Iran. *Systematic and Applied Acarology*, 23(6): 1180–1189.  
<http://doi.org/10.11158/saa.23.6.13>
- Azhari, Sh., Hajiqanbar, H. & Talebi, A.A. (2018) *Parapygmephorus crossi* (Acari, Heterostigmata, Neopygmephoridae), a mite species new to fauna of Iran. *Persian Journal of Acarology*, 7(3): 293–295.  
<http://dx.doi.org/10.22073/pja.v7i3.37532>
- Cross, E.A. (1965) The generic relationships of the family Pyemotidae (Acarina, Trombidiformes). *The University of Kansas Science Bulletin*, 45: 29–215.
- Fan, Q., Khaustov, A.A. & Donovan, B. (2014) The redescription of *Parapygmephorus luxtoni* (Mahunka, 1970) comb. nov. (Acari: Neopygmephoridae) phoretic on bees of the family Colletidae (Hymenoptera) from New Zealand. *Systematic and Applied Acarology*, 19(3): 373–380.  
<http://dx.doi.org/10.11158/saa.19.3.10>
- Filekesh, M., Hajiqanbar, H. & Jabaleh, I. (2014) New records of three species of the superfamily Pygmephoroidae (Acari: Heterostigmata) from Asia. *Persian Journal of Acarology*, 3(4): 277–283.  
<http://dx.doi.org/10.22073/pja.v3i4.10170>
- Haddad Irani-Nejad, K., Hajiqanbar, H. & Talebi Chaichi, P. (2005) An introduction of the prostigmatic mites in sugarbeet fields in Miandoab plain. *Iranian Journal of Agricultural Science*, 36(1): 247–262.
- Hajiqanbar, H. & Khaustov, A.A. (2013) New species and record of the genus *Petalomium* (Acari: Heterostigmata: Neopygmephoridae) associated with ants (Hymenoptera: Formicoidea) from Iran. *Biologia*, 68(4): 712–719.  
<https://doi.org/10.2478/s11756-013-0198-y>
- Hajiqanbar, H. & Rakhshani, H. (2011) *Parapygmephorus delyorum* (Acari: Heterostigmata: Neopygmephoridae), a species new to mite fauna of Iran. *Journal of Entomological Society of Iran*, 3(1): 89–90.
- Hajiqanbar, H., Ahmadi, S. & Saboori, A. (2011) Extending host range of the genus *Parapygmephorus* Cross, 1965 (Acari: Heterostigmata: Neopygmephoridae) beyond bees of



- the family Halictidae (Hymenoptera: Apoidea). In: Kazemi, Sh. & Saboori, A. (Ed.), *Abstract and proceeding book of the First Persian Congress of Acarology, International Center for Science, High Technology & Environmental Sciences, Kerman, Iran*, p. 70.
- Hajiqanbar, H., Khaustov, A.A. & Kamali, K. (2011) A new species of *Parapygmephorus* (Acari: Heterostigmata; Neopygmephoridae) phoretic on *Halictus quadricinctus* (Fabricius, 1776) (Hym.; Halictidae) from Iran. *Zoological Science*, 28(1): 56–60.  
<http://dx.doi.org/10.2108/zsj.28.56>
- Kaliszewski, M., Athias-Binche, F. & Lindquist, E.E. (1995) Parasitism and parasitoidism in Tarsonemina (Acari: Heterostigmata) and evolutionary consideration. *Advances in Parasitology*, 35: 335–367.  
[https://doi.org/10.1016/S0065-308X\(08\)60074-3](https://doi.org/10.1016/S0065-308X(08)60074-3)
- Katlav, A., Hajiqanbar, H. & Talebi, A.A. (2015) A contribution to the knowledge of heterostigmatic mites (Acari: Prostigmata) in western Mazandaran Province, Northern Iran. *Acarologia*, 55(3): 311–320.  
<https://doi.org/10.1051/acarologia/20152175>
- Kazemi, Sh. & Khaustov, A.A. (2008) The first report of *Bakerdania graciloides* (Acari: Prostigmata: Pygmephoridae) from Iran. *Journal of Entomological Society of Iran*, 27(2): 27–28.
- Khaustov, A.A. (2010) Three new species of mites of the genus *Bakerdania* Sasa, 1961 (Acari: Heterostigmata: Neopygmephoridae) from “Cape Martyan” Nature Reserve, Crimea. *Zootaxa*, 2600: 53–60.
- Khaustov, A.A. (2014) New species of mites of the genus *Kerdabania* (Acari: Heterostigmata: Neopygmephoridae) from Western Siberia, Russia. *Acarina*, 22(1): 36–39.
- Khaustov, A.A. & Frolov, A.V. (2018) New taxa of pygmephoroid mites (Acari: Pygmephoridae: Pygmephoridae, Neopygmephoridae) phoretic on *Enoplotrupes sharpi* (Coleoptera: Geotrupidae) from Thailand. *Zootaxa*, 4442(2): 277–292.  
<https://doi.org/10.11646/zootaxa.4442.2.5>
- Khaustov, A.A. & Hajiqanbar, H. (2004) *Bakerdania unisetata* sp. n. a new species of mites (Acari: Pygmephoridae) associated with the scarab beetle *Pleurophorus anatolicus* (Col.; Scarabaeidae) from Iran. *Acarina*, 12(2): 109–112.
- Khaustov, A.A. & Hajiqanbar, H. (2006) Redefinition of the genus *Allopygmephorus* (Acari: Heterostigmata: Neopygmephoridae), with description of a new species from Iran. *Acarina*, 14: 191–194.
- Khaustov, A.A. & Mandelshtam, M.Y. (2017) *Coleopygmephorus* gen. nov., a new genus of the family Neopygmephoridae (Acari: Pygmephoridae) with redescription of *C. loricophilus* (Sevastianov 1981) comb. nov. and description of a new species associated with bark beetles (Coleoptera: Curculionidae: Scolytinae) from Far East of Russia. *International Journal of Acarology*, 43: 30–38.  
<https://doi.org/10.1080/01647954.2016.1227371>
- Khaustov, A.A. & Minor, M.A. (2018) New taxa of the mite family Neopygmephoridae (Acari: Heterostigmata) from alpine New Zealand. *Zootaxa*, 4415(2): 276–296.  
<https://doi.org/10.11646/zootaxa.4415.2.3>
- Khaustov, A.A. & Sazhnev, A.S. (2016) Mites of the families Neopygmephoridae and Scutacaridae associated with variegated mud-loving beetles (Coleoptera: Heteroceridae) from Russia and Kazakhstan. *Zootaxa*, 4175 (3): 261–273.  
<http://doi.org/10.11646/zootaxa.4175.3.5>
- Khaustov, A.A. & Trach, V.A. (2014) Mites of the superfamily Pygmephoridae (Acari: Heterostigmata: Neopygmephoridae, Pygmephoridae) associated with *Trox cadaverinus* (Coleoptera: Trogidae) from the Far East of Russia, with description of a new genus and two new species. *Zootaxa*, 3754 (1): 86–96.

<http://dx.doi.org/10.11646/zootaxa.3754.1.4>

- Krczal, H. (1959) Systematik und Ökologie der Pyemotiden. *In*: Stammer, H.J. (Ed.), Beiträge zur Systematik und Ökologie mitteleuropäischer. *Acarina*, 1: 385–625.
- Loghmani, A., Hajiqaanbar, H. & Talebi, A.A. (2014) New records of mites of the superfamily Pygmephoroidae (Acari: Heterostigmata) associated with insects from northeastern Iran and new host records. *Systematic and Applied Acarology*, 19(2): 154–159.  
<http://dx.doi.org/10.11158/saa.19.2.5>
- Mirjamali, R., Ostovan, H., Kamali, K. & Mahunka, S. (2008) Mites of the family Pygmephoridae and Tarsonemidae in Malard research station (Tehran). *In*: Manzari, S. (Ed.) *Proceedings of the 18th Iranian Plant Protection Congress, University of Bu-Ali Sina, Hamedan, Iran*, p. 230.
- Mortazavi, A., Hajiqaanbar, H. & Lindquist, E.E. (2018) A new family of mites (Acari: Prostigmata: Raphignathina), highly specialized subelytral parasites of dytiscid water beetles (Coleoptera: Dytiscidae: Dytiscinae). *Zoological Journal of the Linnean Society* (In press).  
<http://dx.doi.org/10.1093/zoolinnea/zlx113/4956482>
- Sert, O. & Kabalak, M. (2011) Faunistic, Ecological and Zoogeographical Evaluations on the Click-Beetles (Coleoptera: Elateridae) of Middle part of the Black Sea region of Turkey. *Annales de la Société entomologique de France*, 47(3–4): 501–509.
- Sobhi, M., Hajiqaanbar, H. & Mortazavi, A. (2017a) New species and records of heterostigmatic mites (Acari: Prostigmata: Heterostigmata) phoretic on scarabaeid dung beetles (Coleoptera: Scarabaeidae) from northwestern Iran. *Zootaxa*, 4276(3): 427–434.  
<https://doi.org/10.11646/zootaxa.4276.3.7>
- Sobhi, M., Hajiqaanbar, H. & Mortazavi, A. (2017b) Heterostigmatic mites (Acari: Heterostigmata) associated with insects in northwestern Iran. *Journal of Entomological Society of Iran*, 37(1): 67–79.
- Walter, D.E., Lindquist, E.E., Smith, I.M., Cook, D.R. & Krantz, G.W. (2009) Order Trombidiformes. *In*: Krantz, G.W. & Walter, D.E. (Eds.), *A Manual of Acarology*. Texas Tech University Press, Texas, USA, pp. 233–420.
- Zhang, Z.-Q., Fan, Q.-H., Pesic, V., Smit, H., Bochkov, A.V., Khaustov, A.A., Baker, A., Wohltmann, A., Wen, T., Amrine, J.W., Beron, P., Lin, J., Gabrys, G. & Husband, R. (2011) Order Trombidiformes Reuter, 1909. *In*: Zhang, Z.-Q. (Ed.) *Animal biodiversity: An outline of higher-level classification and survey of taxonomic richness*. *Zootaxa*, 3148: 129–138.

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## گزارش‌های جدید از کنه‌های جنس *Allopygmephorus* (Acari: Neopygmephoridae) همراه با فهرستی از گونه‌های خانواده Neopygmephoridae از ایران

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### چکیده

پژوهشی به منظور بررسی کنه‌های هترواستیگمای مرتبط با حشرات در بروجرد، استان لرستان در غرب ایران در سال ۱۳۹۵ انجام گرفت. حشرات با استفاده از تله‌های نوری در منطقه فوق جمع آوری شدند. دو گونه از کنه‌های خانواده Neopygmephoridae شامل *Allopygmephorus spinisetus* Khaustov & Sazhnev, 2016 و *A. punctatus* Khaustov & Sazhnev, 2016 در ارتباط با سخت‌بالپوشان *Drasterius bimaculatus* (Rossi, 1790) (Coleoptera: Elateridae) و *Augyles* sp. (Col.: Heteroceridae) شناسایی شدند. هر دو گونه برای فون کنه های ایران جدید بوده و گونه نخست نیز برای آسیا جدید است. افزون بر این، رابطه بین کنه‌های جنس *Allopygmephorus* و سخت‌بالپوشان خانواده Elateridae جدید است. فهرستی از کنه‌های خانواده Neopygmephoridae در ایران نیز تهیه شده است.

**واژگان کلیدی:** *Allopygmephorus spinisetus* ؛ *A. punctatus* ؛ *Drasterius bimaculatus* ؛ هترواستیگماتینا؛ گزارش میزبانی؛ همسفری.

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