



## Research Article

# Research on Coccinellidae (Coleoptera) fauna in Mazandarn province, Iran

KATAYOUN PAHLAVAN YALI<sup>1</sup>, SHAHROKH PASHAI RAD<sup>1</sup>, MEHDI ZARE KHORMIZI<sup>2\*</sup>, ZAHRA MOJIB HAGH GHADAM<sup>3</sup>, MINOO HEIDARI LATIBARI<sup>4</sup> and GUY HANLY<sup>5</sup>

<sup>1</sup>Faculty of Biological Sciences, Shahid Beheshti University, Tehran, Iran

<sup>2</sup>Young Researchers and Elite Club, Yazd Branch, Islamic Azad University, Yazd, Iran

<sup>3</sup>Guilan Agricultural and Natural Resources Research and Education Center, Rasht, Guilan, Iran

<sup>4</sup>Department of Plant Protection, Faculty of Agriculture, Ferdowsi University of Mashhad, Mashhad, Iran

<sup>5</sup>Northern Plains Entomology, Minot, North Dakota

\*Corresponding author E-mail: zare7002@gmail.com

**ABSTRACT:** Ladybirds beetles belonging to the family Coccinellidae, Order Coleoptera, play an important role in pest control. The aim of this research was to explore, identify and characterize the coccinellid fauna of the Mazandaran Province (Iran). Coccinellid beetles were collected during 2013- 2015 from different Agriculture Stations with a wide range of agricultural lands and plants. A total of 21 species in 15 genera and 4 subfamilies were identified.

1. *Coccinella septempunctata* (Linnaeus, 1758)
2. *Adalia bipunctata* (Linnaeus, 1758)\*
3. *Harmonia quadripunctata* (Pontoppidan, 1763) \*
4. *Haippodemia variegata* (Goeze, 1777)
5. *Oenopia congolobata* (Linnaeus, 1758)
6. *Propylea quatuordecimpunctata* (Linnaeus, 1758)
7. *Adalia decempunctata* (Linnaeus, 1758)
8. *Vibidia duodecimguttata* (Poda, 1761) \*
9. *Psylloboraviginti duopunctata* (Linnaeus, 1758)
10. *Chilocorus bipustulatus* (Linnaeus, 1758)
11. *Exochomus nigromaculatus* (Goeze, 1777)
12. *Platynaspis luteorubra* (Redtenbacher, 1843)\*
13. *Nephusbi punctatus* (Kugelann, 1794)\*
14. *Nephus qadrimaculatus* (Herbst, 1783)
15. *Scymnus subvillosus* (Goeze, 1777)
16. *Scymnus frontalis* (Fabricius, 1787)\*
17. *Scymnus apetzky* (Mulsant, 1846)
18. *Scymnus impexus* (Mulsant, 1850)\*
19. *Stethorus punctillum* (Weise, 1891)\*
20. *Stethorus gilvifrons* (Mulsant 1850)\*
21. *Serangium montazeri* (Montazeri, 1994)\*

Nine species that are marked by \*are new records for MazandaranCoccinellid fauna.

**KEY WORDS:** Ladybird, New record, Mazandaran, Insect

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## INTRODUCTION

The Family Coccinellidae, which are known as Ladybugs and ladybird beetles, belong to the superfamily Cucujoidea, order Coleoptera. This family is the largest

in the recently characterized superfamily Coccinellidae (Robertson *et al.*, 2015). The color patterns of ladybirds is surprisingly variable, which can range from a reddish or yellowish to black background with dark and light spots,

respectively, or to a brown background with light spots. Ladybirds also have various diets, and although they are mainly predators, some are phytophagous, and are serious economic pests for crops (Shaefer, 1983). Most members of this family, are beneficial insects (William, 2002), With many species preying on herbivorous pests such as aphids or scale insects. Most coccinellids lay their eggs directly on aphids and scale insects colonies, hence they ensure that their larvae have access to the necessary food source (Montazer and Mosaddegh, 1995). Some species, such as the subfamily Epilachninae, is phytophagous and have undesirable effects causing damage to various crops such as potatoes and beans Their numbers are decreased with activity of parasitoid wasps.

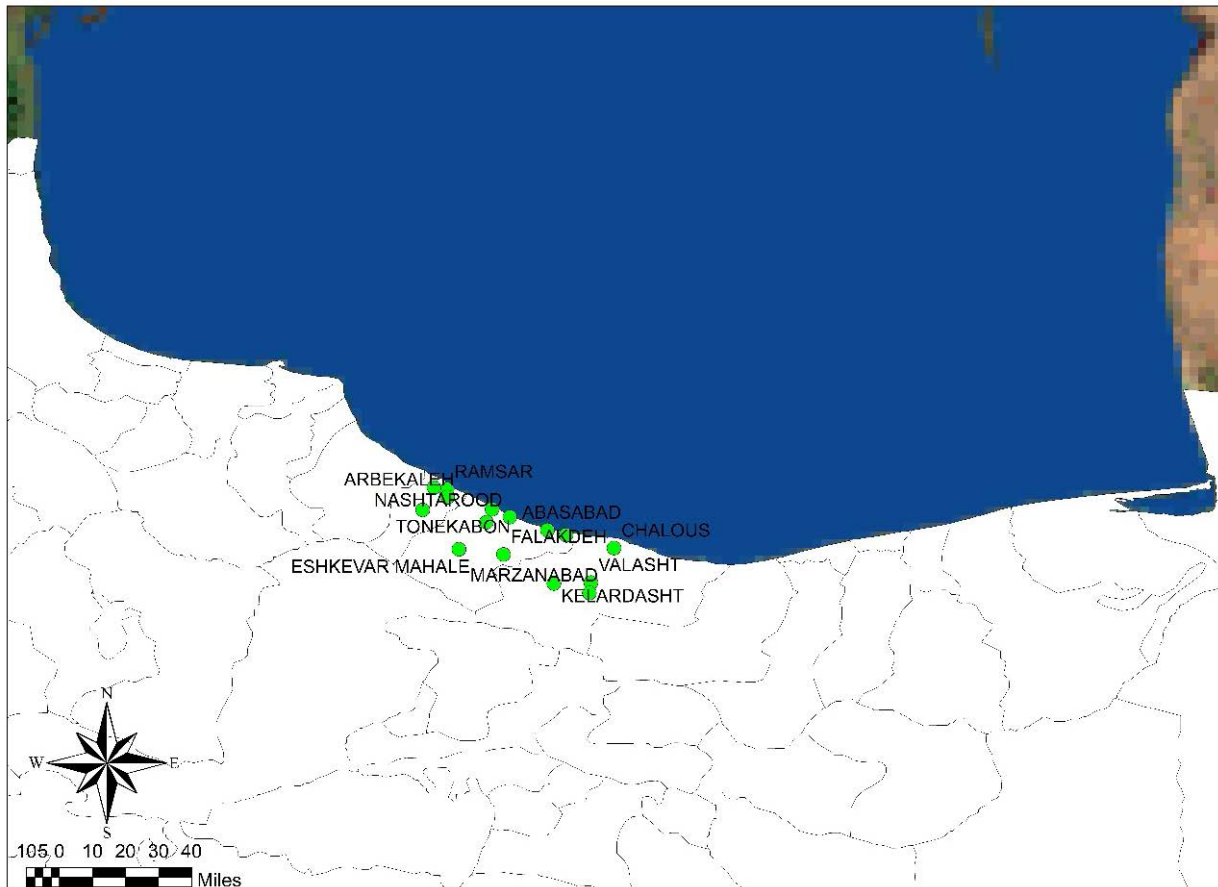
**MATERIALS AND METHODS**

Specimens were collected from 15 different Stations in Mazandaran Province Iran (36° 33' 56.16" N, 53° 3' 31.68" E) during 2013-2015. Collecting methods included aspirator, white dish and direct hand picking from various plants. The specimens were sent to the Biosystematic laboratory of Shahid Beheshti University for identification. All species were stored in 70% ethanol and were identified using available keys (Reimundo and Harten, 2000) in few cases,

genital dissections were carried out by using 10% KOH and permanent slides were made by Hoyer solution. All identified samples were confirmed by Dr. Oldrich Nedved at university of south Bohemia in Czech Republic.

**Table 1. List of the sampling localities in west of Mazandaran Province**

Number	Locations	Coordinate of locations	Altitude
1	Ramsar	36°90N - 50°67'E	-8
2	Javaherdeh	36°91N - 50°61'E	1768
3	Tnekabon	36°81N - 50°87'E	-14
4	GhaleGardan	36°75N - 50°84'E	45
5	Falakdeh	36°61N - 50°92'E	923
6	EshkevarMahaleh	36°64N - 50°72'E	1395
7	Abbas Abad	36°72N - 51°11'E	-20
8	Valasht Lake	36°49N - 51°30'E	774
9	Chaloos	36°49N - 51°30'E	80
10	KalarDasht	36°64N - 51°40'E	1343
11	Marzan Abad	36°44N - 51°29'E	519
12	ArbehKaleh	36°86N - 50°67'E	312
13	Garsmasar	36°81N - 50°56'E	2205
14	Nashtarood	36°78N - 50°94'E	-22
15	Salman Shahr	36°70N - 51°19'E	-10



**Fig. 1. Drawn map of the stations.**

## RESULTS AND DISCUSSION

A total of 21 species belong to 15 genera and 4 sub-families were identified. Identified species are listed as below:

## ACKNOWLEDGMENTS

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Fig. 2. a-b) *Adalia bipunctata* (Linnaeus, 1758), c) *Harmonia quadripunctata* (Pontoppidan, 1763), d) *Nephus bipunctatus* (Kugelann, 1794), e) *Nephus quadrimaculatus* (Herbst, 1783), f) *Oenopia conglobata* (Linnaeus, 1758), g) *Platynaspis luteorubra* (Redten Bacher, 1843), h) *Scymnus frontalis* (Fabricius, 1787), i) *Scymnus subvillosus* (Goeze, 1777), j) *Stethorus gilvifrons* (Mulsant 1850), k) *Stethorus punctillum* (Weise, 1891), l) *Vibidiaduo decimguttata* (Poda, 1761), m-n) *Adalia decempunctata* (Linnaeus, 1758), o) *Scymnus apetzi* (Mulsant, 1846), p) *Chilocorus bipustulatus* (Linnaeus, 1758), q) *Coccinella septempunctata* (Linnaeus, 1758), r) *Hippodamia variegata* (Goeze, 1777), s) *Parexochomus nigromaculatus* (Goeze, 1777), t) *Propylea quatuordecimpunctata* (Linnaeus, 1758), u) *Psyllobora vigintiduopunctata* (Linnaeus, 1758), v) *Serangium montazerii* (Montazeri, 1994) All images have been scaled to one standard size, refer to species description for actual size.

**Table 2. Collected species and Host plant in north of Iran**

Species	Host plant
<i>Adalia bipunctata</i> (Linnaeus, 1758)	<i>Juglans regia</i> L, <i>Urtica folium</i>
<i>Adalia decempunctata</i> (Linnaeus, 1758)	<i>U. folium</i> , <i>J. regia</i> , <i>Citrus</i> sp , <i>Punica granatum</i> , <i>Cirsium vulgare</i>
<i>Chilocorus bipustulatus</i> (Linnaeus, 1758)	<i>Citrus</i> sp.
<i>Coccinella septempunctata</i> (Linnaeus, 1758)	<i>Trifolium</i> sp, <i>Phlomis persica</i> , <i>Eryngium planum</i> , <i>Galium aparine</i> L, <i>U. folium</i> , <i>C. vulgare</i> , <i>Citrus</i> sp.
<i>Harmonia quadripunctata</i> (Pontoppidan,1763)	<i>U. folium</i>
<i>Haippodemia variegata</i> (Goeze, 1777)	<i>U. folium</i>
<i>Nephus bipunctatus</i> (Kugelann, 1794)	<i>C. vulgare</i>
<i>Nephus qadrimaculatus</i> (Herbst, 1783)	<i>Citrus</i> sp.
<i>Oenopia congolobata</i> (Linnaeus, 1758)	<i>U. folium</i> , <i>C. vulgare</i> , <i>Trifolium</i> sp, <i>Verbascum thapsus</i>
<i>Propylea quatuordecimpunctata</i> (Linnaeus, 1758)	<i>J. regia</i> , <i>U. folium</i> , <i>Citrus</i> sp.
<i>Psyllobora vigintiduopunctata</i> (Linnaeus, 1758)	<i>G. aparine</i> L
<i>Parexochomus nigromaculatus</i> (Goeze, 1777)	<i>U. folium</i> , <i>C. vulgare</i> ,
<i>Platynaspis luteorubr</i> (Redtenbacher,1843)	<i>Citrus</i> sp.
<i>Scymnus subvillosus</i> (Goeze, 1777)	<i>P. granatum</i> , <i>Citrus</i> sp.
<i>Scymnus frontalis</i> (Fabricius, 1787)	<i>P. granatum</i> , <i>Citrus</i> sp.
<i>Scymnus apetzi</i> (Mulsant, 1846)	<i>C. vulgare</i>
<i>Scymnus impexus</i> (Mulsant, 1850)	<i>Citrus</i> sp.
<i>Stethorus punctillum</i> (Weise, 1891)	<i>Citrus</i> sp.
<i>Stethorus gilvifrons</i> (Mulsant 1850)	<i>Citrus</i> sp, <i>J. regia</i>
<i>Serangium montazerii</i> (Montazeri, 1994)	<i>Citrus</i> sp.
<i>Vibidia duodecimguttata</i> (Poda, 1761)	<i>Morus</i> sp., <i>Citrus</i> sp.

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