



AN UPDATED CATALOGUE OF TRI-TROPHIC ASSOCIATIONS OF INSECT PREDATORS OF APHIDS (HEMIPTERA: APHIDIDAE) INFESTING CHILLI CROPS ACROSS INDIA

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Abstract: Aphidophagous predators play an important role in the biological control of aphids infesting chilli (*Capsicum* spp.), yet information on their diversity and distribution in India remains fragmented. This study enlists published records to document the diversity and tri-trophic associations (TTAs) of aphidophagous predators associated with chilli aphids. A total of 59 predator species belonging to three insect orders and five families were recorded preying on six aphid species infesting three cultivated *Capsicum* species, forming 149 TTAs across 17 States and Union Territories. *Cheilomenes sexmaculata* exhibited the broadest trophic niche, whereas *Coccinella septempunctata* showed the widest geographical distribution. *Aphis gossypii* and *Myzus persicae* were the principal prey species, collectively accounting for 68.2% of all TTAs. Among the host plants, *Capsicum frutescens* supported the highest predator diversity, while Uttar Pradesh recorded the greatest predator richness and TTAs, followed by Assam and Kerala. Most predator species exhibited narrow trophic breadth and restricted geographical distribution, indicating localised records and uneven research efforts. The study provides the first comprehensive synthesis of aphidophagous predator diversity associated with chilli aphids in India, identifies important knowledge gaps, and establishes a baseline for future biodiversity assessments and conservation biological control programmes.

Keywords: Aphidophagous predators, *Capsicum* spp., Coccinellidae, Tri-trophic associations, *Aphis*, *Myzus*.

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INTRODUCTION

The genus *Capsicum* L. comprises over 40 recognised species, of which five, *Capsicum annuum* L. (common chilli or sweet pepper), *Capsicum frutescens* L. (tabasco, hot chilli or bird's-eye chilli), *Capsicum chinense* Jacq. (Bhut Jolokia; habanero or king chilli), *Capsicum baccatum* L. (ají pepper), and *Capsicum pubescens* Ruiz and Pav. (rocoto pepper), have been domesticated and are cultivated worldwide (Bosland and Votava, 2012; Liu *et al.*, 2023). Native to Central and South America, chilli/pepper was introduced into

India during the sixteenth century and has since become an integral component of Indian agriculture, cuisine, and the spice industry (DeWitt and Bosland, 2014). Owing to its adaptability to diverse agro-climatic conditions, three species, *Capsicum annuum* and *Capsicum frutescens* are cultivated throughout the country, with Andhra Pradesh, Telangana, Karnataka, Maharashtra, Madhya Pradesh, Tamil Nadu, Odisha, Gujarat, Rajasthan, Uttar Pradesh, Bihar, and West Bengal being the principal producing states (Reddy and Ponnampaluri, 2023; Ministry of Agriculture and



Farmers Welfare, 2024). The king chilli, *Capsicum chinense* is mostly cultivated in northeast states of India (Thangjam *et al.*, 2020; Singh *et al.*, 2024a). India is among the leading producers and exporters of chilli, supplying fresh and processed products to numerous international markets through the spice trade (Spices Board India, 2024).

Chilli fruits are widely consumed in fresh, dried, powdered, and processed forms and are indispensable ingredients in curries, pickles, sauces, condiments, oleoresins, and food colourants. They are valued not only for their characteristic pungency and colour, imparted by capsaicinoids and carotenoids, respectively, but also for their high nutritional value as rich sources of vitamins A, C, and E, minerals, dietary fibre, and antioxidant compounds (Tripodi and Kumar, 2019). The presence of numerous bioactive constituents has further enhanced the pharmaceutical and nutraceutical importance of chilli (Sharma *et al.*, 2022).

Despite its economic significance, chilli is susceptible to attack by a wide range of arthropod pests throughout its growth cycle. More than 50 arthropod pest species have been reported from chilli in India, although only a few attain major economic importance (Reddy and Puttaswamy, 1984; Halder *et al.*, 2016). Among these, aphids (*Aphis gossypii* Glover and *Myzus persicae* (Sulzer)), chilli thrips (*Scirtothrips dorsalis* Hood), whitefly (*Bemisia tabaci* (Gennadius)), cotton leafhopper (*Amrasca biguttula biguttula* (Ishida)), yellow mite (*Polyphagotarsonemus latus* (Banks)), tobacco caterpillar (*Spodoptera litura* (Fabricius)), and gram pod borer (*Helicoverpa armigera* (Hübner)) are the most destructive pests affecting crop productivity and fruit quality (Halder *et al.*, 2016; Yadav *et al.*, 2022). Aphids are particularly damaging because they feed on phloem sap, causing leaf curling, chlorosis, stunted growth, and honeydew deposition that promotes sooty mould development. In addition, they transmit several economically important plant viruses, including cucumber mosaic virus, potato virus Y, and chilli veinal mottle virus, resulting in substantial yield losses (Singh and Singh, 2022).

Although insecticides remain the principal means of aphid management, their indiscriminate use has resulted in insecticide resistance, pest resurgence, environmental contamination, pesticide residues, and adverse effects on beneficial organisms (Pimentel, 2005; Singh, 2018; Singh *et al.*, 2023). Consequently, the integrated pest management (IPM) strategies increasingly emphasise the conservation and utilization of indigenous natural enemies as environmentally sustainable alternatives (Kogan, 1998; Cortez-Madrigal and Gutiérrez-Cárdenas, 2023).

Aphid populations in chilli agroecosystems are naturally regulated by a diverse assemblage of predators and parasitoids. Among these, ladybird beetles (Coleoptera: Coccinellidae), hover flies (Diptera: Syrphidae), lacewings (Neuroptera: Chrysopidae and Hemerobiidae), predatory bugs (Hemiptera), spiders (Araneae), and parasitoids belonging to the family Braconidae, constitute the principal natural enemies suppressing aphid populations (Hodek and Honěk, 1996; Singh and Shukla, 2026; Singh and Agarwala, 2026). Conservation of these beneficial organisms is fundamental to sustainable aphid management and enhances the ecological resilience of chilli production systems.

Despite numerous regional studies documenting natural enemies associated with chilli aphids, the available information remains dispersed across research articles, technical bulletins, institutional reports, theses, and regional journals. Furthermore, taxonomic revisions and changes in nomenclature have complicated the interpretation of historical records. A consolidated and updated checklist of aphidophagous predators associated with aphids infesting chilli crops in India is therefore lacking. Such a synthesis is essential for documenting predator diversity and distribution, identifying knowledge gaps, supporting conservation biological control, and providing a reliable baseline for future ecological and biodiversity studies.

The present study therefore compiles a comprehensive checklist of aphidophagous predators associated with aphids infesting chilli crops in India based on published literature. The checklist summarises their taxonomic diversity, geographical distribution, and aphid associations and provides an important reference for future research on biological control and integrated pest management of chilli aphids.

MATERIALS AND METHODS

A comprehensive checklist of aphidophagous predators associated with aphids infesting chilli (*Capsicum* spp.) was compiled from published literature available up to June, 30, 2026. Relevant information was collected from peer-reviewed research articles, books, book chapters, conference proceedings, technical bulletins, reports, and postgraduate theses retrieved through Google Scholar, Web of Science, Scopus, CAB Abstracts, and institutional repositories. Only records explicitly documenting predator species associated with identified aphid species on *Capsicum* were included. Records with ambiguous species identities, duplicate reports, or unsupported host associations were

excluded. For each valid record, information on the predator species, aphid prey, *Capsicum* host, distribution, and literature source was extracted.

Predator nomenclature was validated using the Global Biodiversity Information Facility (<https://www.gbif.org>), aphid taxonomy was standardised according to the Aphid Species File (<https://Aphid.SpeciesFile.org>), and botanical names were verified using World Flora Online (<https://www.worldfloraonline.org>). Synonyms and outdated scientific names were updated to their currently accepted nomenclature while preserving the original biological records. The validated checklist was arranged

alphabetically by predator species, with corresponding aphid prey, host plant, distribution, and references. Owing to the qualitative nature of the published data, no statistical analyses were performed.

RESULTS

A total of 59 species of aphidophagous predators belonging to three insect orders and five families were recorded preying on six aphid species infesting three cultivated *Capsicum* species, *Capsicum annuum*, *Capsicum chinense* and *Capsicum frutescens* resulting in 148 tri-trophic associations (TTAs) distributed across 17 States and Union Territories of India (Table 1).

Table 1: Number of species of predators belonging to different taxa preying on aphids infesting chilli crops and their tri-trphic associations (TTAs) and distribution in different number of states/union territories (ST/UT) in India.

Orders	Number of					
	Families	Predator species	Aphid species	Plant species	TTAs	ST/UT
1. Coleoptera	2	44	6	3	118	16
2. Diptera	1	11	3	3	23	7
3. Neuroptera	2	4	4	3	8	8
Total	5	59	6	3	149	17

The aphidophagous predator fauna associated with aphids infesting chilli (*Capsicum* spp.) in India was dominated by Coleoptera, which constituted 74.6% of the total recorded predator species. Diptera was the second most diverse order, accounting for 18.6% of the predator assemblage, while Neuroptera represented the smallest proportion, contributing only 6.8%. (Fig. 1).

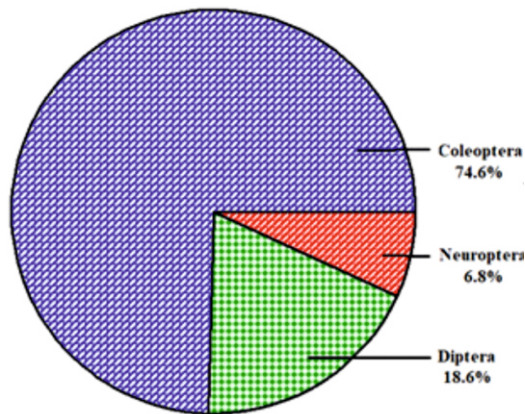


Fig. 1: Percentage distribution of aphidophagous predator species among insect orders recorded from aphids infesting cultivated chilli (*Capsicum* spp.) in India.

A. Order: Coleoptera

A total of 44 species of coleopteran predators belonging to two families, Coccinellidae (43 species)

and Staphylinidae (one species), were recorded preying on aphids infesting cultivated chilli (*Capsicum* spp.) in India (Table 2).

The coccinellid predators exhibited considerable variation in trophic breadth, geographical distribution, and the number of tri-trophic associations (TTAs). Among the recorded species, *Cheilomenes sexmaculata* exhibited the broadest trophic niche, preying on five aphid species infesting all three cultivated *Capsicum* species and forming the highest number of TTAs (10) across 12 States. *Coccinella septempunctata* ranked second, being associated with four aphid species on three *Capsicum* species, resulting in nine TTAs across the widest geographical range (13 States). Other broadly polyphagous species included *Coccinella transversalis* (four aphid species, seven TTAs, nine States), *Brumoides suturalis* and *Harmonia dimidiata* (each three aphid species, six TTAs), *Scymnus nubilus* (four aphid species, five TTAs), *Micraspis discolor* (five TTAs), *Coelophora bissellata*, *Hippodamia variegata*, *Micraspis yasumatsui*, and *Propylea dissecta* (each four TTAs) (Table 2).

The majority of predators, however, exhibited a narrow trophic range. Twenty-three species (52.3%) were associated with only a single aphid species and

one *Capsicum* species, each forming a single TTA. Twelve species (27.3%) preyed on two aphid species, while four species each were associated with three and four aphid species.

Geographically, *Coccinella septempunctata* was the most widely distributed species, followed by *Cheilomenes sexmaculata* and *Coccinella transversalis*. Most remaining species exhibited

restricted distributions, with 30 species (68.2%) recorded from only one or two States, indicating that the known diversity of aphidophagous ladybirds on chilli is largely represented by localised records. Overall, the results indicate that a few widespread generalist ladybird species dominate aphid predation on chilli in India, whereas the majority of recorded predators exhibit narrow trophic breadth and limited geographical distribution.

Table 2: Number of species of ladybirds (Coleoptera) predators preying on different number of aphid species infesting chilli crops and tri-trophic associationa (TTA) in different states/union territories (ST/UT) of India.

Species of the predators	Number of			
	Aphid species	Plant species	TTAs	ST/UT
1. <i>Adalia bipunctata</i>	1	1	1	1
2. <i>Adalia tetraspilota</i>	1	1	1	1
3. <i>Anegleis cardoni</i>	1	2	2	3
4. <i>Axinoscymnus puttardudriahi</i>	1	1	1	1
5. <i>Brumoides suturalis</i>	3	3	6	5
6. <i>Cheilomenes sexmaculata</i>	5	3	10	12
7. <i>Coccinella septempunctata</i>	4	3	9	13
8. <i>Coccinella transversalis</i>	4	3	7	9
9. <i>Coccinella undecimpunctata</i>	1	1	1	1
10. <i>Coelophora biplagiata</i>	1	1	1	1
11. <i>Coelophora bissellata</i>	2	3	4	2
12. <i>Cryptogonus bimaculatus</i>	2	1	2	1
13. <i>Cryptogonus orbiculus</i>	2	2	3	2
14. <i>Cryptogonus quadriguttatus</i>	2	1	2	1
15. <i>Harmonia dimidiata</i>	3	3	6	2
16. <i>Harmonia eucharis</i>	1	1	1	1
17. <i>Harmonia octomaculata</i>	2	2	3	2
18. <i>Hippodamia variegata</i>	3	2	4	2
19. <i>Illeis cincta</i>	1	1	1	2
20. <i>Illeis indica</i>	2	1	2	1
21. <i>Jauravia quadrinotata</i>	2	1	2	1
22. <i>Micraspis allardi</i>	1	1	1	1
23. <i>Micraspis discolor</i>	2	3	5	4
24. <i>Micraspis univittata</i>	2	2	3	2
25. <i>Micraspis vincta</i>	1	2	2	2
26. <i>Micraspis yasumatsui</i>	2	2	4	2
27. <i>Nephus ancyroides</i>	1	2	2	1

28. <i>Phrynocaria perrotteti</i>	1	1	1	1
29. <i>Platynaspis kapuri</i>	3	2	3	2
30. <i>Propylea dissecta</i>	2	2	4	2
31. <i>Propylea japonica</i>	1	2	2	2
32. <i>Propylea luteopustulata</i>	1	1	1	1
33. <i>Pseudaspidimerus flaviceps</i>	1	2	2	2
34. <i>Pseudaspidimerus trinotata</i>	2	2	2	2
35. <i>Scymnus castaneus</i>	1	1	1	1
36. <i>Scymnus fuscatus</i>	1	1	1	1
37. <i>Scymnus nubilus</i>	4	3	5	2
38. <i>Scymnus pyrocheilus</i>	4	1	4	2
39. <i>Scymnus xerampelinus</i>	1	1	1	1
40. <i>Scymnus</i> sp.	1	1	1	1
41. <i>Sticholotis obscurella</i>	1	1	1	1
42. <i>Synona rougeti</i>	1	1	1	1
43. <i>Telsimia</i> sp.	1	1	1	1
b. Family: Staphylinidae				
44. <i>Paederus fuscipes</i>	1	1	1	1
Total	3	3	118	16

B. Ordera: Diptera

A total of 11 species of hover flies (Diptera: Syrphidae) were recorded preying on aphids infesting cultivated chilli (*Capsicum* spp.) in India, forming 23 tri-trophic associations (TTAs) across seven States (Table 3). *Episyrphus balteatus* and *Ischiodon scutellaris* exhibited the widest trophic breadth, each preying on three aphid species and forming the highest number of four TTAs. However, *Ischiodon scutellaris* was associated with all three cultivated *Capsicum* species, whereas *Episyrphus balteatus* was recorded from two host species. Both species were distributed across three States, representing the most widespread syrphid predators on chilli aphids. *Betasyrphus serarius* and *Sphaerophoria scripta* each exploited two aphid species on two *Capsicum* species, forming three TTAs across two States. *Paragus serratus* was associated with two aphid species and two host plants, resulting in two TTAs, but was confined to a single State. The remaining six species each preyed on a single aphid species on one *Capsicum* species, forming a single TTA and exhibiting restricted geographical distribution.

Overall, syrphid predators displayed relatively narrow trophic breadth, with 54.5% (6 species) associated with only one aphid species, while only two species (18.2%) exploited three aphid species. The results

identify *Ischiodon scutellaris* and *Episyrphus balteatus* as the principal hover fly predators of chilli aphids in India owing to their broad host range, higher number of tri-trophic associations, and wider geographical distribution.

C. Ordera: Neuroptera

A total of four species of lacewings (Neuroptera) belonging to two families, Chrysopidae and Hemerobiidae, were recorded preying on aphids infesting cultivated chilli (*Capsicum* spp.) in India (Table 4). These species were associated with two aphid species on all three cultivated *Capsicum* species, and formed eight tri-trophic associations (TTAs) across eight States.

Among the recorded species, *Chrysoperla zastrowi sillemi* was the most important lacewing predator, preying on two aphid species infesting all three cultivated *Capsicum* species, forming the highest number of three TTAs, and exhibiting the widest geographical distribution across eight States. The two hemerobiids, *Micromus timidus* and *Micromus* sp., each preyed on two aphid species associated with two *Capsicum* species, resulting in two TTAs each, although their distributions were restricted to one and two States, respectively.

In contrast, Overall, lacewings constituted a relatively species-poor but ecologically important predator guild, with *Chrysoperla zastrowi sillemi* emerging as

the principal neuropteran predator of chilli aphids in India because of its broad host range and wide geographical distribution.

Table 3: Number of species of hover flies (Diptera: Syrphidae) predators preying on different number of aphid species infesting chilli crops and tri-trophic associationa (TTA) in different states/union territories (ST/UT) of India.

Species of the predators	Number of			
	Aphid species	Plant species	TTAs	ST/UT
1. <i>Betasyrphus serarius</i>	2	2	3	2
2. <i>Episyrphus balteatus</i>	3	2	4	3
3. <i>Episyrphus viridaureus</i>	1	1	1	1
4. <i>Eupeodes confrater</i>	1	1	1	1
5. <i>Eupeodes latifasciatus</i>	1	1	1	1
6. <i>Ischiodon scutellaris</i>	3	3	5	3
7. <i>Paragus crenulatus</i>	1	1	1	1
8. <i>Paragus serratus</i>	2	2	2	1
9. <i>Paragus</i> sp.	1	1	1	1
10. <i>Sphaerophoria indiana</i>	1	1	1	1
11. <i>Sphaerophoria scripta</i>	2	2	3	2
Total	3	3	23	7

Table 4: Number of species of lacewing (Neuroptera) predators preying on different number of aphid species infesting chilli crops and tri-trophic associations (TTA) in different States/union territories (ST/UT) of India.

Species of the predators	Number of			
	Aphid species	Plant species	TTAs	ST/UT
a. Family: Chrysopidae				
1. <i>Ankylopteryx octopunctata</i>	1	1	1	1
2. <i>Chrysoperla zastrowi sillemi</i>	2	3	3	8
b. Family: Hemerobiidae				
3. <i>Micromus timidus</i>	2	2	2	1
4. <i>Micromus</i> sp.	2	2	2	2
Total	3	3	8	8

All the three species of *Capsicum* chilli crops in India are infested by six species of aphids that differed markedly in the diversity of associated predators. *Aphis gossypii* was the predominant prey species, supporting 45 predator species, occurring on all three *Capsicum* species, and accounting for 68 TTAs distributed across 13 States/Union Territories. *Myzus persicae* ranked second, being exploited by 34 predator species on all three *Capsicum* species, resulting in 56 TTAs from 10

States/Union Territories (Table 5). Together, these two aphids accounted for 101 TTAs (68.2%) and served as prey for 76.3% and 57.6% of the recorded predator species, respectively, demonstrating their central role in sustaining aphidophagous predator communities in chilli ecosystems. In comparison, *Aphis solanella*, *Aphis nasturtii*, *Aphis nerii* and *Aphis spiraeicola* were associated with 2-13 predator species across one to two States.

Table 5: Number of species of aphids infesting chilli crops consumed by different numbers of predator species forming in different number of tritrophic associations (TTAs) across states/union territories (ST/UT) of India.

Aphid species	Number of			
	Predator species	Host plant species	TTAs	ST/UT
1. <i>Aphis gossypii</i>	45	3	68	13
2. <i>Aphis nasturtii</i>	8	2	8	2
3. <i>Aphis nerii</i>	2	1	2	1
4. <i>Aphis solanella</i>	13	1	13	1
5. <i>Aphis spiraecola</i>	2	1	2	2
6. <i>Myzus persicae</i>	34	3	56	10
Total	59	3	149	17

The three cultivated chilli species also differed in their associated aphid and predator diversity. *Capsicum frutescens* supported the richest predator assemblage, harbouring five aphid species, 42 predator species, and 62 TTAs across nine States, whereas *Capsicum annuum* was infested by four aphid species that were exploited by 33 predator species, resulting in 48 TTAs distributed across the widest geographical range (13

States/Union Territories) (Table 6). Although *Capsicum chinense* hosted only two aphid species, it supported a relatively high diversity of 24 predator species and 38 TTAs, albeit confined to only two northeast Indian states Assam and Manipur), suggesting that it also provides favourable habitats for diverse aphidophagous predators.

Table 6: Number of species of chilli crops infested by different numbers of aphid species consumed by different numbers of predator species in different number of states/union territories (ST/UT) of India.

Plant species	Number of			
	Aphid species	Predator species	TTAs	ST/UT
1. <i>Capsicum annuum</i>	4	33	48	13
2. <i>Capsicum chinense</i>	2	24	39	2
3. <i>Capsicum frutescens</i>	5	42	62	9
Total	6	59	149	16

The distribution of aphidophagous predators associated with aphids infesting chilli crops varied considerably among the 17 states and union territories of India (Table 7). Uttar Pradesh exhibited the highest diversity, with 33 predator species associated with four aphid species infesting two *Capsicum* species, resulting in 65 tri-trophic associations (TTAs). Assam ranked second, supporting 22 predator species, two aphid species, and 37 TTAs on a single *Capsicum* species, followed by Kerala, where 20 predator species were associated with three aphid species, two host plant species, and 27 TTAs. West Bengal also supported a relatively rich predator fauna, comprising 11 predator species, three aphid species, two *Capsicum* species, and 23 TTAs (Fig. 2).

Moderate predator diversity was recorded from Tamil

Nadu (7 predator species, 2 aphid species, 2 host plant species, 8 TTAs), Jammu and Kashmir and Manipur (each 5 predator species and 6 TTAs), and Punjab (4 predator species and 4 TTAs). In contrast, Bihar, Chhattisgarh, and Karnataka each harboured three predator species, whereas Himachal Pradesh, Madhya Pradesh, Maharashtra, Sikkim, and Uttarakhand each supported only two predator species. Nagaland was represented by a single predator species associated with one aphid species, and one host plant species (Table 7).

The richness of predator species generally increased with the diversity of aphid hosts and *Capsicum* species. However, notable regional differences were evident. For instance, Kerala and West Bengal supported higher predator diversity despite

harbouring fewer aphid species than Uttar Pradesh, while Assam recorded a high number of predator species and TTAs despite the occurrence of only two aphid species on a single *Capsicum* host. Overall, the uneven geographical distribution of documented

predator–aphid–host plant associations indicates substantial variation in research intensity and highlights several chilli-growing regions that remain underexplored for aphidophagous predator diversity.

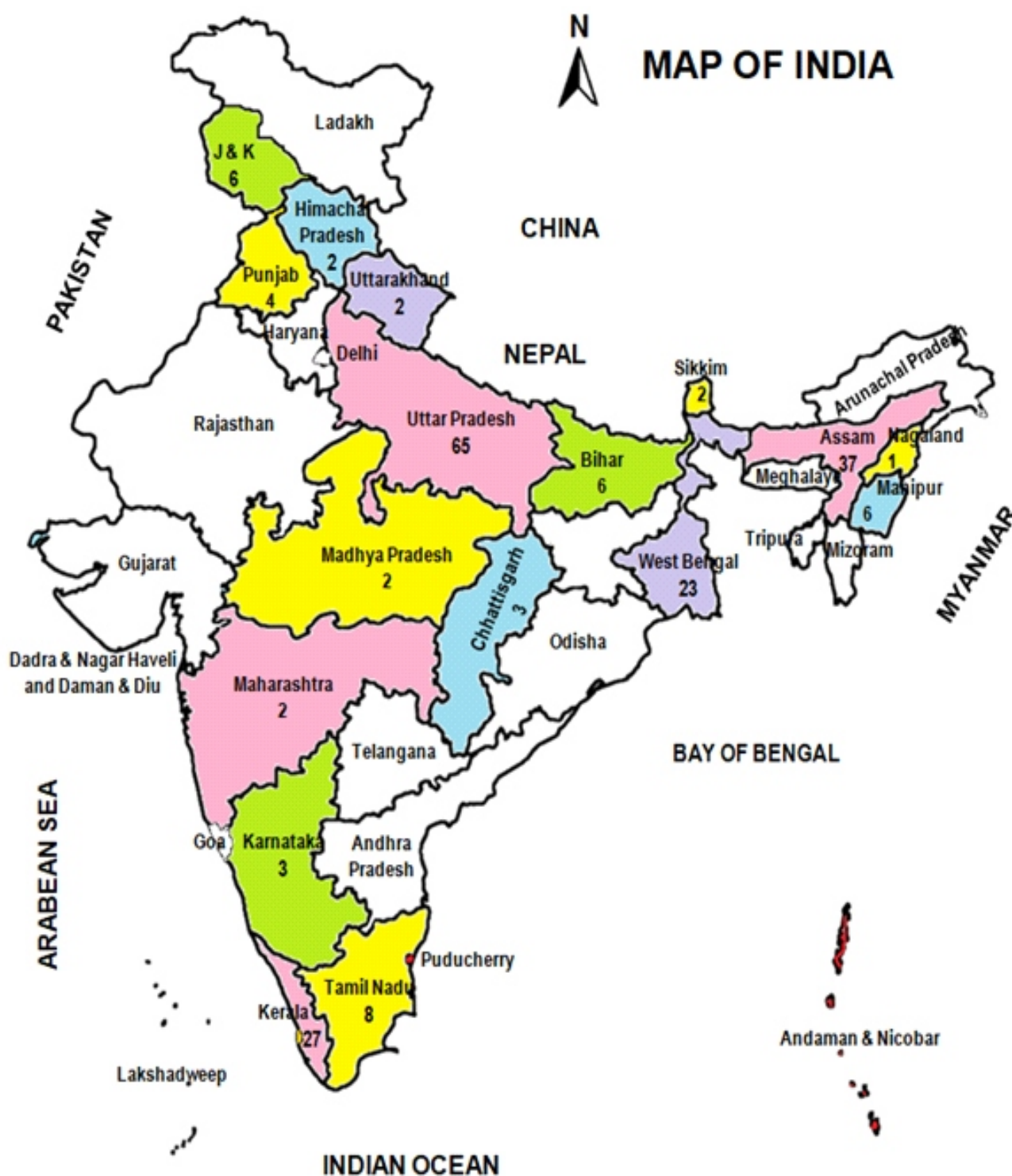


Fig. 2: Map showing the number of tri-trophic associations of predators of aphids infesting *Capsicum* crop in different states/union territories of India. No species of the predator was recorded in unshaded states/union territories of India.

Table 7: Number of species of predators of aphids infesting chilli crops in Indian states/union territories.

States/Union territories	Number of		
	Predator species	Aphid species	Host plant species
1. Assam	22	2	1
2. Bihar	3	3	1
3. Chhattisgarh	3	1	1
4. Himachal Pradesh	2	1	1
5. Jammu and Kashmir	5	2	1
6. Karnataka	3	2	2
7. Kerala	20	3	2
8. Madhya Pradesh	2	1	1
9. Maharashtra	2	2	1
10. Manipur	5	1	2
11. Nagaland	1	1	1
12. Punjab	4	1	1
13. Sikkim	2	1	1
14. Tamil Nadu	7	2	2
15. Uttar Pradesh	33	4	2
16. Uttarakhand	2	1	1
17. West Bengal	11	3	2
Total	59	6	3

DISCUSSION

The present checklist documents 59 species of aphidophagous predators, six aphid species, three cultivated *Capsicum* species, and 149 tri-trophic associations across 17 states and union territories of India, demonstrating the rich but unevenly documented diversity of natural enemies associated with chilli aphids. The predominance of Coleoptera, particularly Coccinellidae, agrees with previous studies identifying ladybird beetles as the most important aphid predators because of their broad prey range and high adaptability (Dixon, 2000; Hodek *et al.*, 2012; Kumar and Omkar, 2023; Singh, 2025a). Syrphids and neuropterans constituted the next major predator groups, consistent with their recognised role in aphid suppression in vegetable ecosystems (Singh, 2026; Singh *et al.*, 2024b).

The dominance of *Cheilomenes sexmaculata*, *Coccinella septempunctata*, and *Coccinella transversalis* reflects their polyphagous feeding habits and wide ecological distribution (Singh *et al.*, 2024c; Singh, 2025b). In contrast, over half of the predator

species were associated with only a single aphid species and were confined to one or two states, suggesting that the currently known diversity is strongly influenced by limited surveys and taxonomic investigations.

The predominance of *Aphis gossypii* and *Myzus persicae*, together accounting for 68.2% of all tri-trophic associations, is expected because these cosmopolitan, polyphagous aphids are the principal pests of chilli and numerous other crops, providing abundant prey for aphidophagous predators (Singh *et al.*, 2014, 2015; Singh, 2024a, 2024b).

The greater predator richness on *Capsicum frutescens* compared with *Capsicum annuum* probably reflects differences in cultivation regions rather than host suitability. *Capsicum frutescens* is commonly grown in the humid northeastern and tropical regions, whereas *Capsicum annuum* is cultivated throughout India (Tripodi and Kumar, 2019) and *Capsicum chinense* is cultivated mostly in northeast India (Moirangthem *et al.*, 2012).

The highest numbers of predator species and tri-trophic associations were recorded from Uttar Pradesh, followed by Assam, Kerala, and West Bengal. However, these patterns probably reflect greater research intensity and favourable agroecological conditions rather than actual species richness. In contrast, the low numbers reported from several central, Himalayan, and northeastern states are more likely attributable to inadequate surveys than to poor predator diversity. Overall, the checklist highlights significant geographical gaps in knowledge and underscores the need for systematic investigations, particularly in underexplored chilli-growing regions, to strengthen conservation biological control and integrated pest management programmes.

The detailed account of tri-trophic associations of insect predators of aphids infesting chilli crops across India are given below.

A. Order: Coleoptera

a. Family: Coccinellidae

1. *Adalia bipunctata* (Linnaeus, 1758)

Myzus persicae (Sulzer, 1776)

- *Capsicum frutescens* L. - Uttar Pradesh (Singh and Singh, 2026)

2. *Adalia tetraspilota* (Hope, 1831)

Myzus persicae (Sulzer, 1776)

- *Capsicum annuum* L. - Jammu and Kashmir (Bhat, 2017; Khan and Shah, 2017)

3. *Anegleis cardoni* (Weise, 1892)

Aphis gossypii Glover, 1877

- *Capsicum annuum* L. - Uttar Pradesh (Tiwarei *et al.*, 2024; Singh and Singh, 2026); West Bengal (Maji *et al.*, 2023)
- *Capsicum frutescens* L. - West Bengal (Gurung *et al.*, 2019)

4. *Axinoscymnus puttarudriahi* Kapur and Munshi, 1965

Aphis gossypii Glover, 1877

- *Capsicum frutescens* L. - Kerala (Vidya and Bhaskar, 2017)

5. *Brumoides suturalis* (Fabricius, 1798)

Aphis gossypii Glover, 1877

- *Capsicum annuum* L. - Kerala (Thamilvel, 2009); Uttar Pradesh (Tiwarei *et al.*, 2024)

Aphis gossypii Glover, 1877

- *Capsicum chinense* Jacq.- Assam (Begam *et al.*, 2016; Bora *et al.*, 2020)

Aphis gossypii Glover, 1877

- *Capsicum frutescens* L.- Tamil Nadu (Rekha *et al.*, 2009); Uttar Pradesh (Tiwarei *et al.*, 2024)

Aphis solanella Theobald, 1854

- *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012)

Myzus persicae (Sulzer, 1776)

- *Capsicum annuum* L.- Punjab (Kaur and Sangha, 2016)
- *Capsicum chinense* Jacq.- Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2021)

Myzus persicae (Sulzer, 1776)

- *Capsicum frutescens* L. - Uttar Pradesh (Singh and Singh, 2026)

6. *Cheilomenes sexmaculata* (Fabricius, 1781)

Aphis gossypii Glover, 1877

- *Capsicum annuum* L. - Chhattisgarh (Kumar *et al.*, 2020); Kerala (Kumar, 1999; Thamilvel, 2009); Madhya Pradesh (Chintkuntlawar *et al.*, 2015; Khadse *et al.*, 2023); Uttar Pradesh (Tiwarei *et al.*, 2024; Singh and Singh, 2026); West Bengal (Maji *et al.*, 2023)
- *Capsicum chinense* Jacq.- Assam (Begam *et al.*, 2016; Thangjam *et al.*, 2020); Manipur (Singh *et al.*, 2024a)
- *Capsicum frutescens* L.- Bihar (Ahmad *et al.*, 2020); Kerala (Thamilvel, 2009); Tamil Nadu (Rekha *et al.*, 2009); Uttar Pradesh (Tiwarei *et al.*, 2024; Singh and Singh, 2026); West Bengal (Gurung *et al.*, 2019)

Aphis nasturtii Kalténbach, 1843

- *Capsicum frutescens* L.- Uttar Pradesh (Chaudhary and Singh, 2012)

Aphis nerii Boyer de Fonsc., 1841

- *Capsicum annuum* L. - Kerala (Thamilvel, 2009)

Aphis solanella Theobald, 1854

- *Capsicum frutescens* L. - Uttar Pradesh (Tiwarei *et al.*, 2024; Singh and Singh, 2026)

Myzus persicae (Sulzer, 1776)

- *Capsicum annuum* L. - Kerala (Kumar, 1999); Punjab (Kaur and Sangha, 2016)
- *Capsicum chinense* Jacq.- Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2020)
- *Capsicum frutescens* L.- Karnataka (Megha *et al.*, 2015); Tamil Nadu (Rajagopal and Karim, 1983); Uttar Pradesh (Singh and Singh, 2026)

Unidentified aphid

- *Capsicum annuum* L.- Maharashtra (Bagal and Trehan, 1945)

7. *Coccinella septempunctata* Linnaeus, 1758

Aphis gossypii Glover, 1877

- *Capsicum annuum* L. - Chhattisgarh (Kumar *et al.*, 2020); Kerala (Thamilvel, 2009); Madhya Pradesh (Chintkuntlawar *et al.*, 2015; Khadse *et al.*, 2023); Tamil Nadu (Sudarmani *et al.*, 2022); Uttar Pradesh (Tiwarei *et al.*, 2024); West Bengal (Maji *et al.*, 2023)
- *Capsicum chinense* Jacq.- Assam (Begam *et al.*, 2016; Thangjam *et al.*, 2020); Manipur (Singh *et al.*, 2024a)

- *Capsicum frutescens* L.- Bihar (Ahmad *et al.*, 2020); Uttar Pradesh (Tiwari *et al.*, 2024); West Bengal (Gurung *et al.*, 2019; Debnath, 2020)
- Aphis nasturtii* Kaltenbach, 1843**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
- Aphis spiraecola* Patch, 1914**
 - *Capsicum frutescens* L. - Sikkim (Ghosh and Raychaudhuri, 1982; Chakrabarti *et al.*, 2012); West Bengal (Debnath, 2020)
- Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Jammu and Kashmir (Bhat, 2017; Khan and Shah, 2017); Punjab (Kaur and Sangha, 2016)
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2021)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026); West Bengal (Gurung *et al.*, 2019)
- Unidentified aphid**
 - *Capsicum annuum* L.- Maharashtra (Bagal and Trehan, 1945)
- 8. *Coccinella transversalis* Fabricius, 1781**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Chhattisgarh (Kumar *et al.*, 2020); Kerala (Thamilvel, 2009); Nagaland (Konyak *et al.*, 2025); Uttar Pradesh (Tiwari *et al.*, 2024); West Bengal (Maji *et al.*, 2023)
 - *Capsicum chinense* Jacq. - Assam (Begam *et al.*, 2016; Thangjam *et al.*, 2020); Manipur (Singh *et al.*, 2024a)
 - *Capsicum frutescens* L. - Kerala (Gokul *et al.*, 2024); Manipur (Devi, 1989); Tamil Nadu (Rekha *et al.*, 2009); Uttar Pradesh (Tiwari *et al.*, 2024); West Bengal (Gurung *et al.*, 2019)
 - Aphis nasturtii* Kaltenbach, 1843**
 - *Capsicum annuum* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
 - Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Singh and Singh, 2026)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2021)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024); Himachal Pradesh (Sharma *et al.*, 2015); West Bengal (Gurung *et al.*, 2019)
- 9. *Coccinella undecimpunctata* Linnaeus, 1758**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
- 10. *Coelophora biplagiata* (Swartz, 1808)**
 - Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012; Tiwari *et al.*, 2024)
- 11. *Coelophora bissellata* (Mulsant, 1850)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020; Thangjam *et al.*, 2021)
- 12. *Cryptogonus bimaculatus* (Kapur, 1948)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
- 13. *Cryptogonus orbiculus* (Gyllenhal, 1808)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2020)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2021)
- 14. *Cryptogonus quadriguttatus* (Weise, 1895)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
- 15. *Harmonia dimidiata* (Fabricius, 1781)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2020)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
 - Aphis nasturtii* Kaltenbach, 1843**
 - *Capsicum annuum* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
 - *Capsicum frutescens* L.- Uttar Pradesh (Chaudhary and Singh, 2012; Singh and Singh, 2026)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2020)

16. ***Harmonia eucharis* (Mulsant, 1853)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
17. ***Harmonia octomaculata* (Fabricius, 1787)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)***Aphis nerii* Boyer de Fonsc., 1841**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
18. ***Hippodamia variegata* (Goeze, 1777)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)***Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012)***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Jammu and Kashmir (Khan and Shah, 2017)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
19. ***Illeis cincta* (Fabricius, 1798)**
***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum frutescens* L. - Karnataka (Megha *et al.*, 2015); Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
20. ***Illeis indica* Timberlake, 1943**
***Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - West Bengal (Gurung *et al.*, 2019)***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum frutescens* L. - West Bengal (Gurung *et al.*, 2019)
21. ***Jauravia quadrinotata* (Kapur, 1946)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020; Thangjam *et al.*, 2021)
22. ***Micraspis allardi* (Mulsant, 1866)**
***Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012; Singh and Singh, 2026)
23. ***Micraspis discolor* (Fabricius, 1798)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
- *Capsicum chinense* Jacq. - Assam (Begam *et al.*, 2016; Thangjam *et al.*, 2020)
- *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024); West Bengal (Gurung *et al.*, 2019)
- Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2020)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026); West Bengal (Gurung *et al.*, 2019)
24. ***Micraspis univittata* (Hope, 1831)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
 - *Capsicum frutescens* L. - Uttar Pradesh (Singh and Singh, 2026)
25. ***Micraspis vincta* (Gorham, 1895)**
***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
26. ***Micraspis yasumatsui* Sasaji, 1968 [misident. *Micraspis crocea* (Mulsant, 1850)]**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Kumar, 1999)
 - *Capsicum frutescens* L. - West Bengal (Gurung *et al.*, 2019)***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Kerala (Kumar, 1999)
 - *Capsicum frutescens* L. - West Bengal (Gurung *et al.*, 2019)
27. ***Nephus ancyroides* Pang and Pu, 1988**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
 - *Capsicum frutescens* L. - Kerala (Vidya and Bhaskar, 2017)
28. ***Phrynocaria perrotteti* (Mulsant, 1850)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
29. ***Platynaspis kapuri* (Chakraborty and Biswas, 2000)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)***Aphis spiraecola* Patch, 1914**
 - *Capsicum frutescens* L. - Sikkim (Chakrabarti *et al.*, 2012)

- Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020; Thangjam *et al.*, 2021)
- 30. *Propylea dissecta* (Mulsant, 1850)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
 - *Capsicum frutescens* L. - West Bengal (Gurung *et al.*, 2019)
- Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020; Thangjam *et al.*, 2021)
 - *Capsicum frutescens* L. - West Bengal (Gurung *et al.*, 2019)
- 31. *Propylea japonica* (Thunberg, 1781)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
- 32. *Propylea luteopustulata* (Mulsant, 1850)**
***Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Singh and Singh, 2026)
- 33. *Pseudaspidimerus flaviceps* (Walker, 1859)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
- 34. *Pseudaspidimerus trinotata* (Thunberg, 1781)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
- Aphis nasturtii* Kaltenbach, 1843**
 - *Capsicum frutescens* L. - Bihar (Ahmad *et al.*, 2012, 2020)
- 35. *Scymnus castaneus* Sicard, 1929**
***Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - Manipur (Chakrabarti *et al.*, 2012)
- 36. *Scymnus fuscatus* Fabricius, 1798**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
- 37. *Scymnus nubilus* Mulsant, 1850**
***Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2020)
- Aphis nasturtii* Kaltenbach, 1843**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
- Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Singh and Singh, 2026)
- Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2021; Thangjam *et al.*, 2020)
- 38. *Scymnus pyrocheilus* Mulsant, 1853**
***Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - Bihar (Ahmad *et al.*, 2020); Uttar Pradesh (Tiwari *et al.*, 2024)
- Aphis nasturtii* Kaltenbach, 1843**
 - *Capsicum frutescens* L. - Bihar (Ahmad *et al.*, 2012; Ahmad *et al.*, 2020); Uttar Pradesh (Tiwari *et al.*, 2024)
- Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012; Singh and Singh, 2026)
- Myzus persicae* (Sulzer, 1776)**
 - *Capsicum frutescens* L. - Bihar (Ahmad *et al.*, 2012; Parween *et al.*, 2023)
- 39. *Scymnus xerampelinus* Canepari, 2003**
***Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - West Bengal (Chakrabarti *et al.*, 2012)
- 40. *Scymnus* sp.**
***Aphis gossypii* Glover, 1877**
 - *Capsicum frutescens* L. - Tamil Nadu (Rekha *et al.*, 2009)
- 41. *Sticholotis obscurella* Weise, 1908**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
- 42. *Synona rougeti* (Mulsant, 1866)**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
- 43. *Telsimia* sp.**
***Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
- b. Family: Staphylinidae**
- 44. *Paederus fuscipes* Curtis, 1826**
***Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2021)
- B. Order: Diptera**
Family: Syrphidae
- 1. *Betasyrphus serarius* (Wiedemann, 1830)**
***Aphis gossypii* Glover, 1877**

- *Capsicum annuum* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
 - *Capsicum frutescens* L. - West Bengal (Debnath, 2020)
 - Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012; Singh and Singh, 2026)
 - 2. *Episyrphus balteatus* (De Geer, 1776)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Jammu and Kashmir (Bhat and Bhagat, 2017); Uttarakhand (Bisht *et al.*, 2006)
 - Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012; Singh and Singh, 2026)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Jammu and Kashmir (Bhat and Bhagat, 2017)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
 - 3. *Episyrphus viridaureus* (Wiedemann, 1824)**
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2021)
 - 4. *Eupeodes confrater* (Wiedemann, 1830)**
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
 - 5. *Eupeodes latifasciatus* (Macquart, 1829)**
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Tamil Nadu (Kalyanam, 1970)
 - 6. *Ischiodon scutellaris* (Fabricius, 1805)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Uttarakhand (Bisht *et al.*, 2006)
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020)
 - Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Chaudhary and Singh, 2012)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Bora *et al.*, 2020; Thangjam *et al.*, 2021)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
 - 7. *Paragus crenulatus* Thomson, 1869**
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2021)
 - 8. *Paragus serratus* (Fabricius, 1805)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
 - 9. *Paragus* sp.**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum chinense* Jacq. - Manipur (Singh *et al.*, 2024a)
 - 10. *Sphaerophoria indiana* Bigot, 1884**
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024)
 - 11. *Sphaerophoria scripta* (Linnaeus, 1758)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - West Bengal (Agarwala *et al.*, 1982)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024); West Bengal (Agarwala *et al.*, 1984)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
- C. Order: Neuroptera**
- a. Family: Chrysopidae**
- 1. *Ankylopteryx octopunctata* (Fabricius, 1793)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Kerala (Thamilvel, 2009)
- 2. *Chrysoperla zastrowi sillemi* (Esben- Petersen, 1935)**
 - Aphis gossypii* Glover, 1877**
 - *Capsicum annuum* L. - Karnataka (Jambagi *et al.*, 2021); Kerala (Thamilvel, 2009); Tamil Nadu (Sudarmani *et al.*, 2022)
 - Myzus persicae* (Sulzer, 1776)**
 - *Capsicum annuum* L. - Himachal Pradesh (Bhat *et al.*, 2024); Jammu and Kashmir (Khan and Shah, 2017); Punjab (Kaur and Sangha, 2016); Uttar Pradesh (Singh and Singh, 2026)
 - *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2021)
 - *Capsicum frutescens* L. - Uttar Pradesh (Tiwari *et al.*, 2024; Singh and Singh, 2026)
- b. Family: Hemerobiidae**
- 3. *Micromus timidus* Hagen, 1853**
 - Aphis nasturtii* Kaltenbach, 1843**
 - *Capsicum annuum* L. - Uttar Pradesh (Singh and Singh, 2026)
 - Aphis solanella* Theobald, 1854**
 - *Capsicum frutescens* L. - Uttar Pradesh (Singh and Singh, 2026)

4. *Micromus* sp.*Aphis gossypii* Glover, 1877

- *Capsicum annuum* L. - Kerala (Thamilvel, 2009)

Myzus persicae (Sulzer, 1776)

- *Capsicum chinense* Jacq. - Assam (Thangjam *et al.*, 2021)

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