

## **An updated checklist on ladybird beetles (Coccinellidae: Coleoptera) of West Bengal, India**

Priyanka Das<sup>1</sup>, Goutam Kumar Saha<sup>2</sup>, Rajnandini Bag<sup>3</sup>, Dipak Hazra<sup>4</sup>, Aannhik Das<sup>5</sup>

<sup>1</sup>Zoological Survey of India, M-Block New Alipore, Kolkata – 700053,

<sup>2</sup>Department of Zoology, University of Calcutta, 35 Ballygunge Circular Road, Kolkata–700019, India.

<sup>3</sup>Department of Zoology, Institute of Science, Banaras Hindu University, Uttar Pradesh – 221005, India

<sup>4,5</sup> Ramakrishna Mission Vivekananda Centenary College, Rahara, Kolkata.

\*For Correspondence: [priyankajan03@gmail.com](mailto:priyankajan03@gmail.com)

### **Abstract**

This is a baseline work which provides a checklist of Coccinellidae (Ladybird beetles) from West Bengal record 123 species in 48 genera and 11 tribes. Tribe Coccinellini (50 species) holds the maximum number of species followed by Epilachnini (32 species), Coccidulini (21 species) Chilocorini and Noviini (5 species each), Aspidimerini and Sticholotidini (3 species each), Hyperaspini, Ortaliini, Platynaspini and Telsimiini (1 species respectively).

**Key words:** Gangetic Plains, Bio-control agents, phytophagous, pest

### **1. Introduction**

The ladybird beetles belong to the family Coccinellidae, placed under superfamily Coccinelloidea, most of the ladybird beetles are predators on aphids and coccids, except for tribe Epilachnini, as they are phytophagous and severe pests of various crops. They are treated as biological control agents and are ecologically as well as economically very significant for their role in Integrated Pest Management (IPM) widely.

Globally, over 6,000 species of Coccinellidae belonging to 360 genera and 25 tribes are reported (Seago *et al.*, 2011; Robertson *et al.*, 2015). Nearly 550 species under 90 genera, 16 tribes, and 2 subfamilies of ladybird beetles are known from India (Poorani, 2002; Jadwyszczak and Wegrzynowicz, 2003). Chakraborty *et al.*(1996) recorded 80 species from West Bengal. Poorani and Lalitha (2018) described *Scymnus (Pullus) latifolius* sp. nov. as a predator of pink hibiscus mealybug, *Maconellicoccus hirsutus* (Green) from the state. This

checklist holds a record of 123 species in 48 genera and 11 tribes under subfamily Coccinellinae based on available literature.

## 2. Systematic Checklist

### Family Coccinellidae Latreille, 1807

#### Subfamily Coccinellinae Latreille, 1807

##### Tribe Aspidimerini Mulsant, 1850

1. *Pseudaspidimerus trinotatus* (Thunberg, 1781)
2. *Cryptogonus postmedialis* Kapur, 1948
3. *Cryptogonus quadriguttatus* (Weise, 1895)

##### Tribe Chilacorini Mulsant, 1846

4. *Brumoides suturalis* (Fabricius, 1798)
5. *Chilocorus braeti* Weise, 1895
6. *Chilocorus hauseri* (Weise, 1895)
7. *Chilocorus nigrita* (Fabricius, 1798)
8. *Priscibrumus uropygialis* (Mulsant, 1853)

##### Tribe Coccidulini Mulsant, 1846

9. *Cryptolaemus montrouzieri* Mulsant, 1853
10. *Nephus regularis* Sicard, 1929
11. *Nephus tagiapatus* (Kamiya, 1965)
12. *Oridia pubescens* (Gorham, 1895)
13. *Pharoscymnus flexibilis* (Mulsant, 1853)
14. *Pharoscymnus horni* (Weise, 1900)
15. *Scymnus dorsualis* Weise, 1892
16. *Scymnus pallidicollis* Mulsant, 1853
17. *Scymnus (Neopullus) fuscatus* Boheman, 1859
18. *Scymnus (Pullus) coccivora* Ayyar, 1925
19. *Scymnus (Pullus) bengalicus* Canepari, 1986
20. *Scymnus (Pullus) besucheti* Canepari, 1986
21. *Scymnus (Pullus) bourdilloni* (Kapur, 1958)
22. *Scymnus (Pullus) latifolius* Poorani, 2018
23. *Scymnus (Pullus) nepalensis* Bielawski, 1971
24. *Scymnus (Pullus) nymphaeus* (Kapur & Munshi, 1970)
25. *Scymnus (Pullus) pyrocheilus* Mulsant, 1853

26. *Scymnus (Scymnus) nubilus* (Mulsant, 1850)
27. *Sumnius vestita* (Mulsant, 1850)
28. *Stethorus indira* Kapur, 1950
29. *Stethorus pauperculus* (Weise, 1895)

**Tribe Coccinellini Latreille, 1807**

30. *Adalia tetraspilota* (Hope, 1831)
31. *Aiolocaria hexaspilota* (Hope, 1831)
32. *Alloneda dodecaspilota* (Hope, 1831)
33. *Anegleis cardoni* (Weise, 1892)
34. *Bothrocalvia albolineata* (Gyllenhal, 1808)
35. *Bothrocalvia pupillata* (Swartz, 1808)
36. *Callicaria superba* (Mulsant, 1853)
37. *Calvia albida* (Bielawski, 1972)
38. *Calvia quatuordecimguttata* (Linnaeus, 1758)
39. *Calvia sykesii* (Crotch, 1874)
40. *Calvia tricolor* Korschevsky, 1940
41. *Calvia vulnerata* (Hope, 1831)
42. *Coccinella luteopicta* (Mulsant, 1866)
43. *Coccinella septempunctata* (Linnaeus, 1758)
44. *Coccinella transversalis* Fabricius, 1781
45. *Coelophora bissellata* Mulsant, 1850
46. *Coelophora saucia* (Mulsant, 1850)
47. *Halyzia sanscrita* Mulsant, 1853
48. *Halyzia straminea* (Hope, 1831)
49. *Harmonia axyridis* (Pallas, 1773)
50. *Harmonia dimidiata* (Fabricius, 1781)
51. *Harmonia eucharis* (Mulsant, 1853)
52. *Harmonia octomaculata* (Fabricius, 1781)
53. *Harmonia sedecimnotata* (Fabricius, 1801)
54. *Hippodamia variegata* (Goeze, 1777)
55. *Illeis bielawskii* Ghorpade, 1976
56. *Illeis bistigmosa* Mulsant, 1850
57. *Illeis cincta* (Fabricius, 1798)

58. *Illeis confusa* Timberlake, 1943
59. *Illeis indica* Timberlake, 1943
60. *Macroilleis hauseri* (Mader, 1930)
61. *Megalocaria dilatata* (Fabricius, 1775)
62. *Megalocaria pearsoni* Crotch, 1874
63. *Menochilus sexmaculata* (Fabricius, 1781)
64. *Micraspis discolor* (Fabricius, 1798)
65. *Micraspis univittata* (Hope, 1831)
66. *Micraspis vincta* (Gorham, 1895)
67. *Micraspis yasumatsui* (Sasaji, 1968)
68. *Oenopia kirbyi* (Mulsant, 1850)
69. *Oenopia quadripunctata* (Kapur, 1963)
70. *Oenopia sauzeti* Mulsant, 1866
71. *Oenopia sexareata* (Mulsant, 1853)
72. *Oenopia signatella* (Mulsant, 1866)
73. *Palaeoneda auriculata* (Mulsant, 1866)
74. *Phrynocaria unicolor* (Fabricius, 1792)
75. *Propylea dissecta* (Mulsant, 1850)
76. *Propylea luteopustulata* (Mulsant, 1850)
77. *Psyllobora bisoetonotata* (Mulsant, 1850)
78. *Synona rougeti* (Mulsant, 1866)
79. *Synonycha grandis* (Thunberg, 1781)

**Tribe Epilachnini Mulsant, 1846**

80. *Afidenta misera* (Weise, 1901)
81. *Afidentula himalayana* (Kapur, 1963)
82. *Afidentula manderstjernaee* (Mulsant, 1853)
83. *Afissa atypica* Dieke, 1947
84. *Afissa dumerili* (Mulsant, 1850)
85. *Afissa mystica* (Mulsant, 1850)
86. *Afissa parvula* (Crotch, 1874)
87. *Afissa sanscrita* (Crotch, 1874)
88. *Afissa sureilica* (Kapur, 1963)
89. *Afissa undecimspilota* (Hope, 1831)

90. *Afissula merkli* (Jadwiszczak, 1989)
91. *Afissula mysticoides* (Sicard, 1913)
92. *Epilachna bengalica* (Dieke, 1947)
93. *Epilachna besucheti* Canepari, 1986
94. *Epilachna congener* Gorham, 1895
95. *Epilachna deyrollii* Crotch, 1874
96. *Epilachna flavicollis* Thunberg, 1781
97. *Epilachna grayi* Mulsant, 1850
98. *Epilachna laesicollis* Mulsant, 1850
99. *Epilachna macularis* Mulsant, 1850
100. *Epilachna marginicollis* (Hope, 1831)
101. *Epilachna maxima* (Weise, 1898)
102. *Epilachna moorii* Crotch, 1874
103. *Epilachna suspiciosa* Weise, 1901
104. *Henosepilachna dodecastigma* (Wiedemann, 1823)
105. *Henosepilachna dubiosa* (Dieke, 1947)
106. *Henosepilachna indica* (Mulsant, 1850)
107. *Henosepilachna ocellata* (Redtenbacher, 1844)
108. *Henosepilachna pusillanima* (Mulsant, 1850)
109. *Henosepilachna septima* (Dieke, 1947)
110. *Henosepilachna sikkimica* (Kapur, 1963)
111. *Henosepilachna vigintioctopunctata* (Fabricius, 1775)

**Tribe Hyperaspini Mulsant, 1846**

112. *Hyperaspis maindroni* Sicard, 1929

**Tribe Noviini Mulsant, 1846**

113. *Rodolia amabilis* Kapur, 1949
114. *Rodolia breviscula* Weise, 1892
115. *Rodolia fumida* Mulsant, 1850
116. *Rodolia sexnotata* (Mulsant, 1850)
117. *Rodolia ruficollis* Mulsant, 1850

**Tribe Ortaliini Mulsant, 1850**

118. *Ortalia horni* (Weise, 1900)

**Tribe Platynaspini Mulsant, 1846**

119. *Platynaspidius saundersi* (Crotch, 1874)

#### **Tribe Sticholotidini Weise, 1901**

120. *Jauravia pallidula* (Motschulsky, 1858)

121. *Jauravia quadrinotata* (Kapur, 1946)

122. *Jauravia soror* (Weise, 1892)

#### **Tribe Telsimiini Casey, 1899**

123. *Telsimia darjeelingensis* Kapur, 1969

### **3. Discussion**

Globally, 13 tribes are identified under subfamily Coccinellinae, from West Bengal 11 tribes are documented. Tribe Coccinellini (50 species and 24 genera) is the most abundant among others followed by Epilachnini (32 species and 6 genera), Coccidulini (21 species and 7 genera), Chilocorini (5 species and 3 genera), Noviini (5 species and 1 genera), Aspidimerini (3 species and 2 genera), Sticholotidini (3 species and 1 genera), Hyperaspini (1 species and 1 genera), Ortaliini (1 species and 1 genera), Platynaspini (1 species and 1 genera) and Telsimiini (1 species and 1 genera). West Bengal geographically falls under Gangetic plain area, holds the most fertile edaphic lands for agriculture. Successful cultivation requires crop safety either through pesticides or natural enemies. Out of these whole recorded ladybird species 91 are predatory in nature in larval and adult forms though 26% i.e. 32 species of Epilachnini tribe are phytophagous and utilize some of the crop plants as host. These beetles are of high economic importance in agricultural based regions, so this piece of work is just a baseline for further future aspects.

### **4. Acknowledgements**

Authors would like to thank the Director and Officer-in-Charge, Coleoptera section, Zoological survey of India for providing adequate facilities for the research works. PD, DH & AD convey their heartfelt gratitude towards Dr. Bulganin Mitra, Emeritus Professor, RKMVC, Kolkata who introduced them in the world of the insects and gives valuable suggestion encouragement with proper guidance. DH & AD also express their sincere gratitude to Swami Kamalasthananda Maharaj, Principal, Ramakrishna Mission Vivekananda Centenary College, Rahara, for his constant encouragement and support.

### **5. References**

Chakraborty, S.K., Bhowmik, A.R. and Biswas, S. 1996. Coleoptera : Coccinellidae. *State Fauna Series 3 : Fauna of West Bengal, Part 6B* : 449–493.

Jadwiszczak, A. and Wegrzynowicz, P., 2003. *World Catalogue of Coccinellidae. Part I Epilachninae*. Mantis / Olsztyn, Poland. 264 pp.

Kapur, A.P. 1948. A revision of the tribe Aspidimerini Weise (Coleoptera: Coccinellidae). *Transactions of the Royal Entomological Society of London*, 99: 77-128.

Kapur, A.P. 1948. On the Old World species of the genus *Stethorus* Weise. *Bulletin of Entomological Research*, 39: 297-320.

Kapur, A.P., 1949. On the Indian species of *Rodolia* Mulsant (Coleoptera: Coccinellidae). *Bulletin of Entomological Research*, 39: 531-538.

Kapur, A.P., 1969. On some Coccinellidae of the tribe Telsimiini with descriptions of new species from India. *Bulletin of Systematic Zoology*, 1(2): 45-56.

Kovář, I. 2007. Coccinellidae. In: *Catalogue of Palaearctic Coleoptera*, Vol. 4. I. Löbl and A. Smetana (Eds.). Stenstrup: Apollo Books, 568–631 pp.

Linnaeus, C. 1758. *Systema Naturae*, 10th edition. Stockholm, Pp.1-826

Mulsant, E., 1866. Monographie des Coccinellides. 1<sup>re</sup> partie Coccinelliens. Paris, 294 pp.

Poorani, J. 2002. An annotated checklist of the Coccinellidae (Coleoptera) (excluding Epilachninae) of the Indian subregion. *Oriental Insects*, 36: 307–383.

Poorani, J. and Lalitha, N. 2018. Illustrated accounts of coccinellid predators of *Maconellicoccus hirsutus* (Green) (Hemiptera: Sternorrhyncha: Pseudococcidae) on mulberry in India, with description of a new species of *Scymnus* Kugelann (Coleoptera: Coccinellidae) from West Bengal. *Zootaxa*, 4382(1): 093–120.

Robertson, J.A., Ślipiński, A., Moulton, M., Shockley, F.W., Giorgi, A., Lord, N.P., Mckenna, D.D., Tomaszewska, W., Forrester, J., Miller, K.B., Whiting, M.F. and Mchugh, J.V. 2015. Phylogeny and classification of Cucujoidea and the recognition of a new

superfamily Coccinelloidea (Coleoptera: Cucujiformia). *Systematic Entomology*, 40: 745–778.

Seago, A.E., Giorgi, J.A., Li, J. and Ślipiński, A. 2011. Phylogeny, classification and evolution of ladybird beetles (Coleoptera: Coccinellidae) based on simultaneous **266** analysis of molecular and morphological data. *Molecular Phylogenetics and Evolution*, 60(1): 137–151

Weise, J. 1895. Insectes du Bengale. Coccinellidae. *Annales de la Société Entomologique du Belgique*, 1895: 151-157.