**Table S2.** Inventory of different insect natural enemies recorded in cruciferous crops

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| --- | --- | --- | --- | --- | --- | --- |
| **Sl no.** | **Name of the Insect** | **Distribution** | **Status** | **Host/ Prey** | **Stage Attacked** | **References** |
| **ORDER- Coleoptera, FAMILY- Coccinellidae** | | | | | | |
| 1 | *Adalia tetraspilota* (Hope, 1831) | Widespread in Asia | Predator | *Lipaphis erysimi* | Nymph and Adult | Crotch 1874; Agarwala and Ghosh 1988; Bhat 2020 |
| 2 | *Brumoides suturalis* (Fabricius, 1798) | Widespread in Indian Subcontinent | Predator | *Lipaphis erysimi* | Nymph and Adult | Singh and Bali 1993; Chaudhary and Singh 2012 |
| 3 | *Cheilomenes sexmaculata* Fabricius, 1781 | Widespread in Southeast Asia; Mexico; Northwest South America | Predator | *Brevicoryne brassicae, M. persicae* | Nymph and Adult | Agrwala and Ghosh 1988; Omkar and Blind 2004 |
| 4 | *Chilocoris nigritus* (Fabricius, 1798) | Worldwide | Predator | *Brevicoryne brassicae* (Linn.) | Nymph and Adult | Omkar and Blind 2004 |
| 5 | *Coccinella septempunctata* (Linnaeus, 1758) | Worldwide | Predator | *Lipaphis erysimi, Brevicoryne brassicae, Myzus persicae* | Nymph and Adult | Agrwala and Ghosh 1988; Omkar and Blind 2004 |
| 6 | *Coccinella transversalis* Fabricius, 1781 | Widespread in Southeast Asia and Australia | Predator | *Brevicoryne brassicae, Lipaphis erysimi, Myzus persicae* | Nymph and Adult | Debraj and Singh 1995; Omkar and Pervez 1999; Omkar and Blind 2004; Bhowmik et al. 2014 |
| 7 | *Coccinella undecimpunctata* (Linnaeus, 1758) | Widespread in Europe; Localized in Southeast Australia, Newzealand; Sporadic in Middle East and Southeast Asia | Predator | *Lipaphis erysimi* | Nymph and Adult | Agarwala and Ghosh 1988 |
| 8 | *Coccinella undecimpunctata aegyptiaca* Reiche, 1861 | Widespread in Egypt | Predator | *Brevicoryne brassicae, Myzus persicae* | Nymph and Adult | Ibrahim 1955 |
| 9 | *Coelophora saucia* (Mulsant, 1850) | Localized in Southeast Asia | Predator | *Lipaqphis erysimi* | Nymph and Adult | Romabai et al. 2013 |
| 10 | *Harmonia axyridis* (Pallas, 1773) | Worldwide | Predator | *Myzus persicae* (Sulzer) | Nymph and Adult | Pradhan et al. 2020 |
| 11 | *Harmonia dimidiata* (Fabricius, 1781) | Localized in Southeast Asia | Predator | *Brevicoryne brassicae* | Nymph and Adult | Chakrabarti and Sarkar 2001 |
| 12 | *Harmonia eucharis* (Mulsant, 1853) | Sporadic in Asia | Predator | *Myzus persicae* | Nymph and Adult | Chakrabarti and Sarkar 2001 |
| 13 | *Harmonia octomaculata* (Fabricius, 1781) | Localized in Australia and Southeast Asia | Predator | *Myzus persicae, Brevicoryne brassicae* | Nymph and Adult | Chakrabarti and Sarkar 2001 |
| 14 | *Hippodamia tredecimpunctata* Linnaeus, 1758 | Widespread in Europe and USA | Predator | *Brevicoryne brassicae* | Nymph and Adult | Chakrabarti and Sarkar 2001 |
| 15 | *Hippodamia variegata* (Goeze, 1777) | Widespread in Argentina, Australia, Chile, Europe, South Africa, USA; Localized in Southeast Asia | Predator | *Myzus persicae, Brevicoryne brassicae* | Nymph and Adult | Chakrabarti and Sarkar 2001 |
| 16 | *Illeis cincta* Fabricius, 1798 | Localized in India | Predator | *Myzus persicae, Tetranychus* sp. | Nymph and Adult | Agarwala and Ghosh 1988; Trivedi and Rajagopal 1988 |
| 17 | *Micraspis allardi* (Mulsant, 1866) |  | Predator | *Brevicoryne brassicae, Lipaphis erysimi, Myzus persicae* | Nymph and Adult | Omkar and Pervez 1999 |
| 18 | *Micraspis cardoni* (Weise, 1892) | Worldwide | Predator | *Brevicoryne brassicae* | Nymph and Adult | Omkar and Pervez 1999 |
| 19 | *Micraspis discolor* (Fabricius, 1798) | Widespread in Southeast Asia | Predator | *Brevicoryne brassicae, Lipaphis erysimi, Myzus persicae* | Nymph and Adult | Omkar and Pervez 1999; Watagodakumbura and Ahangama 2001 |
| 20 | *Micraspis univittata* (Hope, 1831) | Widespread | Predator | *Brevicoryne brassicae, Lipaphis erysimi* | Nymph and Adult | Eswaramoorthy et al. 2001 |
| 21 | *Micraspis vincta* (Gorham, 1895) | Widespread | Predator | *Brevicoryne brassicae, Lipaphis erysimi, Myzus persicae* | Nymph and Adult | Omkar and Pervez 1999 |
| 22 | *Nephus regularis* (Sicard, 1929) |  | Predator | *Brevicoryne brassicae, Lipaphis erysimi* | Nymph and Adult | Omkar and Pervez 1999; Mani and Krishnamoorthy 2002 |
| 23 | *Oenopia kirbyi* Mulsant, 1850 | Sporadic in Southeast Asia | Predator | *Brevicoryne brassicae, Myzus persicae* | Nymph and Adult | Agarwala and Ghosh 1988 |
| 24 | *Oenopia sauzeti* Mulsant, 1866 | Localized in Northwest India, Pakistan, and Myanmar | Predator | *Brevicoryne brassicae, Myzus persicae* | Nymph and Adult | Agarwala and Ghosh 1988 |
| 25 | *Oenopia sexareata* (Mulsant, 1853) | Sporadic in Northeast India | Predator | *Brevicoryne brassicae, Myzus persicae* | Nymph and Adult | Agarwala and Ghosh 1988; Trivedi and Rajagopal 1988 |
| 26 | *Propylea dissecta* (Mulsant, 1850) | Widespread in Southeast Asia; Localized in Europe | Predator | *Brevicoryne brassicae, Lipaphis erysimi, Myzus persicae* | Nymph and Adult | Singh and Bali 1993; Omkar and Pervez 1999 |
| 27 | *Propylea japonica* (Thunberg, 1781) | Widespread in Southeast Asia | Predator | *Brevicoryne brassicae, Lipaphis erysimi* | Nymph and Adult | Omkar and Pervez 1999 |
| 28 | *Psyllobora bisoctonotata* (Mulsant, 1850) | Sporadic in India, Saudi Arabia, and Africa | Predator | *Brevicoryne brassicae, Lipaphis erysimi* | Nymph and Adult | Omkar and Pervez 1999 |
| 29 | *Rodolia ruficollis* Mulsant, 1850 |  | Predator | *Brevicoryne brassicae, Lipaphis erysimi* | Nymph and Adult | Omkar and Pervez 1999 |
| 30 | *Scymnus pyrocheilus* Mulsant, 1853 |  | Predator | *Lipaphis erysimi, Myzus persicae* | Nymph and Adult | Omkar and Pervez 1999 |
| 31 | *Scymnus xerampelinus* Mulsant, 1853 |  | Predator | *Brevicoryne brassicae, Lipaphis erysimi* | Nymph and Adult | Agarwala and Ghosh 1988 |
| **ORDER- Diptera, FAMILY- Syrphidae** | | | | | | |
| 32 | *Betasyrphus serarius* (Weidemann, 1830) | Widespread in Southeast Australia; Localized in Southeast Asia | Predator | *Lipaphis erysimi* | Nymph and Adult | Romabai et al. 2013 |
| 33 | *Episyrphus balteatus* (De Geer, 1776) | Widespread in Europe and Southeast Asia | Predator | *Lipaphis erysimi* | Nymph and Adult | Romabai et al. 2013 |
| 34 | *Ischiodon scutellaris* (Fabricius, 1805) | Widespread in Australia and Southeast Asia | Predator | *Lipaphis erysimi* | Nymph and Adult | Romabai et al. 2013 |
| 35 | *Metasyrphus confractor* (Weidemann) | Localized in India and South Korea | Predator | *Lipaphis erysimi* | Nymph and Adult | Romabai et al. 2013 |
| 36 | *Paragus seratus* (Fabricius, 1805) | Sporadic in India and South Africa | Predator | *Lipaphis erysimi* | Nymph and Adult | Romabai et al. 2013 |
| 37 | *Sphaerophoria indiana* Bigot, 1884 | Localized in India and Japan | Predator | *Lipaphis erysimi* | Nymph and Adult | Romabai et al. 2013 |
| 38 | *Xanthogramma scutellaris* (Fabricius, 1805) | Widespread in Europe; Sporadic in India and USA | Predator | *Lipaphis erysimi* | Nymph and Adult | Pradhan et al. 2020 |
| **ORDER- Hemiptera, FAMILY- Pentatomidae** | | | | | | |
| 39 | *Oechalia schellembergii* Guérin-Méneville, 1838 | Widespread in Australia | Predator | *Pieris rapae* | Larva | Wilson 1960 |
| **ORDER-Hemiptera, FAMILY-Reduviidae** | | | | | | |
| 40 | *Acholla ampliata* Stål, 1872 | - | Predator | - | - | Swanson 2011 |
| **ORDER-Hymenoptera, FAMILY-Aphelinidae** | | | | | | |
| 41 | *Aphelinus asychis* Walker, 1839 | Localized in Europe and South Africa | Parasitoid | *Myzus persicae* | Nymph-adult | Saleh et al. 2023 |
| **ORDER- Hymenoptera, FAMILY- Braconidae** | | | | | | |
| 42 | *Apanteles mohandasi* Sumodan & Narendran, 1990 |  | Parasitoid | *Plutella xylostella* | Larva | Saleh et al. 2023 |
| 43 | *Aphidius ervi* Haliday, 1834 | Widespread in Europe, North America; sporadic in Australia and India | Parasitoid | *Myzus persicae* | Nymph and adult | Saleh et al. 2023 |
| 44 | *Aphidius matricariae* Haliday, 1834 | Sporadic in Europe, North America, and India | Parasitoid | Aphids | Nymph and adult | Saleh et al. 2023 |
| 45 | *Aphidius salicis* Haliday, 1834 | Localized in Europe and Japan; Sporadic in India | Parasitoid | Aphids | Nymph and Adult | Stary and Ghosh 1978 |
| 46 | *Habrobracon hebetor* Say, 1836 | Worldwide | Parasitoid | *Hellula undalis* | Larva | Saleh et al. 2023 |
| 47 | *Binodoxys indicus* (Subba Rao & Sharma, 1958) | Sporadic in India | Parasitoid | *Myzus persicae* | Nymph and Adult | Saleh et al. 2023 |
| 48 | *Cotesia flavipes* Cameron, 1891 | Widespread | Parasitoid | *Spodoptera litura* | Larva | Saleh et al. 2023 |
| 49 | *Cotesia glomerata* (Linnaeus, 1758) | Widespread in Europe, Eastern USA, and Southeast Australia | Parasitoid | *Pieris brassicae*, *P. rapae* | Larva | Sarwan 2012; Firake et al. 2013; Shahram and Debjani 2013; Sharma et al. 2020; Saleh et al. 2023 |
| 50 | *Cotesia marginiventris* Cresson, 1865 | Sporadic in USA | Parasitoid | *Spodoptera litura* | Larva | Krishnamoorthy and Mani 2001 |
| 51 | *Cotesia plutellae* (Kurdjmov, 1912) | Worldwide | Parasitoid | *Plutella xylostella* | Larva | Debbarma et al. 2018; Halderet al. 2018 |
| 52 | *Cotesia ruficrus* (Haliday, 1834) | Widespread in Newzealand, and sporadic in India, Pakistan,a nd Europe | Parasitoid | *Thysanoplusia orichalcea* | Larva | Bhat et al. 2010a |
| 53 | *Cotesia vestalis* (Haliday, 1834) | Sporadic in Africa and Asia | Parasitoid | *Plutella xylostella* | Larva | Chaubey and Murthy 2018; Saleh et al. 2023 |
| 54 | *Diaretella rapae* (M’Intosh, 1855) | Worldwide | Parasitoid | *Brevicoryne* brassicae, Myzus *persicae* | Nymph and adult | Bhagat and Ahmed 1991; Halder et al. 2014; Gazmer et al. 2015; Verma et al. 2019; Soni et al. 2022; Pradhan et al. 2020; Saleh et al. 2023 |
| 55 | *Lipolexis gracilis* Forster, 1862 | Localized in Europe | Parasitoid | *Myzus persicae* | Nymph and adult | Saleh et al. 2023 |
| 56 | *Microplitis manilae* Ashmead, 1904 | - | Parasitoid | *Spodoptera litura* | Larva | Gupta and Fernandez-Triana 2014; Saleh et al. 2023 |
| 57 | *Microplitis tuberculifer* (Wesmael, 1837) | Localized in Europe and Middle East; Sporadic in India | Parasitoid | *Spodoptera litura* | Larva | Halder et al. 2018 |
| **ORDER-Hymenoptera, FAMILY- Chalcididae** | | | | | | |
| 58 | *Brachymeria bengalensis* (Cameron, 1897) | - | Parasitoid | *Pieris brassicae* | Pupa | Saleh et al. 2023 |
| 59 | *Brachymeria excarinata* Gahan, 1925 | Spoadic in Africa and India | Parasitoid | *Plutella xylostella* | Pupa | Pagore et al. 2021; Sharma et al. 2016; Pati et al. 2021 |
| 60 | *Brachymeria femorata* (Panzer, 1801) | Localized in Europe and Korea | Parasitoid | *Pieris rapae* | Pupa | Bhat et al. 2009; Bhat and Bhagat 2009 |
| 61 | *Brachymeria lasus* (Walker, 1841) | Localized in Eastern Asia | Parasitoid | *Pieris brassicae* | Pupa | Shahram and Debjani 2013 |
| 62 | *Brachymeria minuta* (Linnaeus, 1767) | Localized in Europe; sporadic in Eastern Asia | Parasitoid | *Spodoptera litura* | Pupa | Saleh et al. 2023 |
| 63 | *Brachymeria* sp. | Worldwide | Parasitoid | *Pieris brassicae* | Pupa | Bhat et al. 2010a |
| **ORDER-Hymenoptera, FAMILY-Eulophidae** | | | | | | |
| 64 | *Oomyzus sokolowskii* (Kurdjumov, 1912) | Sporadic in Africa, Europe, and India | Parasitoid | *Pieris brassicae* | Larva | Shahram and Debjani 2013 |
| *Plutella xylostella* | Larva-Pupa | Ahmad and Ansari 2010; Chaubey and Murthy 2018; Debbarma et al. 2018 |
| **ORDER-Hymenoptera, FAMILY- Formicidae** | | | | | | |
| 65 | *Myrmica* sp. | Worldwide | Predator | *Pieris brassicae* | Pupa | Bhat et al. 2010b |
| **ORDER-Hymenoptera, FAMILY- Ichneumonidae** | | | | | | |
| 66 | *Campoletis chloridae* Uchida, 1957 | Worldwide | Parasitoid | *Helicoverpa armigera, Plusia orichalcea, Plutella xylostella* | Larva | Bhat and Bhagat 2009; Bhat et al. 2010b; Bhat et al. 2017; Bhosale and Salunkhe 2022 |
| 67 | *Campoletis* sp. | Worldwide | Parasitoid | *Plusia signata, Trichoplusia ni* | Larva | Bhat and Bhagat 2009; Bhat et al. 2010b; Bhat et al. 2017 |
| 68 | *Casinaria* sp. | Worldwide | Parasitoid | *Plutella xylostella* | Larva | Bhat and Bhagat 2009; Bhat et al. 2010b, 2017 |
| 69 | *Diadegma fenestrale* (Holmgren, 1860) | Widespread in Europe; Sporadic in USA | Parasitoid | *Plutella xylostella* | Larva | Bhat and Bhagat 2009; Bhat et al. 2010b, 2017 |
| 70 | *Diadegma insulare* (Cresson, 1865) | Localized in USA; sporadic in India | Parasitoid | *Plutella xylostella* | Larva | Saleh et al. 2023 |
| 71 | *Diadegma semiclausum* (Hellén, 1949) | Sporadic in Australia, Europe, India, Newzealand | Parasitoid | *Helicoverpa armigera, Plutella xylostella* | Larva | Chandramohan 1994; Debbarmaet al. 2017; Sharma et al. 2020 |
| 72 | *Diadromus collaris* (Gravenhorst, 1829) | Localized in Europe and Newzealand | Parasitoid | *Plutella xylostella* | Pupa | Devi and Raj 1995; Chauhan et al. 1997; Sharma et al. 2020; Saleh 2023 |
| 73 | *Hypesoter ebeninus* (Gravenhorst, 1829) | Sporadic in Europe and India | Parasitoid | *Pieris brassicae, P. rapae, Pontia daplidice* | Larva | Bhat and Bhagat 2009; Bhat et al. 2010b, 2017. |
| 74 | *Itoplectis* *himalayensis* Gupta, 1968 | Widespread in Himalayan regions | Parasitoid | *Plutella xylostella* | Larva | Bhat and Bhagat 2008 |
| 75 | *Itoplectis* sp. | Widespread in Europe and North America | Parasitoid | *Plutella xylostella* | Larva | Bhat and Bhagat 2008 |
| 76 | *Pimpla* sp. | Widespread in Europe and North America | Parasitoid | *Pieris brassicae* | Larva | Bhat and Bhagat 2008 |
| **ORDER-Hymenoptera, FAMILY- Pteromalidae** | | | | | | |
| 77 | *Pachyneuron aphidis* (Bouché, 1834) | Localized in Europe; sporadic in Inida | Parasitoid | *Myzus persicae* | Nymph-adult | Saleh et al. 2023 |
| 78 | *Pteromalus puparum* (Linnaeus, 1758) | Localized in Europe, Newzealand; sporadic in India, South Africa, USA | Parasitoid | *Pieris brassicae* | Larva-Pupa | Bhat et al. 2010a; Shahram and Debjani 2013 |
| 79 | *Trichomalopsis apanteloctena* (Crawford, 1911) | Localized in Eastern Asia; sporadic in India | Parasitoid | *Pieris brassicae* | Pupa | Shahram and Debjani 2013 |
| **ORDER-Hymenoptera, FAMILY-Scelionidae** | | | | | | |
| 80 | *Telenomus remus* (Nixon, 1937) | Worldwide | Parasitoid | *Spodoptera litura* | Egg | Krishnamoorthy and Mani 1985 |
| **ORDER-Hymenoptera, FAMILY-Trichogrammatidae** | | | | | | |
| 81 | *Trichogrammatoidea bactrae* Nagaraja, 1978 | Localized in India | Parasitoid | *Plutella xylostella* | Egg | Krishnamoorthy 2004; Krishnamoorthy et al. 2013 |
| 82 | *Trichogramma brassicae* Bezdenko, 1968 | - | Parasitoid | *Pieris brassicae* | Egg | Krishnamoorthy et al. 2013 |
| 83 | *Trichogramma* sp. | Worldwide | Parasitoid | *Plutella xylostella* | Egg | Debbarma et al. 2017 |
| **ORDER-Hymenoptera, FAMILY- Vespidae** | | | | | | |
| 84 | *Polistes rothneyi* Cameron, 1900 | Widespread in Eastern Asia | Predator | *Pieris brassicae* | Larva | Bhat et al. 2010a |
| **ORDER-Neuroptera, FAMILY- Chrysopidae** | | | | | | |
| 85 | *Chrysoperla carnea* (Stephens, 1836) | Worldwide | Predator | *L. erysimi* | Nymph and Adult | Pradhan et al. 2020 |
| **ORDER-Odonata, FAMILY-Gomphidae** | | | | | | |
| 86 | *Phanogomphus lineatus* Selys, 1850 | Widespread in USA | Predator | - | - | Tennessen, 2019 |
| **ORDER-Odonata, FAMILY-Libellulidae** | | | | | | |
| 87 | *Sympetrum semicinctum* (Say, 1840) | Widespread in USA | Predator | - | - | Tennessen, 2019 |