Abstract: The present article provides an updated checklist of aphids (Homoptera: Aphididae) infesting plants belonging to two orders: Cornales and Ericales comprising 2 and 11 families, respectively, in India. Two families of Cornales, the Cornaceae and the Hydrangeaceae are associated with 4 and 9 species of aphids, respectively. Two species, *Prociphilus (Prociphilus) cornifoliae* Singh, Das and Raychaudhuri, 1977 and *Aulacorthum (Aulacorthum) cornaceae* Ghosh, 1969 are exclusively associated with Cornaceae while *Eumyzus hydrangi* Chakrabarti and Bhattacharya, 1985 and *Chakrabartiaphis hydrangeae* (Chakrabarti and Bhattacharya, 1982) are solely associated with Hydrangeaceae in India. Among the Ericales, plants belonging to 6 families, Balsaminaceae (17 species of aphids), Ericaceae (47 species of aphids), Pentaphylacaceae (14 species of aphids), Primulaceae (20 species of aphids), Symplocaceae (15 species of aphids) and Theaceae (20 species of aphids) are associated with several species of aphids and many of them are highly host specific infesting single species of plants. Total 50 species of plants belonging to these orders are colonised by 96 species of aphids belonging to 42 genera.

Keywords: Aphids, checklist, Balsaminaceae, Cornaceae, Ericaceae, Hydrangeaceae, Pentaphylacaceae, Polemoniaceae, Primulaceae, Symplocaceae, Theaceae.
MATERIALS AND METHODS
The aphid and host plant records in this checklist are taken from a wide variety of resources such as books, journals, proceedings and a few authentic theses and websites up to October 10, 2022. It may unavoidably include some percentage of misidentifications, both of aphids and their host plants. Some aphid species may also be vagrant individuals on a given host plant (Singh and Khan, 2022). The names of aphids, as well as plants that were misspelt in the original records have been corrected where we logically ascertain the intended species (Singh and Agarawal, 2022). In the present checklist, attempts have been made to provide the valid scientific names of the aphids following Favret (2022), and of the plants, following (WFO, 2022). In the first inventory of plant names, their synonyms recorded in India are also provided. Only 1-2 references of each record were cited.

RESULTS AND DISCUSSION
Of the 24 species of Cornales and 806 species of Ericales grouped into 2 and 11 families, respectively, known in India, only 50 species of plants are colonised by 96 species of aphids belonging to 42 genera. Among them, the plants belonging to the family Ericaceae are more vulnerable to aphid attack (10 species of plants infested by 47 species of aphids), followed by Theaceae (9 species of plants infested by 20 species of aphids) and Primulaceae (7 species of plants infested by 20 species of aphids) (Table 1).

Table 1: Number of plant species belonging to different families of the orders Cornales and Ericales infested by aphids in India.

| Orders | Families             | Number of species | Number of host plant species infested by aphids | Number of aphid species infesting these host plants |
|--------|----------------------|-------------------|------------------------------------------------|--------------------------------------------------|
|        |                      | Genera | Species | Genera | Species | Genera | Species |
| Cornales | Cornaceae            | 3      | 9       | 1      | 1       | 4      | 4       |
|         | Hydrangeaceae        | 4      | 15      | 2      | 4       | 7      | 9       |
| Ericales | Actinidiaceae        | 2      | 7       | 2      | 2       | 2      | 7       |
|         | Balsaminaceae        | 1      | 259     | 1      | 6       | 6      | 17      |
|         | Ebenaceae            | 1      | 62      | 1      | 1       | 1      | 1       |
|         | Ericaceae            | 11     | 211     | 5      | 10      | 26     | 47      |
|         | Pentaphylacaceae     | 5      | 16      | 1      | 2       | 9      | 14      |
|         | Polemoniaceae        | 5      | 4       | 1      | 1       | 1      | 2       |
|         | Primulaceae          | 8      | 196     | 3      | 7       | 11     | 20      |
|         | Sapotaceae           | 17     | 53      | 1      | 1       | 1      | 2       |
|         | Styracaceae          | 4      | 7       | 1      | 1       | 2      | 2       |
|         | Symphlocaceae        | 1      | 33      | 1      | 5       | 9      | 15      |
|         | Theaceae             | 5      | 19      | 3      | 9       | 10     | 20      |
| Total   |                      | 65     | 830     | 23     | 50      | 42     | 96      |
The updated checklist of aphids infesting the plants belonging to the abovementioned orders and families are given below:

I. Order Cornales
The order Cornales includes 7 families and over 800 species in about 40 genera (WFO, 2022). However, in India, the aphids are associated with only two families, Cornaceae and Hydrangeaceae.

A. Family: Cornaceae: The Cornaceae, commonly known as dogwood family, contains about 130 species in three genera (WFO, 2022), mostly trees and shrubs, and distributed primarily in northern temperate regions and tropical Asia. In India, out of 10 species of the family known (Karthikeyan et al., 2009; Chettri et al., 2012; Tiwari et al., 2014), only a single species and two unidentified species of this family are associated with 4 species of aphids as mentioned below.

1. Cornus oblonga Wall.
   - Myzaphis rosarum (Kaltenbach, 1843) (Chakrabarti, 1972)

2. Cornus spp.
   - Anoecia (Anoecia) corni (Fabricius, 1775) (Ghosh, 1977)
   - Prociphilus (Prociphilus) cornifoliae Singh, Das and Raychaudhuri, 1977 (Singh et al., 1977)

3. Unidentified sp.
   - Aulacorthum (Aulacorthum) cornaceae Ghosh, 1969 (Ghosh, 1969; Raychaudhuri, 1980)

B. Family: Hydrangeaceae: The hydrangea family, Hydrangeaceae, comprises 8 genera and about 250 species (WFO, 2022) of woody ornamental trees, shrubs, vines, and herbs, mainly distributed in tropics, subtropics, and north temperate regions. Most of them are well-known garden ornamentals. In India, 15 species belonging to 4 genera are known (EOI, 2022), out of which 4 species are associated with 9 species of aphids as stated below.

1. Deutzia corymbosa R.Br. ex G.Don
   - Acyrthosiphon (Acyrthosiphon) ignotum Mordvilko, 1914 (Kar et al., 1990)
   - Myzus (Nectarosiphon) persicae (Sulzer, 1776) (Chakrabarti and Sarkar, 2001)

2. Hydrangea macrophylla (Thunb.) Ser. (=Hydrangea hortensia Siebold)
   - Neomyzus circumflexus (Buckton, 1876) (Ghosh and Raychaudhuri, 1962)

3. Hydrangea paniculata Siebold
   - Eumyzus darjeelingensis Basu and Raychaudhuri, 1974 (Basu and Raychaudhuri, 1974)

4. Hydrangea scandens (L.f.) Ser.
   - Eumyzus hydrangi Chakrabarti and Bhattacharya, 1985 (Chakrabarti and Bhattacharya, 1985)

5. Hydrangea spp.
   - Aphis (Aphis) gossypii Glover, 1877 (Raychaudhuri, 1973)
   - Aphis (Aphis) spiraecola Patch, 1914 (Raychaudhuri, 1973)
   - Aulacorthum (Aulacorthum) solani (Kaltenbach, 1843) (Kar et al., 1990)
   - Eumyzus darjeelingensis Basu and Raychaudhuri, 1974 (Chakrabarti and Bhattacharya, 1982)
   - Eumyzus hydrangi Chakrabarti and Bhattacharya, 1985 (Mandal et al., 1986)
   - Myzus (Nectarosiphon) persicae (Sulzer, 1776) (Sharma and Bhalla, 1964)
   - Chakrabartiaphis hydrangeae (Chakrabarti and Bhattacharya, 1982) (Chakrabarti and Bhattacharya, 1982)

II. Order Ericales
The Ericales consists of 22 families and over 8000 species (WFO, 2022), distributed widely and have extensive economic importance as it includes tea, persimmon, blueberry, kiwifruit, Brazil nuts, argan, and azalea. In India, the aphids are associated with following 11 families: Actinidiaceae, Balsaminaceae, Ebenaceae, Ericaceae, Pentaphylacaceae, Polemoniaceae, Primulaceae, Sapotaceae, Styracaceae, Symplocaceae, and Theaceae.

A. Actinidiaceae: This is a very small family having only 3 genera and more than 400 species (WFO, 2022) mostly growing in temperate and subtropical region. It includes economically important fruit trees, e.g. kiwifruits. In India, only 15 species of 2 genera are known (BSI, 2022), only 2 species are infested by 2 species of aphids.
1. **Actinidia callosa** Lindl.
   - *Trichaitophorus recurvispinosus* Hille Ris Lambers and Basu, 1966 (Hille Ris Lambers and Basu, 1966)

2. **Saurauia napaulensis** DC.
   - *Aphis (Aphis) fabae* Scopoli, 1763 (Raha, 1979)

**B. Balsaminaceae**: The Balsaminaceae, commonly known as the balsam family (jewelweeds, busy lizzie) comprises only two genera, *Impatiens* L. having more than 1100 species, and *Hydrocera* Blume ex Wight and Arn. having a single species (WFO, 2022) and both are distributed throughout the temperate and tropical regions of the world. In India, out of 259 species of *Impatiens* L. recorded (BSI, 2022) only 6 species were found associated with 17 species of aphids belonging to 6 genera as given below.

1. **Impatiens balsamina** L.
   - *Aphis (Aphis) craccivora* Koch, 1854 (Chakrabarti et al., 2012)
   - *Aphis (Aphis) fabae* Scopoli, 1763 (Kar et al., 1990)
   - *Aphis (Aphis) gossypii* Glover, 1877 (Raychaudhuri, 1973; Ahmad et al., 2020)
   - *Aphis (Aphis) nasturtii* Kaltenbach, 1843 (Rao and Kulkarni, 1977; Raychaudhuri, 1973)
   - *Aphis (Aphis) solanella* Theobald, 1914 (Agrawal and Singh, 2005)
   - *Aphis (Aphis) spiraecola* Patch, 1914 (Rao, 1969; Mall, 2013)
   - *Impatientinum (Impatientinum) asiaticum dalhousiensis* Verma, 1969 (Chakrabarti, 1972)
   - *Myzus (Myzus) formosanus* Takahashi, 1923 (Bhattacharya et al., 1983)
   - *Myzus (Nectarosiphon) persicae* (Sulzer, 1776) (Ghosh and Agarwala, 1985)

2. **Impatiens bicornuta** Wall.
   - *Impatientinum (Impatientinum) impatiens* (Shinji, 1922) (Chakrabarti and Raychaudhuri, 1975)

3. **Impatiens falcifer** Hook.f.
   - *Aphis (Aphis) spiraecola* Patch, 1914 (Chakrabarti and Raychaudhuri, 1975)
   - *Epipemphigus marginalis* Chakrabarti and Banerjee, 1993 (Chakrabarti and Banerjee, 1993)

4. **Impatiens glandulifera** Royle (=*Impatiens roylei* Walp.)
   - *Eumyzus indicus* Medda and Chakrabarti, 1992 (Medda and Chakrabarti, 1992)

5. **Impatiens racemosa** DC.
   - *Aulacorthum (Perillaphis) perillae* (Shinji, 1924) (Chakrabarti and Sarkar, 2001)

6. **Impatiens scabrida** DC.
   - *Aphis (Aphis) fabae* Scopoli, 1763 (Kar et al., 1990)
   - *Eumyzus indicus* Medda and Chakrabarti, 1992 (Medda and Chakrabarti, 1992)
   - *Impatientinum (Impatientinum) asiaticum dalhousiensis* Verma, 1969 (Ghosh, 1977)
   - *Impatientinum (Impatientinum) asiaticum* Nevsky, 1929 (Chakrabarti and Sarkar, 2001)

7. **Impatiens spp.**
   - *Aphis (Aphis) gossypii* Glover, 1877 (Behura, 1963)
   - *Aphis (Aphis) spiraecola* Patch, 1914 (Raychaudhuri et al., 1980)
   - *Eumyzus impatiensae* (Shinji, 1924) (Chakrabarti and Bhattacharya, 1985)
   - *Eumyzus indicus* Medda and Chakrabarti, 1992 (Medda and Chakrabarti, 1992)
   - *Impatientinum (Impatientinum) asiaticum dalhousiensis* Verma, 1969 (Chakrabarti et al., 1974)
   - *Impatientinum (Impatientinum) asiaticum* Nevsky, 1929 (Chakrabarti and Sarkar, 2001)
   - *Impatientinum (Impatientinum) balsamine* (Kaltenbach, 1862) (Chakrabarti and Sarkar, 2001)
   - *Impatientinum (Impatientinum) impatiens* (Shinji, 1922) (Ghosh and Raychaudhuri, 1968; Maity et al., 1980)
- *Myzus (Myzus) formosanus* Takahashi, 1923 (Kar et al., 1990)

**C. Ebenaceae:** The Ebenaceae comprises 4 genera and 774 species including ebony and persimmon and is distributed in the tropics and warmer temperate regions of the world. In India, 62 species of a single genus *Diospyros* L. were recorded (BSI, 2022), however, only one species *Diospyros kaki* L.f. was found infested with a single species of aphid, *Aphis (Aphis) gossypii* Glover, 1877 (Basu and Patro, 2007).

**D. Ericaceae:** The Ericaceae, commonly known as the heath or heather family, distributed nearly worldwide mostly commonly in acidic and infertile soils. It comprises more than 4500 species under more than 240 genera (WFO, 2022). Several economically important plants such as the cranberry, blueberry, huckleberry, rhododendron, and various common heaths and heathers belong to this family. In India, 211 species of Ericaceae under 11 genera are known (BSI, 2022), among which only 10 species of 5 genera of plants are associated with 47 species of aphids belonging to 26 genera as stated below.

1. *Lyonia ovalifolia* (Wall.) Drude (=*Pieris ovalifolius* (Wall.) D. Don)
   - *Aphis (Aphis) craccivora* Koch, 1854 (Raychaudhuri, 1973)
   - *Aphis (Aphis) gossypii* Glover, 1877 (Raychaudhuri, 1973)
   - *Aphis (Aphis) nerii* Boyer de Fonsc., 1841 (Chakrabarti and Raychaudhuri, 1975)
   - *Aphis (Aphis) odinae* (van der Goot, 1917) (Raychaudhuri, 1973)
   - *Aphis (Aphis) spiraecola* Patch, 1914 (Raychaudhuri, 1973)
   - *Aphis (Toxoptera) aurantii* Boyer de Fonsc., 1841 (Rao and Kulkarni, 1977)
   - *Dysaphis (Cotoneasteria) microsiphon* (Nevsky, 1929) (Chakrabarti and Raychaudhuri, 1975)
   - *Ericolophium taiheisanum ovalifolii* (Ghosh, Ghosh and Raychaudhuri, 1970) (Ghosh MR et al., 1970)
   - *Myzakkaia kuwanis* (Ghosh, Basu and Raychaudhuri, 1970) (Raychaudhuri, 1973)

2. *Lyonia sp.*
   - *Greenidea (Greenidea) ayyari* Raychaudhuri, Ghosh, Banerjee and Ghosh, 1973 (Raychaudhuri, 1978)

3. *Macleania cordifolia* Benth. (=*Macleania punctata* Hook.)
   - *Aphis (Toxoptera) aurantii* Boyer de Fonsc., 1841 (David, 1957)

4. *Pentapterygium serpens* (Wight) Klotzsch
   - *Indiaphis setosa* (Hille Ris Lambers and Basu, 1966) (Hille Ris Lambers and Basu, 1966)

5. *Rhododendron arboreum* Sm.
   - *Aphis (Aphis) gossypii* Glover, 1877 (Raychaudhuri, 1973)
   - *Brachycaudus (Brachycaudus) helichrysi* (Kaltenbach, 1843) (Raychaudhuri, 1973)
   - *Chaetomyzus rhododendri* Ghosh and Raychaudhuri, 1962 (Chakrabarti et al., 1983)
   - *Ericolophium holsti* (Takahashi, 1935) (Chakrabarti et al., 1983; Dutta and Gautam, 1993)
   - *Ericolophium rhododendri* Ghosh, Ghosh and Raychaudhuri, 1970 (Ghosh MR et al., 1970)
   - *Ericolophium takahashii* Ghosh, 1969 (Chakrabarti et al., 1983)
   - *Indiaphis crassicornis* Basu, 1969 (Chakrabarti et al., 1972b)
   - *Macrosiphoniella (Chosoniella) spinipes* Basu, 1968 (Basu and Raychaudhuri, 1976b)
- **Myzus (Myzus) ornatus** Laing, 1932 (Raychaudhuri, 1973)
- **Sinomegoura rhododendri** (Takahashi, 1937) (Ghosh et al., 1970)

6. **Rhododendron campanulatum D. Don**
- **Myzus (Myzus) formosanus** Takahashi, 1923 (Raychaudhuri, 1973)

7. **Rhododendron campestris**?
- **Ericolophium takahashii** Ghosh, 1969 (Chakrabarti and Sarkar, 2001)
- **Indomasonaphis anaphalidis** (Basu, 1964) (Chakrabarti et al., 1972a)
- **Myzus (Myzus) formosanus** Takahashi, 1923 (Basu and Raychaudhuri, 1976a)
- **Myzus (Nectarosiphon) persicae** (Sulzer, 1776) (Basu and Raychaudhuri, 1976a)

8. **Rhododendron campylocarpum Hook. f.**
- **Aulacorthum (Perillaphis) perillae** (Shinji, 1924) (Basu and Raychaudhuri, 1980)
- **Ericolophium takahashii** Ghosh, 1969 (Chakrabarti et al., 1972a)
- **Myzus (Myzus) formosanus** Takahashi, 1923 (Basu and Raychaudhuri, 1976a)
- **Myzus (Nectarosiphon) persicae** (Sulzer, 1776) (Basu and Raychaudhuri, 1976a)

9. **Rhododendron spp.**
- **Acrysthosiphon (Acrysthosiphon) rubi** (Narzikulov, 1957) (Ghosh, 1977)
- **Aphis (Aphis) gossypii** Glover, 1877 (Chakrabarti, 1972)
- **Aphis (Aphis) kurosawai** Takahashi, 1921 (Ghosh, 1977)
- **Aphis (Aphis) spiraecola** Patch, 1914 (David and Rajasingh, 1969)
- **Brachycaudus (Brachycaudus) helichrysi** (Kaltenbach, 1843) (Chakrabarti, 1972)
- **Chaetomyzus rhododendri** Ghosh and Raychaudhuri, 1962 (Ghosh, 1980)
- **Ericolophium taiheisanum** (Takahashi, 1935) (David and Rajasingh, 1969)
- **Ericolophium holsti** (Takahashi, 1935) (Ghosh et al., 1971b; Chakrabarti and Sarkar, 2001)
- **Ericolophium rhododendri** Ghosh, Ghosh and Raychaudhuri, 1970 (Ghosh, 1980)
- **Ericolophium taiheisanum ovalifolii** Ghosh, Ghosh and Raychaudhuri, 1970 (Ghosh, 1982)
- **Ericolophium takahashii** Ghosh, 1969 (Chakrabarti et al., 1983)
- **Eulachnus thunbergii** (Wilson, 1919) (Raychaudhuri, 1980)
- **Eutrichosiphum sp.** (Ghosh and Raychaudhuri, 1963)
- **Hillerislambersia darjeelingi** Basu, 1968 (Raychaudhuri, 1980)
- **Indiaphis crassicornis** Basu, 1969 (Chakrabarti et al., 1972b)
- **Indiaphis indica** (Ghosh, Verma and Raychaudhuri, 1976) (Ghosh, 1977)
- **Indiaphis rostrata** Ghosh and Raychaudhuri, 1972 (Ghosh, 1980)
- **Indomasonaphis anaphalidis** (Basu, 1964) (Behura, 1963)
- **Indomasonaphis inulae** (Ghosh and Raychaudhuri, 1972) (Chakrabarti and Sarkar, 2001)
- **Lipaphis (Lipaphis) erysimi** (Kaltenbach, 1843) (Raychaudhuri, 1973)
- **Rhopalosiphum rufiabdominalis** (Sasaki, 1899) (Rao and Kulkarni, 1975)
- **Sinomegoura rhododendri** (Takahashi, 1937) (Ghosh et al., 1970)
- **Trichaitophorus aceris** Takahashi, 1937 (Chakrabarti and Raychaudhuri, 1975)
- **Uroleucon (Uroleucon) sonchi** (Linnaeus, 1767) (Raychaudhuri, 1973)
- **Vesiculaphis grandis** Basu, 1964 (Ghosh, 1980)
- **Vesiculaphis rhododendri** Ghosh and Raychaudhuri, 1972 (Ghosh, 1980)

10. **Vaccinium griffithianum Wight**
- **Aphis (Aphis) nasturtii** Kaltenbach, 1843 (Rao and Kulkarni, 1977)
- **Sitobion (Sitobion) sp.** (Raychaudhuri, 1983)

11. **Vaccinium sp.**
- **Sitobion (Sitobion) sp.** (Basu and Raychaudhuri, 1980)

12. **Unidentified sp.**
- **Ericolophium sikkimensis** Agarwala and Mahapatra, 1986 (Agarwala and Mahapatra, 1986)

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E. Pentaphylacaceae: The family consists of more than 500 species under 9 genera (WFO, 2022). However, in India, out of 16 species of 5 genera known (BSI, 2022), only two species of the genus Eurya Thunb. are used as host plant by 14 species of aphids described under 9 genera as mentioned below.

1. **Eurya acuminata L.**
   - Ericolophium euryae (Takahashi, 1937) (Ghosh and Agarwala, 1985)

2. **Eurya japonica Thunb.**
   - Aphis (Aphis) gossypii Glover, 1877 (Raychaudhuri, 1973)
   - Aphis (Aphis) spiraecola Patch, 1914 (Raychaudhuri, 1973)
   - Aphis (Toxoptera) aurantii Boyer de Fonsc., 1841 (Mondal et al., 1976)
   - Aphis (Toxoptera) citricidus (Kirkaldy, 1907) (Raychaudhuri, 1973)
   - Ericolophium euryae (Takahashi, 1937) (Ghosh, 1974)
   - Indomasonaphis anaphalidis (Basu, 1964) (Ghosh et al., 1971a)
   - Macrosiphoniella (Macrosiphoniella) formosartemisiae Takahashi, 1921 (Raychaudhuri, 1980)
   - Macrosiphoniella (Phalangomyzus) grandicauda Takahashi and Moritsu, 1963 (Ghosh et al., 1971a)
   - Sinomegoura citricola (van der Goot, 1917) (Raychaudhuri, 1973)

3. **Eurya spp.**
   - Aphis (Toxoptera) aurantii Boyer de Fonsc., 1841 (Mondal et al., 1976)
   - Aulacorthum (Aulacorthum) rhamni Ghosh, Ghosh and Raychaudhuri, 1970 (Basu et al., 1974)
   - Elatobium sp. (Kar et al., 1990)
   - Greenidea (Paragreenidea) symlocos Ghosh, Basu and Raychaudhuri, 1969 (Ghosh et al., 1971b)
   - Macrosiphoniella (Phalangomyzus) oblonga (Mordvilko, 1901) (Raychaudhuri, 1980)
   - Neomyzus circumflexus (Buckton, 1876) (Raychaudhuri, 1973)
   - Sinomegoura citricola (van der Goot, 1917) (Raychaudhuri, 1973)

F. Polemoniaceae: The Polemoniaceae is Jacob’s-ladder or phlox family including about 25 genera with more than 350 species (WFO, 2022) distributed primarily in Northern Hemisphere and South America. Some species of this family (Phlox spp.) are widely grown as ornamental plants. In India, 4 species under 3 genera of this family are known (BSI, 2022) while only one identified species is associated with two species of aphids as mentioned below.

1. **Phlox drummondii Hook.**
   - Myzus (Myzus) cerasi (Fabricius, 1775) (Bhagat and Ahmad, 1991)
   - Myzus (Nectarosiphon) persicae (Sulzer, 1776) (Behura, 1965)

2. **Phlox sp.**
   - Myzus (Nectarosiphon) persicae (Sulzer, 1776) (Ghulam-Ullah, 1940)

G. Primulaceae: The Primulaceae, commonly known as the primrose family, is a herbaceous and woody plants comprising 58 genera and over 2600 species found mainly in temperate region of the world. It includes several ornamental species. In India, 196 species under 8 genera are known (BSI, 2022), out of which only 7 species under 3 genera are associated with 20 species of aphids belonging to 11 genera as stated below.

1. **Ardisia sp.**
   - Aphis (Aphis) spiraecola Patch, 1914 (Ghosh and Ghosh, 2006)
   - Aphis (Toxoptera) aurantii Boyer de Fonsc., 1841 (Mondal et al., 1976)
   - Myzus (Myzus) ornatus Laing, 1932 (Raychaudhuri, 1973)
   - Sinomegoura citricola (van der Goot, 1917) (Raychaudhuri, 1973)
   - Sinomegoura pyri (Ghosh and Raychaudhuri, 1968) (Raychaudhuri, 1973)
   - Tinocalloides montanus Basu, 1969 (Raychaudhuri, 1973)

2. **Maesa chisia Buch.-Ham. ex D. Don**
   - Aphis (Aphis) gossypii Glover, 1877 (Raychaudhuri, 1973)
- *Aphis (Aphis) odinae* (van der Goot, 1917) (Mondal et al., 1976)
- *Aphis (Toxoptera) aurantii* Boyer de Fonsc., 1841 (Mondal et al., 1976)
- *Aphis (Toxoptera) citricidus* (Kirkaldy, 1907) (Mondal et al., 1976)
- *Brachycaudus (Brachycaudus) helichrysi* (Kaltenbach, 1843) (Agarwala, 1979)
- *Greenidea (Trichosiphum) psidii* van der Goot, 1917 (Agarwala, 1979)
- *Takecallis arundinariae* (Essig, 1917) (Raychaudhuri, 1973)

3. **Maesa indica** (Roxb.) A. DC.
- *Aphis (Aphis) gossypii* Glover, 1877 (Raychaudhuri, 1973)
- *Aphis (Aphis) spiraecola* Patch, 1914 (Agarwala, 1979)
- *Aphis (Toxoptera) aurantii* Boyer de Fonsc., 1841 (Mondal et al., 1976)
- *Capitophorus formosartemisiae* (Takahashi, 1921) (Basu et al., 1972)
- *Eutrichosiphum pseudopasaniae* Szelegiewicz, 1968 (Ghosh and Agarwala, 1993)
- *Mollitrichosiphum (Mollitrichosiphum) tenuicorpus* (Okajima, 1908) (Basu and Raychaudhuri, 1980)

4. **Maesa lanceolata** Forssk. syn. **Maesa angustifolia** A. DC.
- *Aphis (Toxoptera) aurantii* Boyer de Fonsc., 1841 (Mondal et al., 1976)

5. **Maesa macrophylla** Wall ex F.D. Clarke
- *Aphis (Toxoptera) aurantii* Boyer de Fonsc., 1841 (Mondal et al., 1976)

6. **Maesa sp.**
- *Aphis (Aphis) solanella* Theobald, 1914 (Stary and Ghosh 1975)
- *Aphis (Aphis) spiraecola* Patch, 1914 (Raychaudhuri, 1973)
- *Aphis (Toxoptera) aurantii* Boyer de Fonsc., 1841 (Raychaudhuri et al., 1981)
- *Brachycaudus (Brachycaudus) helichrysi* (Kaltenbach, 1843) (Raychaudhuri, 1973)
- *Eutrichosiphum tapatii* Mandal, Chatterjee and Raychaudhuri, 1979 (Agarwala, 1979)
- *Greenidea (Greenidea) ficicola* Takahashi, 1921 (Agarwala, 1979)
- *Mollitrichosiphum (Mollitrichosiphum) tenuicorpus* (Okajima, 1908) (Ghosh, 1976)

7. **Primulasp.**
- *Eutrichosiphum pseudopasaniae* Szelegiewicz, 1968 (Ghosh et al., 1971c)
- *Myzus (Nectarosiphon) ascalonicus* Doncaster, 1946 (Basu and Raychaudhuri, 1976a)
- *Neomyzus primulum* (Ghosh, Banerjee and Raychaudhuri, 1971) (Ghosh et al., 1971b)

H. Sapotaceae: The Sapotaceae comprises over 800 species of evergreen trees and shrubs under around 75 genera (WFO, 2022) and distributed pantropically. Several members of the family produce edible fruits (e.g. chiku) while some are used in cleaning dirts. Although, 53 species under 17 genera of Sapotaceae are known in India (BSI, 2022), only one species *Manilkara zapota* (L.) P. Royen (syn. *Achras zapota* L.) (chiku or sapodilla) is associated with two species of aphids *Aphis (Aphis) gossypii* Glover, 1877 (David, 1958a) and *Aphis (Aphis) odinae* (van der Goot, 1917) (David, 1958a).

I. Styracaceae: The Styracaceae is a small family including 12 genera and about 180 species (WFO, 2022) of trees and shrubs distributed in warm temperate and subtropical regions of the Northern Hemisphere. In India, only 7 species under 4 genera are known (BSI, 2022), out of which only a single species, *Styrax serrulatus* Roxb. and an unidentified species of this genus is associated with *Aphis (Aphis) fabae* Scopoli, 1763 (Kar et al., 1990) and *Eutrichosiphum sp.* (Basu and Raychaudhuri, 1980), respectively.

J. Symplocaceae: Symplocaceae, sweetleaf family, is a monotypic family consisting of type genus *Symlocos* Jacq. having more than 400 species (WFO, 2022) and distributed widely. In India, 33 species are reported (BSI, 2022) out of which 5 species are associated with 15 species of aphids belonging to 9 genera as mentioned below.

1. **Symlocos cratigeoides** Buch.-Ham. ex D. Don
- *Aphis (Aphis) spiraecola* Patch, 1914 (Rao, 1969; Raychaudhuri, 1973)
6. *Symplocos sp.*
- *Aphis* (*Toxoptera*) aurantii *Boyer de Fonsc.*, 1841 (Rao and Kulkarni, 1977)
- *Brachycaudus* (*Brachycaudus*) *helichrysi* (Kaltenbach, 1843) (Raychaudhuri, 1973)
- *Greenidea* (*Paragreenidea*) *symplocosis* Ghosh, Basu and Raychaudhuri, 1969 (Raychaudhuri, 1973)
- *Neomyzus circumflexus* (Buckton, 1876) (Raychaudhuri, 1973)
- *Rhopalosiphum rufiabdominalis* (Sasaki, 1899) (Rao and Kulkarni, 1975)
- *Sinomegoura citricola* (van der Goot, 1917) (Raychaudhuri, 1973)
- *Sinomegoura rhododendri* (Takahashi, 1937) (Raychaudhuri, 1973)

2. *Symplocos laurina* Wall. ex G. Don
- *Greenidea* (*Paragreenidea*) *symplocosis* Ghosh, Basu and Raychaudhuri, 1969 (Ghosh et al., 1969)

3. *Symplocos lucida* (Thunb.) Siebold and Zucc. (= *Symplocos theifolia* D. Don)
- *Aphis* (*Toxoptera*) aurantii *Boyer de Fonsc.*, 1841 (Mondal et al., 1976)
- *Greenidea* (*Trichosiphum*) *anonae* (Pergande, 1906) (Raha and Raychaudhuri, 1981)

4. *Symplocos paniculata* (Thunb.) Miq.
- *Aphis* (*Toxoptera*) aurantii *Boyer de Fonsc.*, 1841 (Kar et al., 1990)

5. *Symplocos spicata* Roxb.
- *Aphis* (*Aphis*) *odinae* (van der Goot, 1917) (Mondal et al., 1976)
- *Aphis* (*Aphis*) *gossypii* Glover, 1877 (Raychaudhuri, 1973)
- *Aphis* (*Toxoptera*) aurantii *Boyer de Fonsc.*, 1841 (Mondal et al., 1976)
- *Greenidea* (*Paragreenidea*) *symplocosis* Ghosh, Basu and Raychaudhuri, 1969 (Ghosh, 1978)
- *Sinomegoura citricola* (van der Goot, 1917) (Raychaudhuri, 1973)

K. Theaceae: Theaceae, the tea family, comprising 14 genera and over 350 species (WFO, 2022) includes the economically important tea plant and the ornamentals. The most speciose genus is *Camellia* L. whose leaves are used to produce tea. In India, 19 species under 5 genera are reported (BSI, 2022), out of which 9 species of 3 genera are associated with 20 species of aphids belonging to 10 genera as mentioned below.

1. *Camellia japonica* L.
- *Aphis* (*Toxoptera*) aurantii *Boyer de Fonsc.*, 1841 (Mondal et al., 1976)

2. *Camellia sikkimensis*?
- *Aphis* (*Toxoptera*) aurantii *Boyer de Fonsc.*, 1841 (Basu and Banerjee, 1958; Rao and Kulkarni, 1977)

3. *Camellia sinensis* (L.) Kuntze (syn. *Camellia thea* Link)
- *Aphis* (*Aphis*) *gossypii* Glover, 1877 (Ghosh and Raychaudhuri, 1981)
- *Aphis* (*Toxoptera*) *odinae* (van der Goot, 1917) (Mondal et al., 1976)
- *Aphis* (*Toxoptera*) aurantii *Boyer de Fonsc.*, 1841 (Basu and Banerjee, 1958; Mondal et al., 1976)
Analysis of Table 2 demonstrates that out of 96 species of the aphids recorded on Cornales and Ericales orders, 15 species of aphids (13 Aphidinae, 1 each of Eriosomatinae and Greenideinae) are highly host specific and strictly monophagous infesting single species of plants of these two orders. Among remaining species, 23 species of aphids are also almost monophagous infesting 1-2 families, 1-4 genera and 2-5 species of plants while 11 species are oligophagous and infest upto 5 species of plants belonging to 3 families. Other species are polyphagous infesting plants belonging to 4-110 families and 5-513 species of plants (Table 2).
Table 2: Number of orders, families, genera and species of plants belonging to the orders Cornales and Ericales infested by different species of aphids and total number of plants infested by them (references are given against each subfamily) in India.

| Subfamily/Aphid species | Plants of order Cornales and Ericales infested by aphids in India | Total number of plant species recorded in India |
|-------------------------|---------------------------------------------------------------|-----------------------------------------------|
|                         | Orders | Families | Genera | Species | Families | Genera | Species |
| A. Subfamily Anoeiinae (Singh and Singh, 2016a) |       |          |        |          |          |        |        |
| 1. Anoecia corni        | 1      | 1        | 1      | 1        | 3        | 3      | 3       |
| B. Subfamily: Aphidinae (Singh et al., 2014, 2015; Singh and Singh, 2016b, 2017a-e) |       |          |        |          |          |        |        |
| 2. Acyrthosiphon ignotum | 1      | 1        | 1      | 1        | 3        | 3      | 3       |
| 3. Acyrthosiphon rubi   | 1      | 1        | 1      | 1        | 4        | 11     | 16      |
| 4. Aphis aurantii       | 1      | 5        | 9      | 23       | 55       | 110    | 146     |
| 5. Aphis citricidus     | 1      | 3        | 3      | 3        | 25       | 34     | 43      |
| 6. Aphis craccivora    | 1      | 3        | 3      | 3        | 49       | 138    | 200     |
| 7. Aphis fabae          | 1      | 4        | 4      | 5        | 40       | 92     | 120     |
| 8. Aphis gossypii      | 2      | 9        | 11     | 12       | 110      | 354    | 513     |
| 9. Aphis kurosawai     | 1      | 1        | 1      | 1        | 4        | 9      | 13      |
| 10. Aphis nasturtii     | 1      | 3        | 3      | 3        | 38       | 75     | 86      |
| 11. Aphis nerii         | 1      | 1        | 1      | 1        | 12       | 25     | 28      |
| 12. Aphis odinae        | 1      | 5        | 6      | 6        | 29       | 53     | 56      |
| 13. Aphis solanello     | 1      | 2        | 2      | 2        | 7        | 11     | 15      |
| 14. Aphis spiraecola    | 2      | 7        | 10     | 13       | 68       | 190    | 278     |
| 15. Aulacorthum cornaceae | 1      | 1        | 1      | 1        | 1        | 1      | 1       |
| 16. Aulacorthum perillae | 1      | 2        | 2      | 2        | 8        | 8      | 8       |
| 17. Aulacorthum rhamni | 1      | 1        | 1      | 1        | 6        | 6      | 6       |
| 18. Aulacorthum solani | 1      | 1        | 1      | 1        | 21       | 37     | 41      |
| 19. Brachycaudus helichrysi | 1      | 4        | 4      | 6        | 49       | 126    | 186     |
| 20. Capitophorus formosartemisiae | 1      | 1        | 1      | 1        | 4        | 11     | 15      |
| 21. Chaetomyzus rhododendri | 1      | 1        | 1      | 1        | 1        | 1      | 1       |
| 22. Chakrabartiaphis hydrangeae | 1      | 1        | 1      | 1        | 1        | 1      | 1       |
| 23. Dysaphis microsiphon | 1      | 1        | 1      | 1        | 14       | 20     | 21      |
| 24. Elatobium sp.       | 1      | 1        | 1      | 1        | 1        | 1      | 1       |
| 25. Ericolophium euryae | 1      | 1        | 1      | 2        | 1        | 1      | 2       |
| 26. Ericolophium holsti | 1      | 1        | 1      | 2        | 1        | 1      | 2       |
| 27. Ericolophium rhododendri | 1      | 1        | 1      | 2        | 2        | 2      | 3       |
| 28. Ericolophium sikkimensis | 1      | 1        | 1      | 1        | 1        | 1      | 1       |
| 29. Ericolophium taiheisanum | 1      | 1        | 1      | 1        | 1        | 1      | 1       |
| 30. Ericolophium taiheisanum ovalifolii | 1      | 1        | 2      | 2        | 1        | 2      | 2       |
| 31. Ericolophium takahashii | 1      | 1        | 1      | 4        | 2        | 2      | 5       |
| 32. Eumyzus darjeelingensis | 1      | 1        | 1      | 2        | 1        | 2      | 3       |
| Subfamily/Aphid species | Plants of order Cornales and Ericales infested by aphids in India | Total number of plant species recorded in India |
|-------------------------|-------------------------------------------------------------|-------------------------------------------------|
|                         | Orders | Families | Genera | Species | Families | Genera | Species |
| 33. Eumyzus hydrangi    | 1      | 1        | 1      | 2       | 1        | 1      | 2       |
| 34. Eumyzus impatiensae | 1      | 1        | 1      | 1       | 1        | 1      | 1       |
| 35. Eumyzus indicus     | 1      | 1        | 1      | 3       | 1        | 1      | 3       |
| 36. Hillerislambersia darjeelingi | 1  | 1 | 1 | 1 | 3 | 3 | 3 |
| 37. Hyperomyzus carduellinus | 1 | 1 | 1 | 1 | 5 | 12 | 17 |
| 38. Impatientinum asiaticum | 1 | 1 | 1 | 2 | 2 | 2 | 3 |
| 39. Impatientinum asiaticum dahlousiensis | 1 | 1 | 1 | 3 | 4 | 6 | 9 |
| 40. Impatientinum balsamines | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| 41. Impatientinum impatiens | 1 | 1 | 1 | 2 | 3 | 3 | 4 |
| 42. Indiaphis crassicornis | 1 | 1 | 1 | 2 | 1 | 1 | 2 |
| 43. Indiaphis indica    | 1      | 1        | 1      | 1       | 1        | 1      | 1       |
| 44. Indiaphis rostrata  | 1      | 1        | 1      | 1       | 1        | 1      | 1       |
| 45. Indiaphis setosa    | 1      | 1        | 1      | 1       | 1        | 1      | 1       |
| 46. Indomasonaphis anaphialidis | 1 | 2 | 2 | 2 | 4 | 10 | 13 |
| 47. Indomasonaphis inulæ | 1 | 1 | 1 | 1 | 3 | 3 | 4 |
| 48. Lipaphis erysini    | 1      | 1        | 1      | 1       | 17       | 37     | 51      |
| 49. Macrosiphoniella formosartemisiae | 1 | 1 | 1 | 1 | 2 | 4 | 4 |
| 50. Macrosiphoniella grandicauda | 1 | 1 | 1 | 1 | 2 | 3 | 3 |
| 51. Macrosiphoniella oblonga | 1 | 1 | 1 | 1 | 2 | 2 | 2 |
| 52. Macrosiphoniella spinipes | 1 | 1 | 1 | 1 | 2 | 3 | 4 |
| 53. Micromyzus sp.      | 1      | 1        | 1      | 1       | -        | -      | -       |
| 54. Myzakkaia kuwanis   | 1      | 1        | 1      | 1       | 1        | 1      | 1       |
| 55. Myzaphis rosarum    | 1      | 1        | 1      | 1       | 2        | 2      | 4       |
| 56. Myzus ascalonicus   | 1      | 1        | 1      | 1       | 8        | 13     | 14      |
| 57. Myzus cerasi        | 1      | 1        | 1      | 1       | 7        | 10     | 15      |
| 58. Myzus formosanus    | 1      | 2        | 2      | 4       | 2        | 3      | 4       |
| 59. Myzus ornatus       | 1      | 3        | 3      | 3       | 54       | 134    | 181     |
| 60. Myzus persicae      | 2      | 5        | 6      | 8       | 64       | 191    | 293     |
| 61. Neomyzus circumflexus | 2 | 4 | 4 | 4 | 35 | 56 | 72 |
| 62. Neomyzus primulum   | 1      | 2        | 2      | 2       | 2        | 2      | 2       |
| 63. Rhopalosiphum rufiabdominalis | 1 | 2 | 2 | 2 | 18 | 41 | 55 |
| 64. Schizaphis rotundiventris | 1 | 1 | 1 | 1 | 6 | 9 | 16 |
| 65. Shinjia orientalis  | 1      | 1        | 1      | 1       | 6        | 10     | 10      |
| 66. Sinomegoura citricola | 1 | 4 | 4 | 6 | 22 | 32 | 38 |
| 67. Sinomegoura pyri    | 1      | 1        | 1      | 1       | 2        | 2      | 2       |
| 68. Sinomegoura rhododendri | 1 | 2 | 2 | 3 | 5 | 6 | 7 |
| Subfamily/Aphid species          | Plants of order Cornales and Ericales infested by aphids in India | Total number of plant species recorded in India |
|----------------------------------|-------------------------------------------------------------------|-------------------------------------------------|
|                                  | Orders | Families | Genera | Species | Orders | Families | Genera | Species |
| 69. *Sinomegoura symplocois*     | 1      | 1        | 1      | 1       | 2      | 2        | 2      | 2       |
| 70. *Sitobion sp.*               | 1      | 1        | 1      | 2       | -      | -        | -      | -       |
| 71. *Subovatomyzus leucosceptri* | 1      | 1        | 1      | 1       | 7      | 10       | 11     | 11      |
| 72. *Uroleucon sonchi*           | 1      | 1        | 1      | 1       | 3      | 11       | 14     | 14      |
| 73. *Vesiculaphis grandis*       | 1      | 1        | 1      | 1       | 1      | 1        | 1      | 1       |
| 74. *Vesiculaphis pieridis*      | 1      | 1        | 1      | 1       | 2      | 2        | 2      | 2       |
| 75. *Vesiculaphis rhododendri*   | 1      | 1        | 1      | 1       | 1      | 1        | 1      | 1       |

**B. Subfamily: Calaphidinae** (Singh and Singh, 2017f)

| 76. *Takecallis arundinariae*    | 1      | 1        | 1      | 1       | 3      | 7        | 7      | 7       |
| 77. *Tinocalloides montanus*     | 1      | 2        | 2      | 2       | 4      | 4        | 7      | 7       |

**C. Subfamily: Chaitophorinae** (Singh and Singh, 2016a)

| 78. *Trichaitophorus aceris*     | 1      | 1        | 1      | 1       | 3      | 3        | 4      | 4       |
| 79. *Trichaitophorus recurvispinosus* | 1      | 1        | 1      | 1       | 2      | 2        | 2      | 2       |

**Subfamily: Eriosomatinae** (Singh and Singh, 2017g)

| 80. *Epipemphigus marginalis*    | 1      | 1        | 1      | 1       | 2      | 2        | 2      | 2       |
| 81. *Prociphilus cornifoliae*    | 1      | 1        | 1      | 1       | 1      | 1        | 1      | 1       |
| 82. *Tetraneura nigriabdominalis*| 1      | 1        | 1      | 1       | 9      | 43       | 57     | 57      |

**Subfamily: Lachninae** (Singh et al., 2018)

| 83. *Eulachnus thunbergii*       | 1      | 1        | 1      | 1       | 3      | 3        | 5      | 5       |

**Subfamily: Greenideinae** (Singh and Singh, 2017b)

| 84. *Eutrichosiphum pseudopasaniae* | 1      | 2        | 3      | 3       | 10     | 12       | 15     | 15      |
| 85. *Eutrichosiphum tapatii*       | 1      | 1        | 1      | 1       | 3      | 3        | 4      | 4       |
| 86. *Greenidea ficicola*           | 1      | 1        | 1      | 1       | 13     | 14       | 25     | 25      |
| 87. *Greenidea anae*               | 1      | 1        | 1      | 1       | 8      | 9        | 10     | 10      |
| 88. *Greenidea ayyari*             | 1      | 1        | 1      | 1       | 3      | 3        | 3      | 3       |
| 89. *Greenidea bucktonis*          | 1      | 1        | 1      | 1       | 6      | 7        | 9      | 9       |
| 90. *Greenidea camelliae*          | 1      | 1        | 1      | 1       | 1      | 1        | 1      | 1       |
| 91. *Greenidea longicornis*        | 1      | 1        | 1      | 1       | 5      | 5        | 6      | 6       |
| 92. *Greenidea longirostris*       | 1      | 1        | 1      | 1       | 3      | 3        | 3      | 3       |
| 93. *Greenidea psidii*             | 1      | 1        | 1      | 1       | 12     | 17       | 24     | 24      |
| 94. *Greenidea sympliocosis*       | 1      | 2        | 2      | 5       | 3      | 3        | 5      | 5       |
| 95. *Mollitrichosiphum tenuicorpus* | 1      | 1        | 1      | 2       | 5      | 5        | 6      | 6       |

**Subfamily: Hormaphidinae** (Singh and Singh, 2018)

| 96. *Thoracaphis quercifolii*      | 1      | 1        | 1      | 1       | 4      | 5        | 5      | 5       |
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