



DIVERSITY OF APHIDS (HOMOPTERA: APHIDIDAE) INFESTING SOLANACEOUS PLANTS (ANGIOSPERMAE: SOLANALES: SOLANACEAE) IN INDIA

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Abstract: Among the flowering plants, the family Solanaceae is one of the economically important families in the world. Species in this family have been cultivated for vegetables (brinjal, potato, tomato etc.), spices (chili pepper), tobacco, garden flowers etc. At least 51 species of plants of this family were found to be infested by 60 species of aphids (Insecta: Homoptera: Aphididae) in India. Maximum number of aphid species (21 aphid species) are colonised on *Solanum tuberosum* followed by *Nicotiana tabacum* (18 aphid species), *Solanum melongena* (14 aphid species), *Solanum lycopersicum* (13 aphid species), *Datura metel* and *Solanum nigrum* (11 aphid species each), *Cestrum fasciculatum* (10 aphid species). Similarly, maximum number of plant species (34 plant species) are colonized by *Myzus (Nectarosiphon) persicae* (Sulzer) followed by *Aphis (Aphis) gossypii* Glover (30 plant species), *Aphis (Aphis) spiraeicola* Patch (16 plant species), *Aphis (Aphis) fabae* Scopoli (14 plant species), *Brachycaudus (Brachycaudus) helichrysi* (Kaltenbach) (12 plant species), *Aphis (Aphis) craccivora* Koch (11 plant species), *Myzus (Myzus) ornatus* Laing (10 plant species), and less than 10 plant species in case of other aphid species.

Keywords: Aphids, Aphididae, Chilli, Pests, Potato, Solanaceae, Tomato.

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INTRODUCTION

The aphid or plant lice (Insecta: Homoptera: Aphididae) are small sized (0.7- 7.0 mm in length) sap sucking insects and out of about 5,110 species described about 1,000 species are pestiferous to crops throughout the world (Singh *et al.*, 2019). Thelytokous parthenogenetic viviparity, short generation time (about 10 days on average), telescoping of generations, and polymorphism

are major traits of aphids that make them highly prolific in reproduction (Singh and Ghosh, 2002). Several species of aphids display complex life-cycles with alternation of sexual and asexual generations and host plant alternation (Ghosh and Singh, 2000; Singh and Singh, 2019; Singh and Singh, 2022). The aphids excrete honeydew, a characteristic sugary substance, which serves as food for several insects such as wasps,



butterflies, moths and ants (Singh *et al.*, 2000). Aphids also transmit viral diseases to several crops that necessitate crop management strategies against them. Although aphids are the pest of crops, they are extremely important hosts for a number of parasitoids, predators, and an essential meal for numerous other insects, as well as birds (Singh and Singh, 2021, 2022).

The family Solanaceae or nightshades is one of the dicotyledon plant families, comprising over 2,700 species with a worldwide distribution, except Antarctica. It has a great diversity of habitats, morphology and ecology and includes a number of economically important agricultural crops (e.g. brinjal, potato, tobacco, and tomato), medicinal plants (ashwagandha, blackberry nightshade), spices (bell peppers, chili peppers), weeds, and ornamentals (e.g. petunias). Several species of aphids infests brinjal, bell peppers, chili peppers, potato, tobacco and tomato and warrant for their control measure.

Probably, George (1927) was first to describe aphid fauna on Solanaceous plant in India followed by Krishnamurthi (1929), Deshpande (1938) and Ghulam-Ullah (1940). Then, after independence, several workers particularly the team of Zoological Survey of India, Kolkata and others work hard in this field. Raychaudhury (1983) was first to catalogue the food plants of aphids of India. Later, Singh and Singh (2016a, b, 2017a-h, 2018; Singh *et al.*, 2018) updated the food plant checklists of all aphid species recorded in India.

MATERIAL AND METHODS

This checklist is based on the literature published in recent past books, journals and few authentic theses and websites up to 31 May, 2022. In the present compilation, attempts were made to provide the valid scientific name of the aphids and plants following update taxonomic information provided by <http://aphid.speciesfile.org> for aphids and <http://www.ars-grin.gov>, <https://www.gbif.org> and <http://www.theplantlist.org> for plants. At several places, their synonymies were also mentioned.

RESULTS AND DISCUSSION

The following checklist demonstrates that at least

51 species of plants of the family Solanaceae are infested by 60 aphid species in India. Maximum number of aphid species (21 aphid species) are found colonised on *Solanum tuberosum* followed by *Nicotiana tabacum* (18 aphid species), *Solanum melongena* (14 aphid species), *Solanum lycopersicum* (13 aphid species), *Datura metel* and *Solanum nigrum* (11 aphid species each), *Cestrum fasciculatum* (10 aphid species). Similarly, maximum number of plant species (34 plant species) are found colonised by *Myzus (Nectarosiphon) persicae* (Sulzer) followed by *Aphis (Aphis) gossypii* Glover (30 plant species), *Aphis (Aphis) spiraecola* Patch (16 plant species), *Aphis (Aphis) fabae* Scopoli (14 plant species), *Brachycaudus (Brachycaudus) helichrysi* (Kaltenbach) (12 plant species), *Aphis (Aphis) craccivora* Koch (11 plant species), *Myzus (Myzus) ornatus* Laing (10 plant species), and less than 10 plant species in case of other aphid species. Economic importance and food plant association of following aphid species that have been found to infest the plants belonging to Solanaceae family has earlier been dealt by several workers, e.g. *Aphis (Aphis) craccivora* Koch (Trivedi and Singh, 2014), *Aphis (Aphis) fabae* Scopoli (Singh *et al.*, 2015a), *Aphis (Aphis) gossypii* Glover (Singh *et al.*, 2014), *Aphis (Aphis) spiraecola* Patch (Singh and Singh, 2016b), *Brevicoryne brassicae* (Linn.) (Pal and Singh, 2012) and *Myzus (Nectarosiphon) persicae* (Sulzer) (Singh *et al.*, 2015b).

Following are the updated aphid wise as well as plant wise (subgeneric name of the aphids and author names are excluded) checklist of aphids infesting the plants belonging to the Solanaceae in India.

I. Aphid wise-plant wise checklist

A. Subfamily: Anoeciinae

1. *Anoecia (Anoecia) corni* (Fabricius, 1775)

- *Petunia integrifolia* (Hook) Schinz and Thell. (= *Petunia violacea* Lindl.) (Chakrabarti, 1972)

2. *Anoecia (Anoecia) himalayensis* Chakrabarti and Maity, 1978

- *Petunia integrifolia* (Hook) Schinz and Thell. (= *Petunia violacea* Lindl.) (Chakrabarti and Maity, 1978)

B. Subfamily: Aphidinae**I. Tribe: Aphidini****1. *Aphis (Aphis) craccivora* Koch, 1854**

- *Cestrum nocturnum* L. (Rao, 1969; Singh and Singh, 2017a)
- *Cestrum* sp. (Raychaudhuri, 1973)
- *Lycopersicon* sp. (Agarwala, 1979)
- *Nicotiana tabacum* L. (Raychaudhuri, 1973; Singh *et al.*, 2003)
- *Petunia alba* Hort. Ex Ferg. & Ottl. (Ghosh and Raychaudhuri, 1962a; Behura, 1965; Raychaudhuri, 1973)
- *Petunia integifolia* (Hook) Schinz and Thell. (= *Petunia violacea* Lindl.) (Chakrabarti, 1972)
- *Solanum clavatum* Rusby (Raychaudhuri, 1973)
- *Solanum lycopersicum* L. (= *Lycopersicon esculentum* Mill.) (Verma *et al.*, 1975; Singh and Singh, 2017a; Ahmad and Kumar, 2006)
- *Solanum melongena* L. (Ghosh and Singh, 2004; Singh and Singh, 2017a; Bhat *et al.*, 2020)
- *Solanum nigrum* L. (George, 1927; Behura, 1963; Ghosh and Singh, 2004; Singh and Singh, 2017a)
- *Solanum* sp. (Raychaudhuri, 1973)
- *Solanum tuberosum* L. (Behura, 1963; Verma *et al.*, 1975; Ahmad and Kumar, 2006)
- *Solanum virginianum* L. (= *Solanum xanthocarpum* Schrad.) (= *Solanum surattense* Burm. f.) (Ahmad and Kumar, 2006)

2. *Aphis (Aphis) fabae* Scopoli, 1763

- *Capsicum annuum* L. (Raychaudhuri, 1978; Raha, 1979; Singh *et al.*, 2003)
- *Capsicum frutescens* L. (Singh *et al.*, 2015a)
- *Cestrum diurnum* L. (Singh *et al.*, 1999)
- *Cestrum fasciculatum* (Schltdl.) Miers (Behura, 1963; Basu, 1969; Raychaudhuri, 1973)

- *Cestrum nocturnum* L. (Ghosh, 1990; Ahmad and Singh, 2005)
- *Cestrum* sp. (Agarwala, 1979; Raychaudhuri, 1973)
- *Datura metel* L. (= *Datura fastuosa* L.) (Raychaudhuri, 1973; Ahmad and Singh, 2005)
- *Datura stramonium* L. (Chakrabarti and Sarkar, 2001)
- *Nicotiana* sp. (Chakrabarti *et al.*, 1971a)
- *Nicotiana tabacum* L. (Raychaudhuri, 1973; Singh *et al.*, 2003)
- *Solanum clavatum* Rusby (Raychaudhuri, 1973)
- *Solanum melongena* L. (Raychaudhuri, 1978; Ghosh and Singh, 2004; Singh *et al.*, 2015a)
- *Solanum nigrum* L. (Raychaudhuri, 1978; Agarwala, 1979; Ghosh and Singh, 2004)
- *Solanum torvum* Sw. (Raychaudhuri, 1973; Singh *et al.*, 2003)
- *Solanum tuberosum* L. (Bhalla and Pawar, 1980; Kataria and Kumar, 2012)
- *Solanum* sp. (Raychaudhuri, 1978)

3. *Aphis (Aphis) glycines* Matsumura, 1917

- *Solanum lycopersicum* L. (Ahmad *et al.*, 2020)

4. *Aphis (Aphis) gossypii* Glover, 1877

- *Capsicum annuum* L. (David, 1957; Raychaudhuri, 1973; Singh *et al.*, 2014; Bhat *et al.*, 2020)
- *Capsicum frutescens* L. (Krishnamurthi, 1929; Raychaudhuri, 1978; Agarwala, 1979; Ahmad *et al.*, 2020)
- *Capsicum* sp. (Ghulam-Ullah, 1940; Rizvi and Paul Khurana, 1970)
- *Cestrum diurnum* L. (David, 1957; Behura, 1963)
- *Cestrum nocturnum* L. (David, 1957; Sengupta *et al.*, 1962; Behura, 1963; Rao, 1969; Raychaudhuri, 1973; Singh *et al.*, 2014)
- *Cestrum* sp. (Basu and Banerjee, 1958; Raychaudhuri *et al.*, 1980)
- *Datura metel* L. (Agarwala, 1979; Raychaudhuri, 1973)

- *Datura* sp. (Behura, 1963; Rao, 1969; Ghosh, 1970)
 - *Datura stramonium* L. (Chakrabarti, 1972; Raychaudhuri, 1973)
 - *Nicotiana tabacum* L. (Behura, 1963; Agarwala, 1979; Raychaudhuri, 1973)
 - *Nicotiana* sp. (Chakrabarti, 1972; Agarwala and Raychaudhuri, 1979)
 - *Petunia* sp. (David, 1957; Behura, 1963; Raychaudhuri, 1973)
 - *Physalis peruviana* L. (Rao, 1969; Singh *et al.*, 2003)
 - *Solanum aethiopicum* L. (= *Solanum gilo* Raddi.) (= *Solanum zuccagnianum* Dunal) (Behura and Roy, 1980)
 - *Solanum betaceum* Cav. (= *Cyphomandra betacea* (Cav.) Sendtn.) (Rao, 1969; Raychaudhuri, 1973; Agarwala, 1979; Agarwala and Raychaudhuri, 1981a)
 - *Solanum citrullifolium* A. Braun. (Behura and Roy, 1980)
 - *Solanum incanum* L. (Behura and Roy, 1980)
 - *Solanum integrifolium* Poir (Behura and Roy, 1980)
 - *Solanum lycopersicum* L. (Behura, 1963; Raychaudhuri, 1973; Ahmad *et al.*, 2020)
 - *Solanum melongena* L. (Krishnamurthi, 1929; Agarwala, 1979; Kataria and Kumar, 2012; Ahmad *et al.*, 2020)
 - *Solanum nigrum* L. (Krishnamurthi, 1929; Raychaudhuri, 1978; Agarwala, 1979)
 - *Solanum quitoense* Lam. (Behura and Roy, 1980)
 - *Solanum scabrum* Mill. (= *Solanum melanocerasum* All. Auct.) (Behura and Roy, 1980)
 - *Solanum seafortianum* Andrews (Behura, 1963; David, 1958a)
 - *Solanum sisymbriifolium* Lam. (Raychaudhuri, 1973)
 - *Solanum torvum* Sw. (Agarwala, 1979; Raychaudhuri, 1973)
 - *Solanum trilobatum* L. (Behura and Roy, 1980)
 - *Solanum tuberosum* L. (Basu and Banerjee, 1958; Sengupta *et al.*, 1962; Bhat *et al.*, 2020)
 - *Solanum violaceum* Ortega (Ghulam-Ullah, 1940; Behura, 1963)(Behura, 1965; Singh *et al.*, 2003)
 - *Solanum virginianum* L. (Basu and Banerjee, 1958; Behura, 1963; Raychaudhuri, 1973)
 - *Solanum wendlandii* Hook. f. (Behura, 1963; David, 1958a)
 - *Solanum* sp. (George, 1927; Rao, 1969; Raychaudhuri, 1973; Agarwala, 1979)
 - *Withania somnifera* (L.) Dunal (Chaudhary, 2013)
- 5. *Aphis (Aphis) nasturtii* Kaltenbach, 1843**
- *Capsicum annuum* L. (Raychaudhuri, 1973; Rao and Kulkarni, 1977)
 - *Capsicum frutescens* L. (Raychaudhuri, 1973; Rao and Kulkarni, 1977; Ahmad and Singh, 2005; Ahmad *et al.*, 2020).
 - *Cestrum* sp. (Chakrabarti *et al.*, 1971a; Chakrabarti, 1972; Rao and Kulkarni, 1977)
 - *Datura stramonium* L. (Das and Chakrabarti, 1988)
 - *Solanum lycopersicum* L. (Rao and Kulkarni, 1977; Ahmad *et al.*, 2020)
 - *Solanum melongena* L. (Rao and Kulkarni, 1977; Ahmad and Singh, 2005; Ahmad *et al.*, 2020)
 - *Solanum nigrum* L. (Raychaudhuri *et al.*, 1980)
 - *Solanum tuberosum* L. (Ahmad *et al.*, 2020)
- 6. *Aphis (Aphis) nerii* Boyer de Fonscolombe, 1841**
- *Solanum melongena* L. (Singh *et al.*, 1999; Ahmad and Singh, 2005)
 - *Solanum tuberosum* L. (Bhatnagar *et al.*, 2017)
- 7. *Aphis (Aphis) odinae* (van der Goot, 1917)**
- *Datura metel* L. (Raychaudhuri, 1973; Mondal *et al.*, 1976)
 - *Nicotiana tabacum* L. (Rao, 1969; Singh *et al.*, 2003)

- *Solanum clavatum* Rusby (Raychaudhuri, 1973)
- 8. *Aphis (Aphis) rumicis* Linnaeus, 1758**
- *Solanum nigrum* L. (Ghulam-Ullah, 1940)
 - *Cestrum nocturnum* L. (Ghosh LK *et al.*, 1997)
- 9. *Aphis (Aphis) solanella* Theobald, 1914**
- *Cestrum fasciculatum* (Schltdl.) Miers (Ghosh and Agarwala, 1985)
 - *Cestrum nocturnum* L. (Bhattacharya, 1990; Singh *et al.*, 2015a)
 - *Cestrum* sp. (Chakrabarti and Sarkar, 2001)
 - *Datura metel* L. (Kar *et al.*, 1990; Singh *et al.*, 2015a)
 - *Nicotiana* sp. (Chakrabarti *et al.*, 1971a)
 - *Solanum nigrum* L. (Chakrabarti and Sarkar, 2001; Singh *et al.*, 2015a)
 - *Solanum tuberosum* L. (Bhattacharya, 1990)
 - *Solanum villosum* Mill. (Khan and Shah, 2017)
 - *Solanum* sp. (Kar *et al.*, 1990)
- 10. *Aphis (Aphis) spiraecola* Patch, 1914**
- *Browallina* sp. (Maity *et al.*, 1980)
 - *Capsicum annuum* L. (Raychaudhuri, 1973, 1978; Raha, 1979)
 - *Capsicum frutescens* L. (Agarwala and Raychaudhuri, 1981b; Singh *et al.*, 2003)
 - *Cestrum diurum* L. (Ahmad and Singh, 2005)
 - *Cestrum fasciculatum* (Schltdl.) Miers (Raychaudhuri, 1973)
 - *Cestrum nocturnum* L. (Maity *et al.*, 1980; Singh *et al.*, 2016b; Ahmad *et al.*, 2020)
 - *Cestrum* sp. (Raychaudhuri, 1973; Raychaudhuri *et al.*, 1980)
 - *Datura* sp. (Raychaudhuri, 1973)
 - *Nicotiana tabacum* L. (Agarwala, 1979; Singh *et al.*, 2003)
 - *Solanum betaceum* Cav. (= *Cyphomandra betacea* (Cav.) Sendtn.) (Agarwala, 1979; Agarwala and Raychaudhuri, 1981c)
 - *Solanum clavatum* Rusby (Raychaudhuri, 1973)
- *Solanum lycopersicum* L. (Raychaudhuri, 1973; Singh *et al.*, 2003)
 - *Solanum melongena* L. (Raychaudhuri, 1978; Ghosh and Singh, 2004; Ahmad *et al.*, 2020)
 - *Solanum nigrum* L. (Raychaudhuri, 1973, 1978; Ghosh and Singh, 2004)
 - *Solanum sisymbriifolium* Lam. (Raychaudhuri, 1973)
 - *Solanum torvum* Sw. (Raychaudhuri, 1973; Singh *et al.*, 2003)
 - *Solanum tuberosum* L. (Raychaudhuri, 1978)
 - *Solanum* sp. (Raychaudhuri, 1973; Ghosh and Agarwala, 1980; Raychaudhuri *et al.*, 1981)
- 11. *Aphis (Aphis) umbrella* (Borner, 1950)**
- *Solanum nigrum* L. (Behura, 1963; Ghosh and Singh, 2004)
 - *Withania somnifera* (L.) Dunal (Behura, 1963; Ghosh and Singh, 2004)
- 12. *Aphis (Aphis) verbasci* Schrank, 1801**
- *Nicotiana* sp. (Bindra and Sekhon, 1969a; Bhalla and Pawar, 1980)
- 13. *Aphis (Toxoptera) aurantii* (Boyer de Fonscolombe**
- *Cestrum fasciculatum* (Schltdl.) Miers (Raychaudhuri, 1973; Rao and Kulkarni, 1977)
 - *Cestrum nocturnum* L. (Agarwala, 1979)
 - *Cestrum* sp. (Raychaudhuri, 1973; Mondal *et al.*, 1976; Rao and Kulkarni, 1977; Agarwala and Raychaudhuri, 1981a)
 - *Solanum lycopersicum* L. (Agarwala, 1979; Singh *et al.*, 2003)
- 14. *Aphis (Toxoptera) citricidus* (Kirkaldy, 1907)**
- *Nicotiana tabacum* L. (Chakrabarti, 1972; Chakrabarti *et al.*, 1972a; Singh *et al.*, 2003)
 - *Solanum clavatum* Rusby (Raychaudhuri, 1973)
- 15. *Hyadaphis coriandri* (Das, 1918)**
- *Solanum tuberosum* L. (Bhatnagar *et al.*, 2017)

16. *Hyalopterus pruni* (Geoffroy, 1762)

- *Datura* sp. (Behura, 1963)

17. *Rhopalosiphum maidis* (Fitch, 1856)

- *Capsicum frutescens* L. (Singh *et al.*, 2003)
- *Nicotiana tabacum* L. (Chakrabarti, 1972)
- *Solanum lycopersicum* L. (Agarwala *et al.*, 1982)
- *Solanum nigrum* L. (Singh *et al.*, 2003)
- *Solanum tuberosum* L. (Bhalla and Pawar, 1980)

18. *Rhopalosiphum rufiabdominale* (Sasaki, 1899)

- *Datura metel* L. (Raychaudhuri, 1973; Rao and Kulkarni, 1975)
- *Datura stramonium* L. (Behura, 1963)
- *Nicotiana tabacum* L. (Behura, 1963; Singh *et al.*, 2003)
- *Petunia alba* Hort. Ex Ferg. and Ottl. (Ghosh and Raychaudhuri, 1962a; Behura, 1965; Raychaudhuri, 1973)
- *Petunia hybrida* Hort. Ex E. Vilm. (Rao and Kulkarni, 1975)
- *Petunia* sp. (Raychaudhuri, 1973; Rao and Kulkarni, 1975)
- *Solanum aculeatissimum* Jack. (= *Solanum khasianum* Clarke) (Raychaudhuri, 1973; Rao and Kulkarni, 1975)
- *Solanum lycopersicum* L. (Raychaudhuri, 1973; Agarwala, 1979)
- *Solanum tuberosum* L. (Behura, 1963; Raychaudhuri, 1973, 1978)

19. *Schizaphis (Schizaphis) graminum* (Rondani, 1852)

- Indet. (Behura, 1965)

II. Tribe: Macrosiphini**20. *Acyrtosiphon (Acyrtosiphon) pisum* (Harris, 1776)**

- *Solanum tuberosum* L. (David, 1958b; Raychaudhuri, 1973)

21. *Aulacorthum (Aulacorthum) dasi* Ghosh, Basu and Raychaudhuri, 1970

- *Solanum torvum* Sw. (Ghosh *et al.*, 1971b; Raychaudhuri, 1973; Agarwala, 1979; Raychaudhuri, 1980)

22. *Aulacorthum (Aulacorthum) solani* (Kaltenbach, 1843)

- *Cestrum fasciculatum* (Schltdl.) Miers (Raychaudhuri, 1973)
- *Datura* sp. (Raychaudhuri, 1980)
- *Nicotiana tabacum* L. (Raychaudhuri, 1973; Raychaudhuri, 1980)
- *Solanum donianum* Walp. (= *Solanum verbascifolium* L.) (Raychaudhuri *et al.*, 1981)
- *Solanum melongena* L. (Raha *et al.*, 1977; Ghosh and Singh, 2004)
- *Solanum tuberosum* L. (Basu, 1969; Raychaudhuri, 1973, 1980)
- *Solanum* sp. (Raychaudhuri, 1980)

23. *Aulacorthum (Aulacorthum) sp.*

- *Solanum* sp. (Ghosh *et al.*, 1971a; Raychaudhuri, 1973)

24. *Brachycaudus (Brachycaudus) helichrysi* (Kaltenbach, 1843)

- *Atropa belladonna* L. (Chakrabarti, 1972; Raychaudhuri, 1973)
- *Cestrum fasciculatum* (Schltdl.) Miers (Raychaudhuri, 1973)
- *Datura metel* L. (Agarwala, 1979; Raychaudhuri, 1973)
- *Nicotiana tabacum* L. (Chakrabarti, 1972; Raychaudhuri, 1973)
- *Petunia integrifolia* (Hook) Schinz and Thell. (= *Petunia violacea* Lindl.) (Chakrabarti, 1972)
- *Petunia* sp. (Raychaudhuri, 1973)
- *Solanum donianum* Walp. (Raychaudhuri, 1973)
- *Solanum lycopersicum* L. (Raychaudhuri, 1973; Ghosh, 1977; Agarwala and Raychaudhuri, 1981a)

- *Solanum melongena* L. (Raychaudhuri, 1978; Ghosh and Singh, 2004)
 - *Solanum multifidum* Lam. (= *Solanum pinnatifidum* Ruiz. and Pav.) (Raychaudhuri, 1973)
 - *Solanum tuberosum* L. (Chakrabarti, 1972; Raychaudhuri, 1978)
 - *Solanum virginianum* L. (Chakrabarti, 1972; Ghosh and Singh, 2004)
 - *Solanum xanti* A. Gray (Chakrabarti, 1972)
 - *Solanum* sp. (Raychaudhuri, 1973)
- 25. *Brachycaudus (Thuleaphis) amygdalinus* (Schouteden, 1905)**
- *Nicotiana* sp. (Chakrabarti, 1972)
- 26. *Brevicoryne brassicae* (Linnaeus, 1758)**
- *Atropa belladonna* L. (Chakrabarti, 1972)
 - *Petunia integrifolia* (Hook) Schinz and Thell. (= *Petunia violacea* Lindl.) (Chakrabarti, 1972)
 - *Solanum lycopersicum* L. (Agarwala and Raychaudhuri, 1980)
 - *Solanum tuberosum* L. (Chakrabarti, 1972; Bhalla and Pawar, 1980)
 - *Solanum virginianum* L. (Chakrabarti, 1972) Indet. (Ghosh LK *et al.*, 1980)
- 27. *Cavariella* sp.**
- Indet. (Raychaudhuri, 1973; Raychaudhuri, 1980)
- 28. *Dysaphis (Dysaphis) rumecicola emicis* (Mimeur, 1934)**
- *Solanum torvum* Sw. (Chakrabarti, 1972; Singh *et al.*, 2003)
- 29. *Dysaphis* sp.**
- *Nicotiana* sp. (Chakrabarti, 1972)
- 30. *Hyperomyzus (Hyperomyzus) carduellinus* (Theobald, 1915)**
- *Datura metel* L. (Raychaudhuri, 1978; Singh *et al.*, 2003)
- 31. *Lipaphis (Lipaphis) erysimi* (Kaltenbach, 1843)**
- *Nicotiana tabacum* L. (Basu and Banerjee, 1958; Behura, 1963; Raychaudhuri, 1973, 1978)
 - *Petunia alba* Hort. Ex Ferg. and Ottl. (Ghosh and Raychaudhuri, 1962a; Behura, 1965)
 - *Solanum lycopersicum* L. (Behura, 1963; Raha, 1979)
 - *Solanum melongena* L. (Raha *et al.*, 1977; Ghosh and Singh, 2004)
 - *Solanum tuberosum* L. (Basu and Banerjee, 1958; Behura, 1963; Ghosh, 1970)
 - *Withania somnifera* (L.) Dunal (Raha *et al.*, 1977; Ghosh and Singh, 2004)
- 32. *Macrosiphum (Macrosiphum) centranthi* Theobald, 1915**
- *Solanum tuberosum* L. (David, 1958b)
- 33. *Macrosiphum (Macrosiphum) euphorbiae* (Thomas, 1878)**
- *Solanum melongena* L. (Khan and Shah, 2017)
 - *Solanum tuberosum* L. (Ghosh, 1977; Bhalla and Pawar, 1980)
- 34. *Macrosiphum* sp.**
- *Solanum tuberosum* L. (Bindra and Sekhon, 1969a)
- 35. *Microlophium carnosum* (Buckton, 1876)**
- *Datura metel* L. (Raychaudhuri, 1978; Singh *et al.*, 2003)
- 36. *Myzus (Myzus) ornatus* Laing, 1932**
- *Cestrum fasciculatum* (Schltdl.) Miers (Raychaudhuri, 1973)
 - *Datura metel* L. (Raychaudhuri, 1973)
 - *Nicotiana tabacum* L. (Chakrabarti, 1972; Raychaudhuri, 1973)
 - *Nicotiana* sp. (Chakrabarti, 1972; Chakrabarti *et al.*, 1971a)
 - *Solanum aurantiacum* Rojas (Basu, 1969)
 - *Solanum betaceum* Cav. (Raychaudhuri, 1973)

- *Solanum clavatum* Rusby (Raychaudhuri, 1973)
 - *Solanum lycopersicum* L. (Agarwala, 1979)
 - *Solanum melongena* L. (Raychaudhuri, 1973; Ghosh and Singh, 2004)
 - *Solanum nigrum* L. (Raychaudhuri, 1973; Ghosh and Singh, 2004)
 - *Solanum* sp. (Chakrabarti, 1972; Ghosh and Agarwala, 1980)
 - *Solanum tuberosum* L. (Bindra and Sekhon, 1969a; Ghosh, 1977; Bhalla and Pawar, 1980)
- 37. *Myzus (Nectarosiphon) persicae persicae* (Sulzer, 1776)**
- *Atropa acuminata* Royle ex Lindl. (Chakrabarti, 1972; Raychaudhuri, 1973)
 - *Atropa belladonna* L. (Chakrabarti, 1972; Raychaudhuri, 1973)
 - *Brugmansia suaveolens* (Humb. and Bonpl. ex Willd.) Bercht. and Presl. (= *Datura suaveolens*) (Rao, 1969)
 - *Capsicum annuum* L. (Raychaudhuri, 1973; Bhat *et al.*, 2020)
 - *Capsicum frutescens* L. (Rao, 1969; Rizvi and Paul Khurana, 1970; Singh *et al.*, 2015b)
 - *Cestrum diurnum* L. (Raychaudhuri, 1973)
 - *Cestrum fasciculatum* (Schltdl.) Miers (Rao, 1969; Raychaudhuri, 1973)
 - *Cestrum nocturnum* L. (Raychaudhuri, 1973)
 - *Datura metel* L. (Behura, 1963; Singh *et al.*, 2015b; Ghosh and Singh, 2004)
 - *Datura* sp. (Basu and Banerjee, 1958; Agarwala, 1979)
 - *Datura stramonium* L. (Behura, 1963)
 - *Hyoscyamus niger* L. (Chakrabarti, 1972)
 - *Lycopersicon esculentum* Mill. (Sengupta *et al.*, 1962; Raychaudhuri, 1973, 1978; Bhat *et al.*, 2020)
 - *Nicotiana glauca* Graham (Behura, 1963)
 - *Nicotiana glutinosa* L. (Behura, 1963)
 - *Nicotiana plumbaginifolia* Viv. (Behura, 1963; Chakrabarti, 1972)
 - *Nicotiana rustica* L. (Behura, 1963; Rizvi and Paul Khurana, 1970; Chakrabarti, 1972)
 - *Nicotiana tabacum* L. (George, 1927; Krishnamurthi, 1929; Sengupta *et al.*, 1962; Chakrabarti, 1972; Agarwala, 1979)
 - *Nicotiana* sp. (Ghulam-Ullah, 1940)
 - *Petunia alba* Hort. Ex Ferg. and Ottl. (Ghosh and Raychaudhuri, 1962a; Behura, 1965)
 - *Petunia axillaris* (Lam.) Britton) *et al.* (Verma *et al.*, 1975)
 - *Petunia* sp. (Behura, 1965; Raychaudhuri, 1973)
 - *Physalis peruviana* L. (Singh *et al.*, 2003)
 - *Solanum aculeatissimum* Jack. (Ghosh and Agarwala, 1985)
 - *Solanum betaceum* Cav. (Rao, 1969; Raychaudhuri, 1973; Agarwala and Raychaudhuri, 1981c)
 - *Solanum clavatum* Rusby (Raychaudhuri, 1973)
 - *Solanum dulcamara* L. (Chakrabarti, 1972; Singh *et al.*, 2003)
 - *Solanum donianum* Walp. (Raychaudhuri, 1973)
 - *Solanum lycopersicum* L. (Behura, 1963; Rao, 1969)
 - *Solanum melongena* L. (Basu and Banerjee, 1958; Raychaudhuri, 1978; Kataria and Kumar, 2012; Khan and Shah, 2017)
 - *Solanum nigrum* L. (Behura, 1963; Agarwala, 1979; Khan and Shah, 2017)
 - *Solanum persicum* Willd. Ex Roem and Schult. (Basu and Raychaudhuri, 1980; Ghosh and Raychaudhuri, 1962b)
 - *Solanum torvum* Sw. (Raychaudhuri, 1973)
 - *Solanum tuberosum* L. (Despande, 1938; Raychaudhuri, 1978; Khan and Shah, 2017)
 - *Solanum violaceum* Ortega (Ghulam-Ullah, 1940; Behura, 1963)
 - *Solanum xanti* A. Gray (= *Solanum xanthum* auct. nonn.) (Chakrabarti, 1972)

- *Withania somnifera* (L.) Dunal (Agarwala and Raychaudhuri, 1980; Ghosh and Singh, 2004; Kumar *et al.*, 2009)
- 38. *Myzus (Nectarosiphon) persicae nicotianae* Blackman, 1987**
 - *Nicotiana tabacum* L. (Patil and Lingappa, 2001; Sreedhar, 2020)
- 39. *Myzus (Sciomyzus) cymbalariae* Stroyan, 1954**
 - *Solanum* sp. (Basu, 1969; Raychaudhuri, 1973)
- 40. *Neomyzus circumflexus* (Buckton, 1876)**
 - *Cestrum fasciculatum* (Schltdl.) Miers (Raychaudhuri, 1973)
 - *Cestrum* sp. (Behura, 1965)
 - *Datura metel* L. (Raychaudhuri, 1973; Singh *et al.*, 2003)
 - *Datura* sp. (Agarwala, 1979)
 - *Solanum melongena* L. (Raychaudhuri, 1973; Ghosh and Singh, 2004)
 - *Solanum nigrum* L. (Raychaudhuri, 1973; Ghosh and Singh, 2004)
 - *Solanum* sp. (Ghosh and Agarwala, 1980)
- 41. *Pentalonia nigronervosa* Coquerel, 1859**
 - *Capsicum frutescens* L. (Deka *et al.*, 2014)
 - *Solanum lycopersicum* L. (Deka *et al.*, 2014).
- 42. *Pseudomegoura magnoliae* (Essig and Kuwana, 1918)**
 - *Cestrum* sp. (Raychaudhuri *et al.*, 1981)
- 43. *Rhopalosiphoninus (Rhopalosiphoninus) latysiphon* (Davidson, 1912)**
 - *Solanum tuberosum* L. (Behura, 1963)
- 44. *Sitobion (Sitobion) avenae* (Fabricius, 1775)**
 - *Nicotiana tabacum* L. (Despande, 1938; Singh *et al.*, 2003)
- 45. *Sitobion (Sitobion) rosaeiformis* (Das, 1918)**
 - *Cestrum* sp. (Raychaudhuri *et al.*, 1980)
- 46. *Trichosiphonaphis (Xenomyzus) polygoni* (van der Goot, 1917)**
 - *Nicotiana tabacum* L. (Ghosh and Raychaudhuri, 1968; Agarwala, 1979)
- 47. *Uroleucon* sp.**
 - *Solanum melongena* L. (Joshi and Mathur, 1967; Singh *et al.*, 2003)
- C. Subfamily: Calaphidinae**
 - 1. *Tinocalloides montanus* Basu, 1970**
 - *Capsicum frutescens* L. (Agarwala, 1979; Singh *et al.*, 2003)
- D. Subfamily: Chaitophorinae**
 - 1. *Chaitophorus populialbae* (Boyer de Fonscolombe, 1841)**
 - *Solanum* sp. (David *et al.*, 1971)
- E. Subfamily: Greenideinae**
 - 1. *Eutrichosiphum tattakanum assamense* (Ghosh and Raychaudhuri, 1962)**
 - *Petunia integrifolia* (Hook) Schinz and Thell. (= *Petunia violacea* Lindl.) (Chakrabarti, 1972)
 - 2. *Eutrichosiphum khasyanum* (Ghosh and Raychaudhuri, 1962)**
 - *Petunia integrifolia* (Hook) Schinz and Thell. (= *Petunia violacea* Lindl.) (Raychaudhuri, 1980; Mandal *et al.*, 1986)
 - 3. *Eutrichosiphum pseudopasaniae* Szelegiewicz, 1968**
 - *Nicotiana tabacum* L. (Rao and Kulkarni, 1977; Singh *et al.*, 2003)
 - 4. *Eutrichosiphum* sp.**
 - *Solanum lycopersicum* L. (Behura, 1963; Singh *et al.*, 2003)
 - 5. *Greenidea (Trichosiphum) anonae* (Pergande, 1906)**
 - *Nicotiana tabacum* L. (Raychaudhuri, 1956; Behura, 1963; Basu and Raychaudhuri, 1980)
 - 6. *Greenideoida (Pentatrichosiphum) lutea* (Basu, 1969)**
 - *Cestrum fasciculatum* (Schltdl.) Miers (Ghosh *et al.*, 1971a, c; Raychaudhuri, 1980)
 - *Nicotiana* sp. (Raychaudhuri, 1980)

F. Subfamily: Eriosomatinae**I. Tribe: Eriosomatini****1. *Eriosoma lanigerum* (Hausmann, 1802)**

- *Cestrum nocturnum* L. (Ghosh, 1977)

2. *Tetraneura (Tetraneurella) nigriabdominalis* (Sasaki, 1899)

- *Nicotiana* sp. (Ghosh and Raychaudhuri, 1968; Rao and Kulkarni, 1975) Indet. (Behura, 1963)

II. Tribe: Fordini**4. *Geoica lucifuga* (Zehntner, 1897)**

- *Solanum tuberosum* L. (Behura, 1965; Rao and Kulkarni, 1975)

II. Plant wise-aphid wise checklist**1. *Atropa acuminata* : *Brachycaudus helichrysi*, *Brevicoryne brassicae*, *Myzus persicae*****2. *Atropa belladonna* : *Brachycaudus helichrysi*, *Brevicoryne brassicae*, *Myzus persicae*****3. *Browallina* sp.: *Aphis spiraeicola*****4. *Brugmansia suaveolens*: *Myzus persicae*****5. *Capsicum annum*: *Aphis fabae*, *Aphis gossypii*, *Aphis nasturtii*, *Aphis spiraeicola*, *Myzus persicae*****6. *Capsicum frutescens*: *Aphis fabae*, *Aphis gossypii*, *Aphis nasturtii*, *Aphis spiraeicola*, *Myzus persicae*, *Pentalonia nigronervosa*, *Tinocalloides montanus*****7. *Capsicum* sp.: *Aphis gossypii*, *Myzus persicae*****8. *Cestrum diurnum*: *Aphis fabae*, *Aphis gossypii*, *Aphis spiraeicola*, *Myzus persicae*****9. *Cestrum fasciculatum*: *Aphis fabae*, *Aphis solanella*, *Aphis spiraeicola*, *Aphis aurantii*, *Aulacorthum solani*, *Brachycaudus helichrysi*, *Greenideoida lutea*, *Myzus ornatus*, *Myzus persicae*, *Neomyzus circumflexus*.****10. *Cestrum nocturnum*: *Aphis craccivora*, *Aphis fabae*, *Aphis gossypii*, *Aphis rumicis*, *Aphis solanella*, *Aphis aurantii*, *Eriosoma lanigerum*, *Myzus persicae*.****11. *Cestrum* sp.: *Aphis craccivora*, *Aphis fabae*, *Aphis gossypii*, *Aphis nasturtii*, *Aphis solanella*, *Aphis spiraeicola*, *Aphis aurantii*, *Neomyzus circumflexus*, *Pseudomegoura magnoliae*, *Sitobion rosaeiformis*****12. *Datura metel*: *Aphis fabae*, *Aphis gossypii*, *Aphis odinae*, *Aphis solanella*, *Brachycaudus helichrysi*, *Hyperomyzus carduellinus*, *Microlophium carnosum*, *Myzus ornatus*, *Myzus persicae*, *Neomyzus circumflexus*, *Rhopalosiphum rufiabdominale*****13. *Datura stramonium*: *Aphis fabae*, *Aphis gossypii*, *Aphis nasturtii*, *Myzus persicae*, *Rhopalosiphum rufiabdominale*,****14. *Datura* sp.: *Aphis gossypii*, *Aphis spiraeicola*, *Aulacorthum solani*, *Hyalopterus pruni*, *Myzus persicae*, *Neomyzus circumflexus*.****15. *Hyoscyamus niger*: *Myzus persicae*****16. *Lycopersicon* sp.: *Aphis craccivora*****17. *Nicotiana glauca* : *Myzus persicae*****18. *Nicotiana glutinosa*: *Myzus persicae*****19. *Nicotiana plumbaginifolia* : *Myzus persicae*****20. *Nicotiana rustica*: *Myzus persicae*,****21. *Nicotiana tabacum*: *Aphis craccivora*, *Aphis fabae*, *Aphis gossypii*, *Aphis odinae*, *Aphis spiraeicola*, *Aphis citricidus*, *Aulacorthum solani*, *Brachycaudus helichrysi*, *Eutrichosiphum pseudopasaniae*, *Greenidea anonae*, *Lipaphis erysimi*, *Myzus ornatus*, *Myzus persicae*, *Rhopalosiphum maidis*, *Rhopalosiphum rufiabdominale*, *Sitobion avenae*, *Trichosiphonaphis polygoni*.****22. *Nicotiana* sp.: *Aphis fabae*, *Aphis gossypii*, *Aphis solanella*, *Aphis verbasci*, *Brachycaudus amygdalinus*, *Dysaphis* sp., *Greenideoida lutea*, *Myzus ornatus*, *Myzus persicae*, *Tetraneura nigriabdominalis*****23. *Petunia alba* : *Aphis craccivora*, *Lipaphis erysimi*, *Myzus persicae*, *Rhopalosiphum rufiabdominale*.****24. *Petunia axillaris*: *Myzus persicae*****25. *Petunia hybrida* : *Rhopalosiphum rufiabdominale*.****26. *Petunia integrifolia*: *Anoecia corni*, *Anoecia himalayensis*, *Aphis craccivora*, *Brachycaudus helichrysi*, *Brevicoryne***

- brassicae, *Eutrichosiphum khasyanum*, *Eutrichosiphum tattakanum assamense*.
27. ***Petunia* sp.:** *Aphis gossypii*, *Brachycaudus helichrysi*, *Myzus persicae*, *Rhopalosiphum rufiabdominale*.
28. ***Physalis peruviana*:** *Aphis gossypii*, *Myzus persicae*.
29. ***Solanum aculeatissimum* :** *Myzus persicae*, *Rhopalosiphum rufiabdominale*.
30. ***Solanum aethiopicum*:** *Aphis gossypii*
31. ***Solanum aurantiacum* :** *Myzus ornatus*
32. ***Solanum betaceum*:** *Aphis gossypii*, *Aphis spiraecola*, *Myzus ornatus*, *Myzus persicae*
33. ***Solanum citrullifolium*:** *Aphis gossypii*
34. ***Solanum clavatum*:** *Aphis craccivora*, *Aphis fabae*, *Aphis odinae*, *Aphis spiraecola*, *Aphis citricidus*, *Myzus ornatus*, *Myzus persicae*
35. ***Solanum donianum*:** *Aulacorthum solani*, *Brachycaudus helichrysi*, *Myzus persicae*
36. ***Solanum dulcamara*:** *Myzus persicae*
37. ***Solanum incanum*:** *Aphis gossypii*
38. ***Solanum integrifolium*:** *Aphis gossypii*
39. ***Solanum violaceum*:** *Aphis gossypii*, *Myzus persicae*
40. ***Solanum lycopersicum*:** *Aphis craccivora*, *Aphis gossypii*, *Aphis nasturtii*, *Aphis spiraecola*, *Aphis aurantii*, *Brachycaudus helichrysi*, *Brevicoryne brassicae*, *Eutrichosiphum* sp., *Lipaphis erysimi*, *Myzus ornatus*, *Myzus persicae*, *Myzus persicae*, *Rhopalosiphum maidis*, *Rhopalosiphum rufiabdominale*.
41. ***Solanum melongena*:** *Aphis craccivora*, *Aphis fabae*, *Aphis gossypii*, *Aphis nasturtii*, *Aphis nerii*, *Aphis spiraecola*, *Aulacorthum solani*, *Brachycaudus helichrysi*, *Lipaphis erysimi*, *Macrosiphum euphorbiae*, *Myzus ornatus*, *Myzus persicae*, *Neomyzus circumflexus*, *Uroleucon* sp.
42. ***Solanum multifidum*:** *Brachycaudus helichrysi*.
43. ***Solanum nigrum*:** *Aphis craccivora*, *Aphis fabae*, *Aphis gossypii*, *Aphis nasturtii*, *Aphis rumicis*, *Aphis solanella*, *Aphis spiraecola*, *Aphis umbrella*, *Myzus ornatus*, *Myzus persicae*, *Neomyzus circumflexus*.
44. ***Solanum persicum* :** *Myzus persicae*
45. ***Solanum quitoense*:** *Aphis gossypii*
46. ***Solanum scabrum*:** *Aphis gossypii*
47. ***Solanum seafortianum*:** *Aphis gossypii*
48. ***Solanum sisymbriifolium*:** *Aphis gossypii*, *Aphis spiraecola*
49. ***Solanum torvum*:** *Aphis fabae*, *Aphis gossypii*, *Aphis spiraecola*, *Aulacorthum dasi*, *Dysaphis (Dysaphis) rumecicola emicis*, *Myzus persicae*
50. ***Solanum trilobatum*:** *Aphis gossypii*
51. ***Solanum tuberosum*:** *Acyrtosiphon pisum*, *Aphis craccivora*, *Aphis fabae*, *Aphis gossypii*, *Aphis nerii*, *Aphis solanella*, *Aphis spiraecola*, *Aulacorthum solani*, *Brachycaudus helichrysi*, *Brevicoryne brassicae*, *Geoica lucifuga*, *Hyadaphis coriandri*, *Lipaphis erysimi*, *Macrosiphum centranthi*, *Macrosiphum euphorbiae*, *Myzus ornatus*, *Myzus persicae*, *Rhopalosiphoninus latysiphon*, *Rhopalosiphum maidis*, *Rhopalosiphum rufiabdominale*.
52. ***Solanum villosum* Mill.:** *Aphis solanella*
53. ***Solanum virginianum*:** *Aphis craccivora*, *Aphis gossypii*, *Brachycaudus helichrysi*, *Brevicoryne brassicae*.
54. ***Solanum wendlandii*:** *Aphis gossypii*
55. ***Solanum xanti* :** *Myzus persicae*, *Brachycaudus helichrysi*.
56. ***Solanum* sp.:** *Aphis craccivora*, *Aphis fabae*, *Aphis gossypii*, *Aphis solanella*, *Aphis spiraecola*, *Aulacorthum solani*, *Brachycaudus helichrysi*, *Chaitophorus populialbae*, *Myzus ornatus*, *Myzus cymbalariae*, *Neomyzus circumflexus*.
57. ***Withania somnifera*:** *Aphis gossypii*, *Aphis umbrella*, *Lipaphis erysimi*, *Myzus persicae*.

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