

TAXONOMIC STUDY ON LADYBIRD BEETLE (COLEOPTERA: COCCINELLIDAE) FAUNA OF TANDO JAM, SINDH

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ABSTRACT

Coccinellid beetles were collected from various localities of Tandojam, Sindh. This study indicated the occurrence of nine species belonging to three subfamilies of family Coccinellidae.

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| 1. <i>Cheilomenes sexmaculata</i> (Fabricius, 1781) | | |
| 2. <i>Hippodamia variegata</i> (Goeze, 1777) | | Tribe – Coccinellini Latreile, 1807 of subfamily |
| 3. <i>Coccinella septempunctata</i> Linnaeus, 1758 | | Coccinellinae Latreile, 1807 |
| 4. <i>Coccinella transversalis</i> Fabricius, 1781 | | |
| 5. <i>Coccinella undecimpunctata</i> Linnaeus 1758 | | |
| 6. <i>Harmonia axyridis</i> <i>Tytthaspis</i> 16-punctata (Pallas, 1773) | | |
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| 7. <i>Bulaea lichatschovi</i> (Hummel 1827) - Tribe Bulaeini Savoykaya, 1969 of subfamily Coccinellinae Latreile, 1807 | | |
| 8. <i>Brumoides suturalis</i> (Fabricius, 1798) - Tribe Chilocorini Mulsant, 1846 of subfamily Chilocorinae Mulsant, 1846 | | |
| 9. <i>Henosepilachna vigintioctopunctata</i> (Fabricius, 1775) - Tribe Epilachnini Mulsant 1846 of subfamily Epilachninae Mulsant 1846. | | |

Key words: Coccinellidae, Tando Jam, ladybird beetles

INTRODUCTION

The family Coccinellidae, designated as Ladybirds or Ladybugs (Kovar, 1996; Hunt *et al.*, 2007). The Coccinellid (latin word) means "scarlet" (Brown, 2007). The name "ladybird" originated in Britain where the insects became known as 'Our Lady's bird' or the Lady beetle (Samaha, 2010).

It is interesting that Linnaeus – the great naturalist's first zoological contribution to the nomenclature was on *Coccinella*. He described this genus in 1758 with its 36 European representatives. Laterille put this genus under newly established Coccinellidae. Later on, European taxonomists did intensive work on this group of insects, notably Mulsant (1846, 1850 and 1866); Redtenbacher (1843); LeConte (1852); Crotch (1874); Weise (1885a,b) and Ganglbauer (1899).

The family Coccinellidae is recognized with their unique attractive appearance and convex body shape; worldwide about 5,200 described (Hawkeswood, 1987). Fleming (2000) reported Coccinellid including (4,000 predatory including 300 in Indo-Pak Subcontinent). Dobrzanskiy (1926) first described modern classification of *Coccinella*, by determining colour, shape of reproductive of genera *Oenopia* (Mulsant, 1850) former *Synharmonia* (Ganglbauer, 1899) and *Coccinula* (Dobrzanskiy, 1925).

From Pakistan, Shah (1983) explored the fauna of Peshawar region and reported two species, *Coccinella septempunctata* L. and *C. undecimpunctata* L. as the record of distribution. Irshad (2001) reported seventy one Coccinellid species in country. Irshad and Khan (2005) also reported that coccinellid species, other insect pests, parasitoids, predators and pathogens altogether damaged the crops in Pakistan. Inayatullah *et al.* (2005) described coccinellid fauna of district Poonch (AJK). Rafi *et al.* (2005) wrote an informative book on the predatory ladybirds including these three species from Northern parts of Pakistan. Khan *et al.* (2007) reported one species *Coccinella septempunctata* L. from District Chitral. Rahatullah *et al.* (2011) recorded these species from Districts Chitral and Dir Lower of Pakistan.

From Tandojam no previous work has been carried out identification of this group, hence, keeping in view the importance of family in biological control the present study is selected to carry out.

MATERIALS AND METHOD

Coccinellid beetles were to be collected through traditional hand net, pooter and on light traps from various localities of Tandojam. Beetles were killed in a jar containing potassium cyanide and mounted through entomological pins. Specimens were labeled containing the information of locality and date of collection, the name of the collector, and the host plant, if known, and are pinned beneath the specimen. For identification up to the species level, males were dissected and run through keys available for the region.

RESULTS

In present study total 72 members of the Coccinellidae were collected from Tandojam Sindh Pakistan. This revealed the occurrence of 09 species under three subfamilies of family Coccinellidae. Subfamily Coccinellinae Latreille, 1807 with two tribes; 1) Coccinellini Latreille, 1807 revealed six species: *Cheilomenes sexmaculata* (Fabricius, 1781), *Hippodamia variegata* (Goeze, 1777), *Coccinella septempunctata* Linnaeus, 1758, *Coccinella transversalis* Fabricius, 1781, *Coccinella undecimpunctata* Linnaeus 1758, *Harmonia axyridis* Tytthaspis 16-punctata (Pallas, 1773); 2) tribe Bulaeini Savoyskaya, 1969 revealed one species *Bulaealichatschovi* (Hummel 1827). Subfamily Chilocorinae Mulsant 1846 revealed one species *Brumoides suturalis* (Fabricius, 1798) under tribe Chilocorini Mulsant 1846. Subfamily Epilachninae Mulsant 1846 revealed one species *Henosepilachna vigintioctopunctata* (Fabricius, 1775) under tribe Epilachnini Mulsant 1846.

Subfamily: Coccinellinae Latreille, 1807

Tribe: Coccinellini Latreille, 1807

Cheilomenes sexmaculata (Fabricius, 1781)

Description: Adult length 3.5- 6.4 mm; width 2.8 – 4.5 mm; body nearly oval to subrounded. Head with a dark patch posteriorly covering the orbit of eyes; eyes small with minute facets. Prosternal process narrower with carinae parallel reaching halfway to the anterior margin of prosternum. Postcoxal line curved moving parallel to the posterior margin ending before touching lateral margin.

Material examined: Pakistan: 3♂, 5♀, Sindh Prov., Tandojam, 07.ix.2014, Raheem, Latif farm

Hippodamia variegata (Goeze, 1777)

Description: Adult length 4.0 – 4.5 mm; width 2.8 – 2.9 mm; body slightly elongate- oval. Head with two small rounded spots on frontoclypeus near anterior margin; eyes small with minute facets; submentum elongated, narrow anteriorly. Prosternal process narrow with less prominent carinae. Postcoxal line broadly curved reaching to the anterior margin of first sternite.

Material examined: Pakistan: 07♂, 18♀, Sindh Prov., Tandojam, 27.vii.2014, Raheem, Malir farm.

Coccinella septempunctata Linnaeus, 1758

Description: Head black, with a large triangular whitish spot adjacent to each eye; elytra reddish yellow with seven spots. Adult length 5.2 – 7.6 mm; rounded oval, convex and nearly hemispherical. Prosternal process narrower bearing relatively longer and well marked carinae.

Material examined: Pakistan: 4♂, 5♀, Sindh Prov., Tandojam, 12.x.2014, Raheem, Horticulture garden.

Coccinella transversalis Fabricius, 1781

Description: Adult length 6.0 – 6.5 mm; width 4.5 – 5.0 mm; slightly elongate-oval. Head with a large triangular spot near each eye; eyes small and minute facets. Pronotum with two triangular spots at anterolateral angles; prosternal process with a pair of carinae hardly extend beyond the level of the front coxae. Postcoxal line 'v' shaped not reaching the anterior margin of second sternite.

Material examined: Pakistan: 1♂, 1♀, Sindh Prov., Tandojam, 12.x.2014, Raheem, Latif farm

Coccinella undecimpunctata (Linnaeus, 1758)

Description: *Coccinella undecimpunctata*, common names eleven-spot ladybird or eleven-spotted lady beetle is a ladybird species endemic to the Old World. *Coccinella* Adult length 4.5-5.5 mm; width 2.7-4.1 mm; body elongate, oval, convex. Head black with a small oval pale spot adjacent to each eye; Length of pronotum 1.7-1.9 mm; width 3.2-3.5 mm; anterior margin of pronotum deeply emarginated.

Material examined: Pakistan: 1♂, Sindh Prov., Tandojam, 23.vii.2014, Raheem, Horticulture garden.

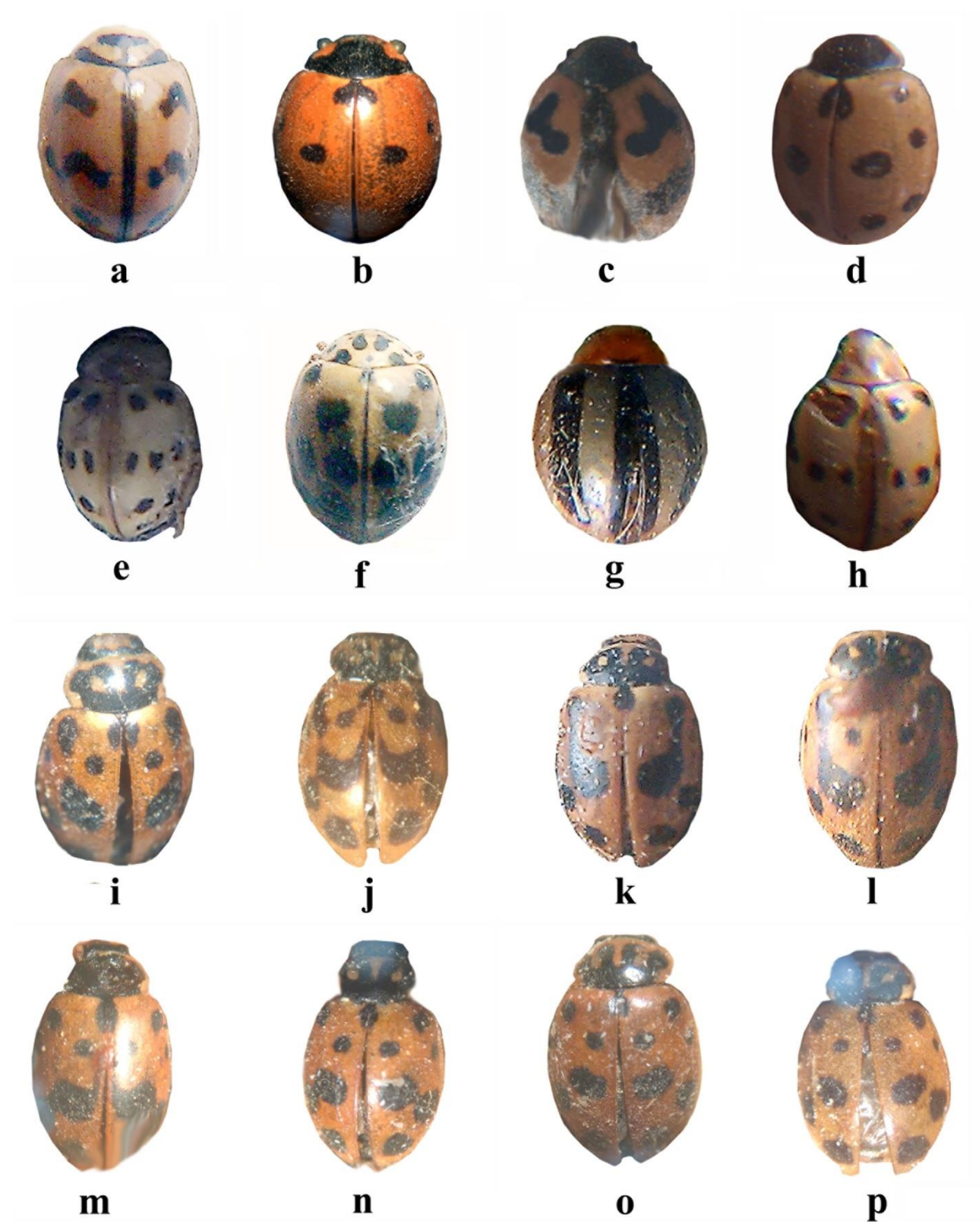


Fig.1 a-p: **a**, *Cheilomenes sexmaculata* **b**, *Coccinella septempunctata* **c**, *Coccinella transversalis* **d**, *Coccinella undecimpunctata* **e**, *Harmonia axyridis* *Tytthaspis* 16-punctata **f**, *Bulaea lichatschovi* **g**, *Brumoides suturalis* **h**, *Henosepilachna vigintioctopunctata* **i-p**, *Hippodamia variegata*.

***Harmonia axyridis Tytthaspis 16-punctata* (Pallas, 1773)**

Description: Harlequin is 6-8mm (0.25-0.3in) long. It has many and variable spot variations and is sometimes confused with other ladybird species. The sides of the fore body (pronotum) are mostly white, with a characteristic "M" or "W" shape in black. A voracious eater of smaller insects and aphids.

Material examined: Pakistan: 2♂, 10♀, Sindh Prov., Tandojam, 12.xi.2014, Raheem, sunflower section.

Tribe: Bulaeini Savoykaya, 1969

***Bulaea lichatschovi* (Hummel 1827)**

Description: Adult length 4mm – 5.7mm; width 3.4 – 4mm body elongate-oval, strongly convex. Eyes small, coarsely faceted; Lingula anteriorly deeply notched; submentum laterally thick, anteriorly narrow with straight margin. Prosternal process with carinae broader anteriorly not reaching the anterior margin. Postcoxal line arcuate; terminal segment deeply notched with entire small hairs.

Material examined: Pakistan: 1♂, Sindh Prov., Tandojam, 11.xi.2014, Raheem, Hostle.

Subfamily: Chilocorinae Mulsant 1846

***Brumoides suturalis* (Fabricius, 1798)**

Description: Adult length 3.0 mm – 4.0 mm; width 2.3 mm; body oval, dorsum covex. Eyes larger; labrum with anterior margin notched. Prosternal process thick, broader; carinae absent. Abdomen with postcoxal process anteriorly notched; postcoxal line complete reaching to the anterior margin of first sternite.

Material examined: Pakistan: 4♂, 3♀, Sindh Prov., Tandojam, 21.x.2014, Raheem, Hostle.

Subfamily: Epilachninae Mulsant 1846

***Henosepilachna vigintioctopunctata* (Fabricius, 1775)**

Description: Henosepilachnavigintioctopunctata is a species of beetle in the family Coccinellidae. It is commonly known as the 28-spotted potato ladybird or the Hadda beetle. The body of the 28-spotted potato ladybird is nearly round, convex, glossy and up to seven millimetres long. It is reddish-brown with thirteen black spots on each elytron and one or more on each side of the thorax.

Material examined: Pakistan: 1♂, 1♀, Sindh Prov., Tandojam, 12.xi.2014, Raheem, sunflower section.

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