



This work is licensed under a Creative Commons Attribution License (CC BY 4.0).

Monograph

urn:lsid:zoobank.org:pub:2B6DAD84-A303-479A-882A-1B211CE29DE4

A comprehensive checklist and host plants of Aphididae (Aphidomorpha: Hemiptera) from Pakistan

Muhammad Asghar HASSAN^{1b}, Muhammad ASIF^{2b}, Samiran CHAKRABARTI^{3b},
Muhammad AMIN^{4b}, Zohair ABBAS^{5b}, Zershina MARYAM^{6b}, Zafar IQBAL^{7b},
Muhammad ALI^{8b}, Muhammad QASIM^{9b}, Nawaz Haider BASHIR^{10b},
Muhammad Yasir ALI^{11b} & Jichun XING^{12,*}

^{1,12}Institute of Entomology, Guizhou University, The Provincial Special Key Laboratory for Development and Utilization of Insect Resources, Guizhou University, Guiyang, 550025 P.R. China.

²Department of Plant Pathology, Agriculture College, Guizhou University, Guiyang 550025, China.

³Department of Zoology, University of Kalyani, 32/B Green Park, Kolkata 700 056, India.

⁴Department of Entomology, Balochistan Agriculture College, Quetta 87300, Pakistan.

⁵Department of Entomology, China Agricultural University, Beijing 100193, China.

^{6,7,8}Department of Zoology, University of Baltistan, Gilgit-Baltistan, Skardu, Pakistan.

⁹Department of Zoology, Kohsar University, Murree, 47150, Punjab, Pakistan.

¹⁰Center for Yunnan Plateau Biological Resources Protection and Utilization, College of Biological Resource and Food Engineering, Qujing Normal University, Qujing 655011, Yunnan, China.

¹¹MARA-CABI Joint Laboratory for Bio-safety, Institute of Plant Protection, Chinese Academy of Agricultural Sciences, Beijing, 100193, China.

*Corresponding author: xingjichun@126.com

¹Email: kakojan112@gmail.com

²Email: m.asifssa@hotmail.com

³Email: chakrabarti32b@gmail.com

⁴Email: mamin.edupr@gmail.com

⁵Email: zohairbukhari3@gmail.com

⁶Email: zershinamaryam222@gmail.com

⁷Email: iqzafarshah@gmail.com

⁸Email: muhammad.ali@uobs.edu.pk

⁹Email: qasimagri@yahoo.com

¹⁰Email: haiderynau170@yahoo.com

¹¹Email: y.ali@cabi.org

¹urn:lsid:zoobank.org:author:75F6DE8B-B0AB-490A-8F3F-B6E2ED7A5BBD

²urn:lsid:zoobank.org:author:291130BA-8594-4784-9235-AE0202487AB9

³urn:lsid:zoobank.org:author:F068900B-157B-4EEA-B9B3-648B652F2F55

⁴urn:lsid:zoobank.org:author:34F6AB02-AB1B-4C06-9BC9-763E4DBE0DBE

⁵urn:lsid:zoobank.org:author:56281B6F-5030-405B-9A9F-AAFEE88B27C2

⁶urn:lsid:zoobank.org:author:F9E7E48E-4CF1-4C19-A8F3-59BB961D50A8

⁷urn:lsid:zoobank.org:author:CF10646F-2649-4B93-B9C3-71A211DA6B06

⁸urn:lsid:zoobank.org:author:46F1E99B-16E6-4D0E-B90A-731943F0CE49

⁹urn:lsid:zoobank.org:author:E521A1C0-3894-4D20-A330-00382EEB19D6

¹⁰urn:lsid:zoobank.org:author:780F834C-E5CB-4FC1-A997-45C638BDF25B

¹¹urn:lsid:zoobank.org:author:4C58128A-1E58-4C94-AC33-2054908648D7

¹²urn:lsid:zoobank.org:author:F54F1586-4704-4356-B656-0761BD99E456

Abstract. The family Aphididae (Hemiptera) represents one of the most diverse groups of sap-sucking insect pests referred to as aphids or plant-lice, with 366 species reported in Pakistan, associated with wide array of agricultural and horticultural crops, including fruit and forest trees, weeds, grasses, shrubs, and vines. This work aims to provide an updated checklist of aphids and their associated host plants documented across various regions of Pakistan. The checklist consolidates information from various published literature sources, including annotated checklists, regional distribution data, and host plant records from Pakistan. In this study, we present an annotated checklist of 366 aphid species, belonging to 134 genera and 11 subfamilies, associated with a total of 359 host plant species stretched over 84 families in Pakistan.

Keywords. Aphidoidea, distribution, faunistic review, host-plants, Pakistan.

Hassan M.A., Asif M., Chakrabarti S., Amin M., Abbas Z., Maryam Z., Iqbal Z., Ali M., Qasim M., Bashir N.H., Ali M.Y. & Xing J. 2024. A comprehensive checklist and host plants of Aphididae (Aphidomorpha: Hemiptera) from Pakistan. *European Journal of Taxonomy* 945: 1–114. <https://doi.org/10.5852/ejt.2024.945.2613>

Introduction

Pakistan is situated in South Asia between latitudes 24°–37° N and longitudes 61°–78° E. It covers an area of 796096 km² and extends from the shores of the Arabian Sea in the South to the Himalayas in the North, with areas of very different environmental conditions, which determine the existence of differentiated zoogeographical regions (Hassan *et al.* 2019). Out of the six zoogeographical regions, Pakistan occupies a significant position near the junction of the Palaearctic, Oriental, and Afrotropical regions. The Palaearctic parts of the country are primarily located in the north and west and include the mountainous areas of the eastern Iranian Plateau, Hindu Kush, Karakorum, Sulaiman Range, and the western Himalayas, as well as the lower areas of north areas with sandy desert and western Indus Valley. The Oriental parts of the country are primarily the eastern ones and include the Indus River delta, the eastern Indus Valley desert, the Thar desert, the Rann of Kutch (southern Punjab), and the western Himalayas. Significant Afrotropical impacts are mainly restricted to the extreme southwestern Balochistan province adjacent to Iran (Qadri 1968; Khan 1998; Rafi *et al.* 2010; Ali *et al.* 2018; Hassan *et al.* 2019). In addition to the significance of these biogeographic and zoogeographic regions, Pakistan has a diverse climate because of differences in seasons, land altitude, and topography and is normally categorized as subtropical arid to semi-arid; although, the northern areas have a temperate subhumid to humid climate (Tahir & Khaliq 2018). The occurrence of flora and fauna depends on elevation, climate, and mountain and plain areas (Ali *et al.* 2018). Despite being the favorable climatic conditions for insects in Pakistan, with high mountains and hills, unique topography with plains, grassland, deserts, valleys, and a large number of water bodies, the true biodiversity of the country is still poorly known.

The insect order Hemiptera Linnaeus, 1758 is regarded as a large taxon, with more than 99000 species known worldwide, and a majority of species obtain their food by sucking sap from plants (Bánki *et al.* 2022; Ehlers *et al.* 2022). Numerous phytophagous members of hemipterans are responsible for severe damage to agricultural crops and forest trees (Panizzi *et al.* 2021). Currently, Hemiptera comprises 211 families (Bánki *et al.* 2022), of which Aphididae Latreille, 1802 includes a small, soft-bodied insect group that are common pests of ornamental plants, indoor and outdoor field crops, vegetables, fruit trees, and forest plants. These insects are primarily more diverse in the temperate northern hemisphere,

with 5109 species belonging to 794 genera under 23 subfamilies worldwide (Favret 2023). In spite of such rich global fauna only 250 species are considered major pests of crops, forests, and shade trees (Blackman & Eastop 2006).

The taxonomic history of Pakistani Aphididae dates back to the pre-partition of the Indian subcontinent when the first comprehensive PhD research work of Bashambar Das (1918) on the aphids of Lahore, containing a list of 18 genera and 40 species, was published posthumously by van der Goot (in Das 1918). After the partition of the Indian Subcontinent in 1947, numerous regional and foreign scientists, like Hille Ris Lambers (1966, 1973), Habib & Ghani (1970), Eastop (1971), Hamid (1983), Ponsen (1990), Remaudière & Naumann-Etienne (1991), Nasir & Yousuf (1992, 1994, 1995), Remaudière (1993, 2002), Quednau & Remaudière (1994), Naumann-Etienne & Remaudière (1995), Irshad (2001), Mahmood *et al.* (2002), Remaudière & Binazzi (2003a, 2003b), Hassan *et al.* (2010), Blackman & Eastop (2011), Bodlah *et al.* (2011, 2012), Nieto Nafria *et al.* (2013, 2014), Kadyrbekov (2014), Nakatani *et al.* (2016), Amin *et al.* (2017a, 2017b, 2019a, 2019b, 2020, 2022, 2023), Kanturski *et al.* (2017a, 2017b), Momeni Shahraki *et al.* (2019), Naseem *et al.* (2019), Wiczyrek & Chłond (2019), Chakrabarti *et al.* (2020), Riaz *et al.* (2022), Kanturski & Chakrabarti (2022), and Favret (2023), either described, recorded or mentioned several genera and species along with new host plants with information on the extensions of distributional range of several species from Pakistan. Among these, the landmark contribution is the one by Naumann-Etienne & Remaudière (1995), who presented the first comprehensive catalogue of 300 species from the country, with 60% of the newly recorded species to Pakistan. The above contributions during the last about 100 years greatly augmented the aphid fauna of Pakistan, particularly from the northern areas, the transactional biogeographic zones of the Oriental and Palaearctic regions.

The aphid fauna and their associated host plants in Pakistan are moderately documented. However, it is comparatively lower than that of its neighboring countries like Iran (543 species and 24 subspecies) (Momeni Shahraki *et al.* 2019) and India (843 species) (Chakrabarti 2021), but larger than that of Afghanistan (more than 62 species) (Kanturski & Stekolshchikov 2018). Our main objective is to update the fauna of Aphididae, their host plants and their regional distribution in Pakistan.

Material and methods

Taxonomic literature

The literature on the taxonomy of aphids in Pakistan was thoroughly searched and the information used as the basis of this report. Many species listed in literature were not available to confirm their validity and relied upon the name used by the original author unless there is a taxonomic discussion on the same. Aphid taxa names are cited following Blackman & Eastop (2023) and <https://Aphid.SpeciesFile.org> (Favret 2023). The taxa have been arranged into intermediate categories in alphabetical order: order, superfamily, family, subfamily, tribe, subtribe, genus, subgenus, species, and subspecies. Complete synonyms, bibliography and distribution for aphid species are avoided here since these are available online from Blackman & Eastop (2023) as well as <https://Aphid.SpeciesFile.org> (Favret 2023) and Holman (2009). This catalogue includes all names of taxonomically valid species and three nomen nudum of the family Aphididae so far known to occur in Pakistan.

Regional distribution data

The distribution data in this study are presented in the following order: the country name is followed by an alphabetical list of units at the levels of Province or Territory, District, and then further locality information is updated between the square brackets. The world distribution of species is avoided here for reasons stated in the earlier paragraph. However, for some species no exact localities are mentioned in the published literature, but mentioned as “common in plains, lower hills, high hills, dry hills, humid, subhumid, or throughout Pakistan” (see Naumann-Etienne & Remaudière 1995) and these are mentioned

here as **UNK** (locality unknown). Hassan *et al.* (2019) is followed for the political units, biogeographic regions, and general physiographic conditions of Pakistan, which are not further discussed herein.

The following abbreviations are used for the regional distribution data in Pakistan:

AK	=	Azad Kashmir
BA	=	Balochistan
GB	=	Gilgit-Baltistan
KPK	=	Khyber Pakhtunkhwa
PB	=	Punjab
SD	=	Sindh
UNK	=	unknown locality

Host plant data

Various literature sources, including all available data in published books and regional and global literature, were used to prepare the first and most updated list of host plant species for each aphid species in Pakistan. The plant names were checked following ‘Plants of the World Online’ (<https://powo.science.kew.org/>) and ‘The Plant List’ (<http://theplantlist.org>). The references for each host plant species are included in the checklist. The host plant data are summarized with species names arranged alphabetically, followed by the family name in brackets. In some cases where only the family name is available, retained as family name only.

Graphic representation

The country map was prepared using the original base map from the ArcGIS ver. 10.2 boundary file, and Adobe Photoshop CS 6 was used to represent the species diversity.

Results

A complete checklist of family Aphididae (366 species in 134 genera), their host plants (84 families and 358 species), and regional distribution data recorded so far from Pakistan is prepared. The family Aphididae includes 134 genera and 366 species in 11 subfamilies in Pakistan: Anoeciinae Tullgren, 1909 (one genus, three species), Aphidinae Latreille, 1802 (80 genera, 242 species), Calaphidinae Oestlund, 1919 (17 genera, 22 species), Chaitophorinae Mordvilko, 1909 (four genera, 19 species), Drepanosiphinae Herrich-Schaeffer, 1857 (one genus, 1 species), Eriosomatinae Kirkaldy, 1905 (15 genera, 39 species), Greenideinae Baker, 1920 (three genera, 9 species), Hormaphidinae Mordvilko, 1909 (two genera, 2 species), Lachninae Herrich-Schaeffer, 1854 (nine genera, 26 species), Mindarinae Tullgren, 1909 (one genus, 2 species), and Phloeomyzinae Mordvilko, 1934 (one genus, 1 species). The current list also includes three species, *Chaitophorus murensis* Nasir & Yousuf, 1994, *Pemphigus ignotus* Habib & Ghani, 1970, and *Pemphigus venosus* Habib & Ghani, 1970, as nomina nuda from Pakistan since these are not described in conformity with the International Code of Zoological Nomenclature (ICZN 1999).

Taxonomy

Order Hemiptera Linnaeus, 1758
 Superfamily Aphidoidea Latreille, 1802
 Family Aphididae Latreille, 1802
 Subfamily Anoeciinae Tullgren, 1909
 Genus *Anoecia* Koch, 1857
 Subgenus *Anoecia* Koch, 1857

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

Solanum tuberosum L. (Solanaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

2. *Anoecia furcata* (Theobald, 1915)**Host plant**

Unidentified plant of Poaceae Barnhart.

Distribution in Pakistan

KPK: Upper Dir (Ushera Valley) (Naumann-Etienne & Remaudière 1995).

3. *Anoecia himalayensis* Chakrabarti & Maity, 1978**Host plant**

Cornus macrophylla Wall. (Cornaceae) and unidentified plant of Poaceae.

Distribution in Pakistan

KPK: Abbottabad (Galiat) (Naumann-Etienne & Remaudière 1995).

Remarks

This species was originally described from roots of unidentified grasses in India (Chakrabarti & Maity, 1978) that are summer hosts of the species. It has been subsequently reported on its primary host (*Cornus macrophylla*) in Pakistan (Naumann-Etienne & Remaudière 1995).

Subfamily Aphidinae Latreille, 1802
 Tribe Aphidini Latreille, 1802
 Subtribe Aphidina Latreille, 1802
 Genus *Aphis* Linnaeus, 1758
 Subgenus *Aphis* Linnaeus, 1758

4. *Aphis acetosae* Linnaeus, 1767**Host plant**

Rumex rugosus Campd. (Polygonaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

5. *Aphis achyranthi* Theobald, 1929

Host plant

Achyranthes aspera L. (Amaranthaceae).

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

6. *Aphis affinis* del Guercio, 1911

Host plants

Mentha longifolia (L.) L., *M. requienii* Benth., *M. spicata* L. (Lamiaceae).

Distribution in Pakistan

AK: Poonch (Abbaspur, Alisojal, Hajira, Haveli, Rawalakot); **GB:** Gilgit (Baseen), Nagar (Sikandarabad); **KPK:** Charsada, Chitral, Peshawar; **PB:** Khushab (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Hassan *et al.* 2010; Amin *et al.* 2017b, 2022; Naseem *et al.* 2019).

7. *Aphis aliena* Theobald, 1915

Host plant

Teucrium sp. (Lamiaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

8. *Aphis asclepiadis* Fitch, 1851

Host plants

Carthamus tinctorius L., *Helianthus annuus* L. (Asteraceae).

Distribution in Pakistan

AK: Poonch (Hajira) (Amin *et al.* 2023).

9. *Aphis astragalina* Hille Ris Lambers, 1974

Host plant

Teucrium sp. (Lamiaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

10. *Aphis craccivora* Koch, 1854

Host plants

Amaranthus viridis L. (Amaranthaceae), *Coriandrum sativum* L. (Apiaceae), *Bidens biternata* (Lour.) Merr. & Sherff, *Conyza canadensis* (L.) Cronquist, *Dendranthema indicum* (L.) Des Moul., *Parthenium hysterophorus* L., *Sonchus asper* (L.) Hill (Asteraceae), *Chenopodium album* L. (Chenopodiaceae),

Arachis hypogaea L., *Euphorbia prostrata* Aiton (Euphorbiaceae), *Alhagi maurorum* Medik., *Cajanus indicus* Spreng., *Cassia fistula* L., *Dalbergia sissoo* DC., *Dolichos lablab* L., *Indigofera tinctoria* L., *Lathyrus sativus* L., *Lens culinaris* Medik., *Medicago sativa* L., *M. polymorpha* L., *Melilotus indica* (L.) All., *Phaseolus radiatus* L., *Robinia pseudoacacia* L., *Senna surattensis* (Burm.f.) H.S.Irwin & Barneby, *Sesbania aegyptiaca* Poir., *Tephrosia purpurea* (L.) Pers., *Trigonella foenum-graecum* L., *Vicia faba* L. (Fabaceae), *Asparagus* sp. (Liliaceae), *Alcea rosea* L., *Hibiscus* sp. (Malvaceae), *Ficus carica* L. (Moraceae), *Psidium guajava* L. (Myrtaceae), *Bougainvillea* sp. (Nyctaginaceae), *Punica granatum* L. (Punicaceae), *Eriobotrya japonica* (Thunb.) Lindl., *Pyrus malus* L. (Rosaceae), *Salix* sp. (Salicaceae), *Ailanthus altissima* (Mill.) Swingle (Simaroubaceae), *Cestrum* sp., *Solanum nigrum* L. (Solanaceae), *Tribulus terrestris* L. (Zygophyllaceae), and some unidentified plants of Brassicaceae Burnett, Musaceae Juss., Nitrariaceae Lindl., Poaceae, and Rutaceae Juss.

Distribution in Pakistan

AK: Bagh (Singola), Poonch (Abbaspur, Alisojal, Banjosa, Hajira, Haveli, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar, Tolipir), Sudhanoti (Mang, Palandari, Thrar Khal); **BA:** Quetta; **GB:** Gupis-Yasin (Gupis), Gilgit (Nomal); **KPK:** Chitral, Mansehra (Naran Valley); **PB:** Attock, Bahawalpur (Mandi Yazman), Bhakkar, Chakwal, Faisalabad, Gujranwala (Kamonke, Nandipur, Qila Didar Singh), Islamabad Capital, Khushab, Lahore, Layyah, Mianwali, Multan, Rawalpindi (Murree, Rawalpindi), Sialkot [widely distributed throughout the country]; cosmopolitan species (Das 1918; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Irshad 2001; Blackman & Eastop 2006; Hassan *et al.* 2010; Bodlah *et al.* 2011, 2012; Javed *et al.* 2014; Khan *et al.* 2012; Amin *et al.* 2017b, 2019a, 2021; Maryam *et al.* 2019; Naseem *et al.* 2019).

11. *Aphis eugeniae* van der Goot, 1917

Host plants

Aralia cordata Thunb. (Araliaceae), *Eriobotrya japonica*, *Pyrus* sp. (Rosaceae).

Distribution in Pakistan

PB: Islamabad Capital, Sargodha; **SD:** Karachi (Naumann-Etienne & Remaudière 1995; Nakatani *et al.* 2016; Naseem *et al.* 2019; Riaz *et al.* 2022).

12. *Aphis fabae* Scopoli, 1763

Host plants

Amaranthus viridis (Amaranthaceae), *Coriandrum sativum*, *Daucus carota* L. (Apiaceae), *Conyza canadensis*, *Galinsoga parviflora* Cav., *Parthenium hysterophorus*, *Sonchus asper*, *Tagetes minuta* L., *Taraxacum officinale* F.H.Wigg. (Asteraceae), *Lonicera quinquelocularis* Hard. (Caprifoliaceae), *Chenopodium* sp., *Chenopodium album* (Chenopodiaceae), *Cucurbita* sp. (Cucurbitaceae), *Cyperus rotundus* Hook.f. (Cyperaceae), *Euphorbia* sp. (Euphorbiaceae), *Leucaena leucocephala* (Lam.) de Wit (Fabaceae), *Alcea rosea*, *Malva sylvestris* L. (Malvaceae), *Plantago major* L. (Plantaginaceae), *Rumex acetosa* L., *R. acutus* L., *R. dentatus* L. (Polygonaceae), *Cestrum nocturnum* L., *Solanum nigrum*, *Withania somnifera* (L.) Dunal (Solanaceae), *Peganum harmala* L. (Zygophyllaceae).

Distribution in Pakistan

AK: Bagh (Singola), Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar, Tolipir), Sudhanoti (Mang, Palandari, Thrar Khal); **BA:** Quetta; **KPK:** Swat; **PB:** Attock, Bahawalpur, Chakwal, Faisalabad, Gujranwala (Kamonke, Nandipur, Qila Didar Singh, Wazirabad), Islamabad Capital, Khushab, Lahore, Mianwali, Rawalpindi (Murree), Sialkot

[widely distributed throughout the country]; cosmopolitan species (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Irshad 2001; Khan *et al.* 2012; Bodlah *et al.* 2011, 2012; Amin *et al.* 2017b, 2019a; Maryam *et al.* 2019; Naseem *et al.* 2019).

13. *Aphis fabae solanella* Theobald, 1914

Host plants

Nerium oleander L. (Apocynaceae), *Calendula officinalis* L., *Centaurea* sp., *Cirsium arvense* (L.) Scop., (Asteraceae), *Hibiscus rosa-sinensis* L. (Malvaceae), *Rumex dentatus* (Polygonaceae), *Solanum nigrum* (Solanaceae).

Distribution in Pakistan

PB: Lahore [common all over Pakistan]; cosmopolitan species (Naumann-Etienne & Remaudière 1995; Irshad 2001).

14. *Aphis farinosa farinosa* Gmelin, 1790

Host plants

Sageretia brandrethiana Aitch. (Rhamnaceae), *Salix* sp. (Salicaceae).

Distribution in Pakistan

GB: Diamer (Darel), Gilgit, Skardu (Naumann-Etienne & Remaudière 1995).

15. *Aphis frangulae* Kaltenbach, 1845

Host plant

Sageretia brandrethiana (Rhamnaceae).

Distribution in Pakistan

UNK: widespread species (Naumann-Etienne & Remaudière 1995).

16. *Aphis gossypii* Glover, 1877

Host plants

Amaranthus viridis (Amaranthaceae), *Coriandrum sativum* (Apiaceae), *Colocasia antiquorum* Schott (Araceae), *Nerium indicum* Mill. (Apocynaceae), *Cryptostegia grandiflora* Roxb. ex R.Br. (Asclepiadaceae), *Ageratum conyzoides* (L.) L., *Calendula officinalis*, *Conyza canadensis*, *Cnicus wallichii* Hook.f., *Dendranthema indicum*, *D. morifolium* (Ramat.) Tzvelev, *Galinsoga parviflora*, *Parthenium hysterophorus*, *Senecio cruentus* Roth, *Sonchus asper*, *Tagetes minuta*, *Taraxacum officinale* (Asteraceae), *Tecomaria capensis* (Thunb.) Spach (Bignoniaceae), *Trichodesma indicum* (L.) Lehm. (Boraginaceae), *Brassica oleracea* L., *Capsella bursa-pastoris* (L.) Medik., *Raphanus sativus* L. (Brassicaceae), *Lonicera quinquelocularis* (Caprifoliaceae), *Dianthus caryophyllus* L. (Caryophyllaceae), *Chenopodium album* (Chenopodiaceae), *Convolvulus arvensis* L., *Ipomoea mexicana* Moc. & Sessé ex Choisy, *I. palmata* Forssk., *I. tricolor* Cav. (Convolvulaceae), *Citrullus lanatus* (Thunb.) Matsum. & Nakai, *Cucumis melo* L., *C. sativus* L., *Cucurbita moschata* Duchesne, *C. pepo* L., *Lagenaria siceraria* (Molina) Standl., *Luffa acutangula* (L.) Roxb. (Cucurbitaceae), *Albizia lebbek* (L.) Benth., *Astragalus paucijugus* Schrenk, *Cassia fistula*, *Crotalaria juncea* L., *Leucaena leucocephala*, *Trifolium* sp., *Vicia sativa* L. (Fabaceae), *Leucas cephalotes* (Roth) Spreng., *Mentha longifolia*, *Nepeta* sp., *Salvia plebeia* R.Br., *S. pratensis* L. (Lamiaceae), *Woodfordia floribunda* Salisb. (Lythraceae), *Abelmoschus esculentus*

(L.) Moench, *Abutilon indicum* (L.) Sweet, *Alcea rosea*, *Gossypium herbaceum* L., *Hibiscus cannabinus* L., *H. magnificus* F.Muell., *H. rosa-sinensis*, *H. syriacus* L., *Malva parviflora* L., *M. sylvestris*, *Malvastrum coromandelianum* (L.) Garcke, *M. tricuspidatum* A.Gray (Malvaceae), *Broussonetia papyrifera* (L.) L'Hér. ex Vent., *Ficus carica* (Moraceae), *Psidium guajava* (Myrtaceae), *Bougainvillea* sp. (Nyctaginaceae), *Jasminum* sp. (Oleaceae), *Papaver somniferum* L. (Papaveraceae), *Plantago major* (Plantaginaceae), *Rumex dentatus* (Polygonaceae), *Punica granatum* (Punicaceae), *Rhamnus* sp. (Rhamnaceae), *Eriobotrya japonica*, *Malus domestica* Borkh., *Pyrus communis* L., *Rosa* sp. (Rosaceae), *Citrus × aurantium* L. (Rutaceae), *Salix alba* L. (Salicaceae), *Dodonaea* sp. (Sapindaceae), *Verbascum thapsus* L. (Scrophulariaceae), *Ailanthus altissima* (Simaroubaceae), *Capsicum annuum* L., *Cestrum nocturnum*, *Datura metel* L., *Lycopersicon esculentum* Mill., *Solanum indicum* L., *S. melongena* L., *S. nigrum*, *S. surattense* Burm. f., *S. tuberosum*, *Withania somnifera* (Solanaceae), *Grewia asiatica* L. (Tiliaceae), *Duranta repens* L., *Lantana camara* L., *Vitex negundo* L. (Verbenaceae), *Viola tricolor* L. (Violaceae), *Peganum harmala* (Zygophyllaceae), and unidentified plant of Primulaceae Batsch ex Borkh and Salvadoraceae Lindl.

Distribution in Pakistan

AK: Bagh (Singola), Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Khaigala, Hajira, Haveli, Hussainkot, Rawalakot, Thorar), Sudhanoti (Mang, Palandari, Trar Khel); **BA:** Quetta; **KPK:** Charsada, Malakand, Mansehra (Kaghan Valley, Naran Valley), Mardan, Peshawar, Swat (Matiltan Valley); **PB:** Attock (Hazro, Hassan Abdal), Bhakkar, Bahawalpur (Mandi Yazman), Chakwal, Dera Ghazi Khan, Faisalabad, Gujranwala (Gujranwala, Kamonke, Qila Didar Singh, Rasul Nagar, Wazirabad), Gujrat, Islamabad Capital, Jhelum, Khushab, Lahore, Layyah, Mianwali, Multan, Muzaffargarh, Okara, Rawalpindi (Taxila), Sahiwal, Sargodha, Sheikhpura, Toba Tek Singh, Vihari; **SD:** Hyderabad (Tando Jam); cosmopolitan species (Das 1918; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Zia *et al.* 2010; Bodlah *et al.* 2011, 2012; Khan *et al.* 2012, 2019; Nakatani *et al.* 2016; Amin *et al.* 2017b, 2019a; Maryam *et al.* 2019; Naseem *et al.* 2019; Riaz *et al.* 2022).

17. *Aphis intybi* Koch, 1855

Host plant

Cichorium intybus L. (Asteraceae).

Distribution in Pakistan

BA: Qilla Saifullah (Kan Mehtarzai); **KPK:** Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

18. *Aphis longisetosa* Basu, 1970

Host plant

Rubus ellipticus Sm. (Rosaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

19. *Aphis longituba* Hille Ris Lambers, 1966

Host plant

Clematis sp. (Ranunculaceae).

Distribution in Pakistan

KPK; PB: Rawalpindi (Murree) (Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

20. *Aphis nasturtii* Kaltenbach, 1843

Host plants

Dendranthema indicum (Asteraceae), *Nasturtium* sp., *Rorippa indica* (L.) Hiern (Brassicaceae), *Chenopodium album* (Chenopodiaceae), *Tropaeolum majus* L. (Tropaeolaceae), *Viola biflora* L. (Violaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Hajira, Haveli, Hussainkot, Rawalakot); distributed worldwide except in Australasia (Das 1918; Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017b, 2022; Naseem *et al.* 2019).

21. *Aphis nerii* Boyer de Fonscolombe, 1841

Host plants

Nerium odorum Aiton, *N. oleander* (Apocynaceae), *Calotropis gigantea* (L.) Dryand., *C. procera* (Aiton) Dryand., *Dregea volubilis* (L.f.) Benth. ex Hook.f., *Hoya longifolia* Wall. ex Wight (Asclepiadaceae), *Dendranthema indicum*, *Zinnia elegans* L. (Asteraceae), and unidentified plants of Araceae Juss., Rosaceae Juss., and Solanaceae Juss.

Distribution in Pakistan

AK: Bagh, Poonch (Abbaspur, Alisoja, Hajira, Rawalakot, Thorar), Sudhanoti (Mang, Palandari); **BA:** Quetta; **KPK:** Chitral; **PB:** Attock, Bakkhar, Chakwal, D.G Khan, Faisalabad, Gujranwala (Rasul Nagar), Islamabad Capital, Jehlum, Khushab, Lahore, Layyah, Rahim Yar Khan, Sahiwal, Sargodha, Sheikhpura; cosmopolitan species (Das 1918; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Irshad 2001; Bodlah *et al.* 2011; Ali *et al.* 2018; Maryam *et al.* 2019; Naseem *et al.* 2019; Noor *et al.* 2020; Amin *et al.* 2022; Riaz *et al.* 2022).

22. *Aphis origani* Passerini, 1860

Host plant

Origanum sp. (Lamiaceae).

Distribution in Pakistan

UNK: Northern areas (Naumann-Etienne & Remaudière 1995).

23. *Aphis polygonata* (Nevsky, 1929)

Host plant

Polygonum aviculare L. (Polygonaceae).

Distribution in Pakistan

KPK: Upper Dir (Usheri Valley) (Naumann-Etienne & Remaudière 1995).

24. *Aphis pomi* de Geer, 1773**Host plant**

Malus pumila Mill. (Rosaceae).

Distribution in Pakistan

AK: Bagh (Singola), Poonch (Abbaspur, Alisoja, Banjosa, Datoot, Hajira, Hussainkot, Khaigala, Paniola, Rawalakot, Taolipir), Sudhanoti (Mang, Pallandri); **BA:** Qilla Saifullah (Khan Mehtarzai); **KPK:** Kohistan, Swat (Kalam Valley); **PB:** Sargodha (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2019a, 2022; Riaz *et al.* 2022).

25. *Aphis praeterita* Walker, 1849**Host plant**

Epilobium hirsutum L. (Onagraceae).

Distribution in Pakistan

GB: Gilgit; **KPK:** Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

26. *Aphis punicae* Passerini, 1863**Host plants**

Punica granatum (Punicaceae), *Duranta repens* (Verbenaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Abbaspur, Banjosa, Hajira, Rawalakot, Thorar), Sudhanoti (Mang, Pallandri); **GB:** Diamer (Chilas), Gilgit (Jaglote), Hunza; **PB:** Bakhar, D.G Khan, Faisalabad, Layyah (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Irshad 2001; Hassan *et al.* 2010; Bodlah *et al.* 2011; Amin *et al.* 2019a, 2022).

27. *Aphis ruborum* (Börner, 1932)**Host plant**

Rubus ulmifolius Schott (Rosaceae).

Distribution in Pakistan

GB: Diamer (Chilas); **KPK:** Mansehra (Naumann-Etienne & Remaudière 1995; Irshad 2001; Blackman & Eastop 2006).

28. *Aphis rumicis* Linnaeus, 1758**Host plant**

Rumex sp. (Polygonaceae).

Distribution in Pakistan

UNK: Well known along the lower and high humid and mesophytic hills (Naumann-Etienne & Remaudière 1995; Ghosh & Ghosh 2006).

29. *Aphis sambuci* Linnaeus, 1758

Host plant

Solanum nigrum (Solanaceae).

Distribution in Pakistan

AK: Poonch (Hajira, Rawalakot) (Amin *et al.* 2023).

30. *Aphis spiraecola* Patch, 1914

Host plants

Bidens pilosa L., *Dendranthema indicum*, *Emilia sonchifolia* (L.) DC. ex DC., *Eupatorium* sp., *Mikania scandens* (L.) Willd., *Sonchus asper*, *Tagetes minuta*, *Taraxacum officinale* (Asteraceae), *Alcea rosea* (Malvaceae), *Eriobotrya japonica*, *Spiraea* sp. (Rosaceae), *Citrus* sp. (Rutaceae), and unidentified plants of Apocynaceae Juss., Brassicaceae, Fabaceae Lindl., Lamiaceae Martinov, and Polygonaceae Juss.

Distribution in Pakistan

AK: Bagh, Poonch (Abbaspur, Banjosa, Haveli, Hajira, Khaigala, Rawalakot, Thorar), Sudhanoti (Mang, Pallandari, Thrar Khal); **KPK:** Chitral, Peshawar, Malakand, Mardan, Swat; **PB:** Chakwal, Islamabad Capital, Kasur, Khushab, Lahore, Layyah, Rawalpindi, Sargodha, Sheikhpura; cosmopolitan species (Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011; Amin *et al.* 2019a, 2022; Naseem *et al.* 2019; Riaz *et al.* 2022).

31. *Aphis taraxacicola* (Börner, 1940)

Host plant

Taraxacum sp. (Asteraceae).

Distribution in Pakistan

AK: Poonch (Rawalakot) (Naumann-Etienne & Remaudière 1995).

32. *Aphis tirucallis* Hille Ris Lambers, 1954

Host plant

Euphorbia sp. (Euphorbiaceae).

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

33. *Aphis urticata* Gmelin, 1790

Host plant

Urtica dioica L. (Urticaceae).

Distribution in Pakistan

KPK: Kohistan, Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

34. *Aphis verbasci* Schrank, 1801

Host plant

Verbascum sp. (Scrophulariaceae).

Distribution in Pakistan

PB: Islamabad Capital, Rawalpindi (Naumann-Etienne & Remaudière 1995).

Subgenus *Bursaphis* Baker, 1934

35. *Aphis (Bursaphis) epilobiaria* Theobald, 1927

Host plant

Epilobium hirsutum (Onagraceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

36. *Aphis (Bursaphis) grossulariae* Kaltenbach, 1843

Host plant

Epilobium minutiflorum Hausskn. (Onagraceae).

Distribution in Pakistan

KPK: Mansehra (Kaghan Valley), Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Subgenus *Toxoptera* Koch, 1856

37. *Aphis (Toxoptera) aurantii* Boyer de Fonscolombe, 1841

Host plant

Citrus sp. (Rutaceae).

Distribution in Pakistan

AK: Poonch (Abbaspur, Hajira, Thorar); **PB:** Islamabad Capital, Sargodha; cosmopolitan species (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Amin *et al.* 2019a, 2022; Riaz *et al.* 2022).

38. *Aphis (Toxoptera) citricidus* (Kirkaldy, 1907)

Host plant

Citrus sinensis (L.) Osbeck (Rutaceae).

Distribution in Pakistan

AK: Poonch (Abbaspur, Hajira, Thorar); **PB:** Sargodh; cosmopolitan species (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2022, 2023; Riaz *et al.* 2022).

Genus *Brachyunguis* Das, 1918
Subgenus *Brachyunguis* Das, 1918

39. *Brachyunguis harmalae* Das, 1918

Host plants

Peganum harmala (Zygophyllaceae) and unidentified plants of Nitrariaceae, Rutaceae, and Solanaceae.

Distribution in Pakistan

GB: Hunza; **BA:** Kalat, Quetta; **PB:** Chakwal, Gujranwala, Khushab, Lahore, Layyah (Das 1918; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000, 2006; Naseem *et al.* 2019).

40. *Brachyunguis letsoniae* Das, 1918

Host plant

Argyrea argentea (Roxb.) Sweet (Convolvulaceae).

Distribution in Pakistan

PB: Lahore (Das 1918; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

41. *Brachyunguis tamaricis* (Lichtenstein, 1885)

Host plants

Achyranthes aspera (Amaranthaceae), *Tamarix aphylla* (L.) H.Karst. (Tamaricaceae).

Distribution in Pakistan

KPK: Dir, Hangu (Thall) (Naumann-Etienne & Remaudière 1995).

42. *Brachyunguis tamaricophilus* (Nevsky, 1928)

Host plant

Tamarix aphylla (Tamaricaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Genus *Ephedraphis* Hille Ris Lambers, 1959

43. *Ephedraphis ephedrae* (Nevsky, 1929)

Host plant

Ephedra sp. (Ephedraceae).

Distribution in Pakistan

GB: Skardu; **KPK:** Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Protaphis* Börner, 1952

Remarks

Blackman & Eastop (2006) treated *Protaphis* as a subgenus of *Aphis* while Blackman & Eastop (2022), Nieto Nafria *et al.* (2011), and Favret (2023) considered it as a separate genus based on body morphology, host specificity, and biological characteristics.

44. *Protaphis anuraphoides* (Nevsky, 1928)

Host plants

Asteraceae Bercht. & J. Presl.

Distribution in Pakistan

PB: Islamabad Capital (Nasir & Yousuf 1992).

45. *Protaphis carthami* (Das, 1918)

Host plants

Carthamus oxyacanthus M. Bieb., *Vernonia cinerea* (L.) Less. (Asteraceae).

Distribution in Pakistan

PB: Lahore (Das 1918; Naumann-Etienne & Remaudière 1995).

46. *Protaphis middletonii* (Thomas, 1879)

Host plant

Mentha requienii (Lamiaceae).

Distribution in Pakistan

AK: Muzaffarabad; **GB:** Astore (Hassan *et al.* 2010).

47. *Protaphis terricola* (Rondani, 1847)

Host plant

Centaurea iberica Trevir. ex Spreng. (Asteraceae).

Distribution in Pakistan

KPK: Mansehra (Naumann-Etienne & Remaudière 1995).

Genus *Xerobion* Nevsky, 1928

48. *Xerobion cinae* (Nevsky, 1928)

Host plant

Artemisia scoparia Waldst. & Kitam. (Asteraceae).

Distribution in Pakistan

UNK: Dry and mesophytic western hills and foothills (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Kadyrbekov 2014).

49. *Xerobion eriosomatium* Nevsky, 1928

Host plant

Kochia sp. (Chenopodiaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Kadyrbekov 2014).

50. *Xerobion lambersi* (Tashev, 1961)

Host plant

Artemisia scoparia (Asteraceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995; Kadyrbekov 2014).

Subtribe Rhopalosiphina Mordvilko, 1914

Genus *Hyalopterus* Koch, 1854

51. *Hyalopterus amygdali* (Blanchard, 1840)

Host plants

Prunus armeniaca L., *P. bokhariensis* Royle ex C.K.Schneid., *P. dulcis* (Mill.) D.A.Webb, *P. persica* (L.) Batsch (Rosaceae).

Distribution in Pakistan

PB: Lahore (Das 1918; Blackman & Eastop 2006).

52. *Hyalopterus pruni* (Geoffroy, 1762)

Host plants

Arundo donax L., *Phragmites karka* (Retz.) Trin. ex Steud. (Poaceae), *Prunus persica* (Rosaceae).

Distribution in Pakistan

BA; PB: Islamabad Capital [widely distributed in Pakistan from the plains to the high hills of Balochistan and the Northern Areas]; cosmopolitan species (Das 1918; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Naseem *et al.* 2019).

Genus *Hysteroneura* Davis, 1919

53. *Hysteroneura setariae* (Thomas, 1878)

Host plants

Cynodon dactylon (L.) Pers. (Poaceae) and unidentified plants of Amaryllidaceae J.St.-Hil., Brassicaceae, Fabaceae, and Musaceae.

Distribution in Pakistan

AK: Bagh, Poonch (Abbaspur, Hajira, Haveli), Sudhnoti; **KPK:** Charsada; **PB:** Bahawalpur, Chakwal, DG Khan, Islamabad Capital, Kasur, Khushab, Lahore, Mianwali, Sargodha (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017b, 2022; Naseem *et al.* 2019).

Genus *Melanaphis* van der Goot, 1917

54. *Melanaphis donacis* (Passerini, 1862)**Host plant**

Arundo donax (Poaceae).

Distribution in Pakistan

BA: Quetta; **PB:** Islamabad Capital, Mianwali, Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995; Nakatani *et al.* 2016; Bodlah *et al.* 2017; Amin *et al.* 2019b; Naseem *et al.* 2019).

55. *Melanaphis sacchari* (Zehntner, 1897)**Host plants**

Echinochloa colonum (L.) Link, *Saccharum officinarum* L., *Sorghum bicolor* (L.) Moench (Poaceae), and unidentified plant of Solanaceae.

Distribution in Pakistan

BA; **KPK:** Malakand, Peshawar; **PB:** Chakwal, Islamabad Capital, Faisalabad, Lahore; **SD:** Hyderabad (Das 1918; Hamid 1983; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Naseem *et al.* 2019).

56. *Melanaphis sorghi* (Theobald, 1904)**Host plant**

Unidentified plant of Poaceae.

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

Genus *Rhopalosiphum* Koch, 1854

57. *Rhopalosiphum maidis* (Fitch, 1856)**Host plants**

Cyperus rotundus (Cyperaceae), *Cynodon dactylon*, *Echinochloa colonum*, *Hordeum vulgare* L., *Pennisetum typhoideum* Rich., *Setaria verticillata* (L.) P.Beauv., *Sorghum bicolor*, *Zea mays* L. (Poaceae), *Prunus cornuta* (Wall. ex Royle) Steud. (Rosaceae), and unidentified plants of Brassicaceae, Myrtaceae Juss., Papaveraceae Juss., and Polygonaceae.

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Ali Sojal, Banjosa, Datoot, Hajira, Hussainkot, Khai Gala, Paniola, Rawalakot, Thorar), Sudhnoti (Mang, Palandari, Trar Khel); **BA;** **KPK:** Charsada, Malakand, Peshawar; **PB:** Bahawalpur (Mandi Yazman), Chakwal, Islamabad Capital, Faisalabad, Lahore,

Layyah, Gujranwala, Khanewal, Mianwali, Multan, Rawalpindi (Rawalpindi, Murree), Sargodha; **SD:** Hyderabad; nearly cosmopolitan species (Das 1918; Hamid 1983; Remaudière & Naumann-Etienne 1991; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Mushtaq *et al.* 2013; Faheem *et al.* 2019; Naseem *et al.* 2019; Amin *et al.* 2022; Riaz *et al.* 2022).

58. *Rhopalosiphum nymphaeae* (Linnaeus, 1761)

Host plants

Scirpus lacustris L. (Cyperaceae), *Vallisneria spiralis* L. (Hydrocharitaceae), *Lemna* sp. (Lemnaceae), *Nelumbo nucifera* Gaertn. (Nelumbonaceae), *Prunus armeniaca*, *P. domestica* L., *P. persica* (Rosaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Alisojal, Banjosa, Hajira, Hussainkot, Khai Gala, Rawalakot); **GB:** Gilgit; cosmopolitan species (Das 1918; Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Amin *et al.* 2019a, 2022).

59. *Rhopalosiphum padi* (Linnaeus, 1758)

Host plants

Brassica napus L. (Brassicaceae), *Avena sativa* L., *Cynodon dactylon*, *Echinochloa crus-galli* (L.) P.Beauv., *Eragrostis* sp., *Hordeum vulgare*, *Oryza sativa* L., *Phalaris minor* Retz., *Sorghum bicolor*, *S. halepense* (L.) Pers., *S. sudanense* (Piper) Stapf, *Triticum aestivum* L., *Zea mays* (Poaceae), and unidentified plants of Apiaceae Lindl., Malvaceae Juss., Moraceae Gaudich., Oleaceae Hoffmanns. & Link, Rutaceae, Solanaceae, and Zygophyllaceae R.Br.

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Ali Sojal, Banjosa, Datoot, Hajira, Hussainkot, Khai Gala, Paniola, Rawalakot, Thorar), Sudhnoti (Mang, Palandari, Trar Khel); **BA; GB; KPK:** Charsadda (Tarnab), Chitral, Mardan (Kandare, Khazana Dheri, Maho Dheri, Rag Narai, Sarband), Peshawar; **PB:** Attock (Fateh Jang, Pindi Gheb, Jand), Bahawalpur (Mandi Yazman), Bhakkar, Chakwal (Choa Syedan Shah, Mogla, Talagang), Islamabad Capital, D.G Khan, Faisalabad, Gujranwala (Nandipur, Rasul Nagar, Qila Didar Singh, Wazirabad), Jhelum (Dina, Khewra, Mangla, Pind Dadan Khan, Sohawa), Khushab, Khanewal, Lahore, Layyah, Mianwali, Multan, Rawalpindi (Kahuta, Taxila, Murree), Sargodha, Sialkot; **SD:** Hyderabad; cosmopolitan species (Das 1918; Hamid 1983; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Zia *et al.* 2010; Bodlah *et al.* 2011; Khan *et al.* 2011; Mushtaq *et al.* 2013; Faheem *et al.* 2019; Maryam *et al.* 2019; Naseem *et al.* 2019; Ghani & Maalik 2020; Ullah *et al.* 2020; Zeb *et al.* 2020; Amin *et al.* 2022; Riaz *et al.* 2022).

60. *Rhopalosiphum rufiabdominale* (Sasaki, 1899)

Host plants

Solanum tuberosum (Solanaceae), and unidentified plants of Brassicaceae, Moraceae, and Poaceae.

Distribution in Pakistan

PB: Bhawalpur, Chakwal, Gujranwala, Islamabad Capital, Okara, Rahim Yar Khan, Sahiwal; worldwide distributed but more common in warmer climates (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

Genus *Schizaphis* Börner, 1931

61. *Schizaphis graminum* (Rondani, 1852)

Host plants

Cyperus rotundus (Cyperaceae), *Cynodon dactylon*, *Hordeum vulgare*, *Triticum aestivum*, *Phalaris minor* (Poaceae).

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Banjosa, Datoot, Hajira, Hussainkot, Khai Gala, Paniola, Rawalakot, Thorar), Sudhnoti (Mang, Palandari, Trar Khel); **BA; KPK:** Charsadda (Tarnab), Peshawar; **PB:** Attock, Bahawalpur, Chakwal, DG Khan, Faisalabad, Gujranwala, Khanewal, Khushab, Layyah, Multan, Muzaffar Garh, Rawalpindi (Murree), Sargodha, Sialkot; **SD:** Hyderabad; widely distributed species (Das 1918; Hamid 1983; Nasir & Yousuf 1992; Inayatullah *et al.* 1993; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Saleem *et al.* 2009; Bodlah *et al.* 2011; Khan *et al.* 2011; Mushtaq *et al.* 2013; Faheem *et al.* 2019; Ghani & Maalik 2020; Zeb *et al.* 2020; Amin *et al.* 2022; Khaliq *et al.* 2021; Riaz *et al.* 2022).

62. *Schizaphis minuta* (van der Goot, 1917)

Host plant

Unidentified plant of Cyperaceae Juss.

Distribution in Pakistan

PB: Islamabad Capital (Naumann-Etienne & Remaudière 1995).

63. *Schizaphis piricola* (Matsumura, 1917)

Host plant

Unidentified plant of Cyperaceae.

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

64. *Schizaphis rotundiventris* (Signoret, 1860)

Host plants

Cyperus rotundus (Cyperaceae), *Pyrus communis* (Rosaceae), and unidentified plant of Fabaceae.

Distribution in Pakistan

UNK: Plains and lower hills, especially in humid, monsoon exposed areas (Das 1918; Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

Subgenus *Paraschizaphis* Hille Ris Lambers, 1947

65. *Schizaphis (Paraschizaphis) eastopi* van Harten & Ilharco, 1971

Host plants

Typha domingensis Pers., *T. elephantina* Roxb. (Typhaceae).

Distribution in Pakistan

PB: Islamabad Capital, Sahiwal (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

66. *Schizaphis (Paraschizaphis) rosazevedoi* (Ilharco, 1961)

Host plant

Unknown.

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

Tribe Macrosiphini Wilson, 1910

Genus *Acutosiphon* Basu, Ghosh & Raychaudhuri, 1970

67. *Acutosiphon obliquoris* Basu, Ghosh & Raychaudhuri, 1970

Host plants

Unidentified plants of Cyperaceae and Ericaceae Durande.

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Genus *Acyrthosiphon* Mordvilko, 1914

68. *Acyrthosiphon astragali* Eastop, 1971

Host plant

Astragalus sp. (Fabaceae).

Distribution in Pakistan

KPK: Swat (Alamgang, Madyar) (Eastop 1971; Naumann-Etienne & Remaudière 1995).

69. *Acyrthosiphon caraganae* (Cholodkovsky, 1908)

Host plant

Colutea sp. (Fabaceae).

Distribution in Pakistan

UNK (Holman 2009).

70. *Acyrthosiphon ghanii* Eastop, 1971

Host plants

Scorzonera subaphylla Boiss., *Sonchus oleraceus* (L.) L. (Asteraceae).

Distribution in Pakistan

AK: Bagh (Bagh city, Singola), Poonch (Datoot, Rawalakot), Sudhnoti (Mang, Palandari, Trar Khel); **GB:** Hunza (Gulmit); **KPK:** Swat (Mingora); **PB:** Islamabad Capital Territory (Margalla Hills) (Eastop 1971; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

71. *Acyrtosiphon gossypii* Mordvilko, 1914**Host plants**

Alhagi sp., *Dolichos* sp., *Phaseolus* sp., *Sophora* sp., *Spartium* sp., *Trigonella* sp., *Vicia* sp. (Fabaceae).

Distribution in Pakistan

BA: Quetta; **PB:** Bahawalpur, Islamabad Capital, Faisalabad, Lahore, Layyah, Rawalpindi (Murree), Sahiwal, Sialkot (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

72. *Acyrtosiphon ilka* Mordvilko, 1914**Host plants**

Bidens sp., *Cichorium intybus*, *Lactuca* sp., *Sonchus* sp. (Asteraceae), *Papaver* sp., *Glaucium* sp. (Papaveraceae), and unidentified plants of Apiaceae, Fabaceae, Linaceae DC. ex Perleb, and Polygonaceae.

Distribution in Pakistan

BA: Quetta; **KPK:** Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

73. *Acyrtosiphon kondoi* Shinji, 1938**Host plants**

Medicago sativa, *Trifolium pratense* L. (Fabaceae).

Distribution in Pakistan

UNK: subhumid and dry hills (Smith 1983; Naumann-Etienne & Remaudière 1995).

74. *Acyrtosiphon lactucae* (Passerini, 1860)**Host plant**

Lactuca virosa Habl. (Asteraceae).

Distribution in Pakistan

BA: Quetta; **KPK:** Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

75. *Acyrtosiphon malvae* (Mosley, 1841)**Host plants**

Althaea rosea Cav. (Malvaceae), *Tropaeolum majus* (Tropaeolaceae), and unidentified plants of Asteraceae, Brassicaceae, Fabaceae, Primulaceae, Solanaceae, and Zygophyllaceae.

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar, Tolipir), Sudhnoti (Palandari); **KPK:** Swat (Kalam Valley); almost cosmopolitan (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017b, 2022; Naseem *et al.* 2019).

76. *Acyrthosiphon moltshanovi* Mordvilko, 1914

Host plant

Euphorbia helioscopia L. (Euphorbiaceae).

Distribution in Pakistan

KPK: Swat (Bahrain) (Eastop 1971; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

77. *Acyrthosiphon pisum* (Harris, 1776)

Host plants

Alhagi bucharica Bunge, *A. maurorum*, *Clianthus oxleyi* A.Cunn. ex Lindl., *Dolichos lablab*, *Lathyrus odoratus* L., *Medicago falcata* L., *M. lupulina* L., *M. sativa*, *M. polymorpha*, *Melilotus alba* Medik., *Pisum sativum* L., *Sesbania grandiflora* (L.) Pers., *Trifolium* sp., *Trigonella foenum-graecum*, *Trifolium alexandrinum* L. (Fabaceae), *Malva parviflora* (Malvaceae), *Peganum harmala* (Zygophyllaceae).

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khai Gala, Paniola, Rawalakot, Thorar, Tolipir), Sudhnoti (Mang, Trar Khel); **GB:** Gilgit (Gopis Valley, Jalalabad Valley, Nomal Valley); **KPK:** Abbottabad (Dunga Gali, Galiat), Charsada, Mansehra (Balakot); **PB:** Islamabad Capital Territory (Margalla Hills), Chakwal, Faisalabad, Jhelum, Layyah, Rawalpindi (Murree, Ghora Gali), Mianwali, Sargodha, Sialkot; almost cosmopolitan (Das 1918; Eastop 1971; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Zia *et al.* 2010; Bodlah *et al.* 2011; Amin *et al.* 2017b, 2022; Naseem *et al.* 2019; Riaz *et al.* 2022).

78. *Acyrthosiphon rubi* Narzikulov, 1957

Host plants

Rubus ellipticus, *R. spinosus* L. (Rosaceae).

Distribution in Pakistan

KPK: Abbottabad (Dunga Gali, Galiat); **PB:** Islamabad Capital Territory (Margalla Hills), Rawalpindi (Murree, Ghora Gali) (Naumann-Etienne & Remaudière 1995).

79. *Acyrthosiphon sophorae* Narzikulov & Umarov, 1969

Host plants

Sophora alopecuroides L., *S. mollis* (Royle) Baker (Fabaceae).

Distribution in Pakistan

BA: Quetta (Surtal); **GB:** Gilgit (Naumann-Etienne & Remaudière 1995).

Genus *Amphicercidus* Oestlund, 1923

80. *Amphicercidus lonicerae* Maity & Chakrabarti, 1982

Host plant

Lonicera quinquelocularis (Caprifoliaceae).

Distribution in Pakistan

KPK: Kohistan, Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Amphorophora* Buckton, 1876

81. *Amphorophora ampullata ampullata* Buckton, 1876

Host plant

Unidentified plant of Osmundaceae Martinov.

Distribution in Pakistan

UNK: Most commonly found on ferns during the monsoon season in the northern and western hills, typically at an elevation ranging from 1500 to 2800 m in Pakistan (Naumann-Etienne & Remaudière 1995).

82. *Amphorophora catharinae* (Nevsky, 1928)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

BA: Quetta; **GB:** Gilgit (Naltar Valley); **KPK:** Swat (Kalam Valley); **PB:** Islamabad Capital Territory (Naumann-Etienne & Remaudière 1995).

Genus *Aphidura* Hille Ris Lambers, 1956

83. *Aphidura ornatella* Narzikulov & Winkler, 1960

Host plant

Silene vulgaris (Moench) Garcke (Caryophyllaceae).

Distribution in Pakistan

KPK: Kohistan, Swat (Kalam Valley, Matiltan Valley) (Naumann-Etienne & Remaudière 1995; Nieto Nafria *et al.* 2013, 2014).

84. *Aphidura pakistanensis* Nieto Nafria, Mier Durante & Remaudière, 2013

Host plant

Dianthus sp. (Caryophyllaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Nieto Nafria *et al.* 2013, 2014).

85. *Aphidura picta picta* Hille Ris Lambers, 1956

Host plants

Dianthus barbatus L., *D. crinitus* Sm. (Caryophyllaceae).

Distribution in Pakistan

BA: Quetta; **GB:** Skardu (Naumann-Etienne & Remaudière 1995; Nieto Nafria *et al.* 2013, 2014).

86. *Aphidura pujoli* (Gómez-Menor, 1950)

Host plant

Dianthus sp. (Caryophyllaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Aspidaphis* Gillette, 1917

87. *Aspidaphis adjuvans* (Walker, 1848)

Host plants

Polygonum aviculare (Polygonaceae), *Solanum tuberosum* (Solanaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Aulacorthum* Mordvilko, 1914

88. *Aulacorthum solani* (Kaltenbach, 1843)

Host plants

Coriandrum sativum (Apiaceae), *Conyza canadensis*, *Galinsoga parviflora*, *Silybum marianum* (L.) Gaertn., *Sonchus oleraceus*, *Tagetes minuta* (Asteraceae), *Campanula* sp. (Campanulaceae), *Chenopodium album* (Chenopodiaceae), *Ricinus communis* L. (Euphorbiaceae), *Plantago major* (Plantaginaceae), *Solanum tuberosum* (Solanaceae), *Celtis* sp. (Ulmaceae), *Urtica* sp. (Urticaceae), *Viola* sp. (Violaceae).

Distribution in Pakistan

AK: Bagh (Singola), Poonch (Hajira, Haveli, Hussainkot, Khai Gala, Rawalakot, Thorar); **KPK; PB:** Rawalpindi (Murree); cosmopolitan species (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017b; Naseem *et al.* 2019).

Genus *Berberidaphis* Narzikulov, 1960

89. *Berberidaphis lydiae* (Narzikulov, 1957)

Host plant

Berberis lycium Royle (Berberidaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **GB:** Gilgit (Haramosh, Rakaposhi), Hunza (Gojal), Skardu (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2019a, 2022).

Genus *Brachycaudus* van der Goot, 1913

90. *Brachycaudus helichrysi* (Kaltenbach, 1843)

Host plants

Bomarea caldasiana Herb. (Amaryllidaceae), *Ageratum conyzoides*, *Blumea lacera* (Burm.f.) DC., *Chrysanthemum* sp., *Galinsoga parviflora*, *Senecio cruentus*, *Silybum marianum*, *Sonchus oleraceus*, *Tagetes minuta* (Asteraceae), *Cynoglossum furcatum* Wall. (Boraginaceae), *Vicia sativa* (Fabaceae), *Plantago major* (Plantaginaceae), *Prunus armeniaca*, *P. domestica*, *P. dulcis*, *P. japonica* Thunb., *P. padus* L., *P. persica* (Rosaceae), *Viola biflora* (Violaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Alisoja, Banjosa, Hajira, Haveli, Hussainkot, Khai Gala, Rawalakot, Thorar), Sudhnoti (Mang); **BA:** Quetta; **KPK:** Chitral, Haripur, Upper Dir; cosmopolitan species (Das 1918; Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017b, 2019a, 2022; Naseem *et al.* 2019).

Subgenus *Appelia* Börner, 1930

91. *Brachycaudus (Appelia) prunicola* (Kaltenbach, 1843)

Host plants

Prunus domestica, *P. spinosa* L. (Rosaceae).

Distribution in Pakistan

BA: Qilla Saifullah (Kan Mehtarzai) (Naumann-Etienne & Remaudière 1995).

92. *Brachycaudus (Appelia) tragopogonis setosus* (Hille Ris Lambers, 1948)

Host plant

Tragopogon sp. (Asteraceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Subgenus *Mordvilkomemor* Shaposhnikov, 1950

93. *Brachycaudus (Mordvilkomemor) pilosus* (Mordvilko, 1929)

Host plant

Prunus prostrata Labill. (Rosaceae).

Distribution in Pakistan

BA: Quetta; **KPK:** Swat (Kalam Valley), Upper Dir (Naumann-Etienne & Remaudière 1995).

Subgenus *Nevskyaphis* Shaposhnikov, 1950

94. *Brachycaudus (Nevskyaphis) bicolor* (Nevsky, 1929)

Host plant

Amygdalus scoparia Spach (Rosaceae).

Distribution in Pakistan

KPK: Swat (Kala Valley) (Naumann-Etienne & Remaudière 1995).

Subgenus *Prunaphis* Shaposhnikov, 1964

95. *Brachycaudus (Prunaphis) cardui* (Linnaeus, 1758)

Host plants

Cirsium sp., *Senecio* sp., *Cnicus wallichii* (Asteraceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **KPK:** Abbottabad (Galiat), Swat (Kalam Valley), Upper Dir (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019; Amin *et al.* 2022).

Subgenus *Scrophulaphis* Andreev, 1982

96. *Brachycaudus (Scrophulaphis) persicae* (Passerini, 1860)

Host plant

Argemone mexicana L. (Papaveraceae).

Distribution in Pakistan

AK: Rawalpindi (Murree) (Nasir & Yousuf 1992).

Subgenus *Thuleaphis* Hille Ris Lambers, 1960

97. *Brachycaudus (Thuleaphis) amygdalinus* (Schouteden, 1905)

Host plant

Amygdalus brahuica Boiss. (Rosaceae).

Distribution in Pakistan

BA: Quetta (Blackman & Eastop 1984, 2000; Naumann-Etienne & Remaudière 1995).

98. *Brachycaudus (Thuleaphis) rumexicolens* (Patch, 1917)

Host plant

Rumex hastatus D. Don (Polygonaceae).

Distribution in Pakistan

UNK: Northern hills (Naumann-Etienne & Remaudière 1995).

Genus *Brachycorynella* Aizenberg, 1956

99. *Brachycorynella lonicerina* (Shaposhnikov, 1952)

Host plants

Lonicera myrtillus Hook.f. & Thomson, *L. obovata* Royle ex Hook.f. & Thomson (Caprifoliaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat), Mansehra (Kaghan Valley, Shogran) (Naumann-Etienne & Remaudière 1995).

Genus *Brevicoryne* Das, 1915

100. *Brevicoryne brassicae* (Linnaeus, 1758)

Host plants

Brassica chinensis L., *B. juncea* (L.) Czern., *B. napus* L., *B. nigra* (L.) K.Koch, *B. oleracea* L., *B. rapa* L., *Iberis* sp., *Raphanus sativus* (Brassicaceae), and unidentified plant of Amaranthaceae Juss.

Distribution in Pakistan

AK: Bagh (Singola), Poonch (Abbaspur, Banjosa, Datoot, Hajira, Khaigala, Paniola, Tolipir), Palandri, Sudhnoti (Mang, Trar Khel); **PB:** Attock (Fateh Jang, Jand, Hassan Abdal, Hazro), Chakwal (Kallar Kahar), D.G. Khan, Faisalabad, Islamabad Capital, Jhelum (Pind Dadan Khan), Layyah, Mianwali, Multan, Rawalpindi (Gujar Khan, Kahuta, Murree, Taxila), Sargodha, Sheikhpura [found all over Pakistan]; cosmopolitan species (Das 1918; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Farooq & Tasawar 2007; Zia *et al.* 2010; Bodlah *et al.* 2011; Khan *et al.* 2012; Mushtaq *et al.* 2013; Atta *et al.* 2019; Amin *et al.* 2022; Riaz *et al.* 2022).

Genus *Capitophorus* van der Goot, 1913

101. *Capitophorus archangelskii* Nevsky, 1928

Host plants

Calendula officinalis (Asteraceae), *Elaeagnus angustifolia* L. (Elaeagnaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

102. *Capitophorus carduinus* (Walker, 1850)

Host plants

Cnicus wallichii, *Silybum marianum* (Asteraceae).

Distribution in Pakistan

AK: Poonch (Khaigala, Rawalakot) (Naumann-Etienne & Remaudière 1995; Irshad 2001; Amin *et al.* 2017b, 2022).

103. *Capitophorus elaeagni* (Del Guercio, 1894)

Host plants

Carduus edelbergii Rech.f. (Asteraceae), and unidentified plant of Elaeagnaceae Juss.

Distribution in Pakistan

KPK; PB: cosmopolitan species (Naumann-Etienne & Remaudière 1995; Irshad 2001).

104. *Capitophorus formosartemisiae* (Takahashi, 1921)

Host plants

Artemisia myriantha Wall. ex Besser, *A. vulgaris* var. *indica* (Willd.) Hassk. (Asteraceae).

Distribution in Pakistan

KPK: Swat (Matiltan Valley); **PB:** Rawalpindi (Changa Gali, Kalam Valley, Matiltan Valley, Murree) (Naumann-Etienne & Remaudière 1995).

105. *Capitophorus hippophaes hippophaes* (Walker, 1852)

Host plants

Artemisia vulgaris var. *indica* (Asteraceae), *Polygonum capitatum* Buch.-Ham. ex D.Don, *P. hydropiper* L. (Polygonaceae).

Distribution in Pakistan

GB: Hunza, Skardu; **KPK:** Kohistan, Swat (Kalam Valley); **PB:** Islamabad Capital; nearly cosmopolitan species (Naumann-Etienne & Remaudière 1995; Irshad 2001).

Genus *Cavariella* Del Guercio, 1911

106. *Cavariella aegopodii* (Scopoli, 1763)

Host plants

Salix sp. (Salicaceae), and unidentified plant of Apiaceae.

Distribution in Pakistan

UNK: Common in northern areas; cosmopolitan species (Naumann-Etienne & Remaudière 1995).

Subgenus *Cavariella* Heinze, 1960

107. *Cavariella aquatica* (Gillette & Bragg, 1916)

Host plant

Salix purpurea L. (Salicaceae).

Distribution in Pakistan

GB: Hunza (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Ceruraphis* Börner, 1926

108. *Ceruraphis eastopi* Hille Ris Lambers, 1966

Host plant

Viburnum cotinifolium D. Don (Caprifoliaceae).

Distribution in Pakistan

KPK: Hazara, Swat; **PB:** Rawalpindi (Murree) (Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Chaetosiphon* Mordvilko, 1914

109. *Chaetosiphon chaetosiphon chaetosiphon* (Nevsky, 1928)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK; Hunza (Gulmit); **KPK:** Swat (Kalam Valley, Matiltan, Ushu Forest) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

110. *Chaetosiphon gracilicorne* David, Rajasingh & Narayanan, 1971

Host plant

Rosa moschata Herrm. (Rosaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Subgenus *Pentatrichopus* Börner, 1930

111. *Chaetosiphon (Pentatrichopus) fragaefolii* (Cockerell, 1901)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Poonch (Alisojal, Banjosa, Khaigala, Rawalakot) (Amin *et al.* 2017a, 2022).

112. *Chaetosiphon (Pentatrichopus) glabrum* David, Rajasingh & Narayanan, 1971

Host plants

Rosa macrophylla Lindl., *R. moschata* (Rosaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

113. *Chaetosiphon (Pentatrichopus) tetrarhodum* (Walker, 1849)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Banjosa, Khai Gala, Rawalakot); distributed worldwide (Amin *et al.* 2017a, 2022).

114. *Chaetosiphon (Pentatrichopus) thomasi* Hille Ris Lambers, 1953

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Banjosa, Khai Gala, Rawalakot) (Amin *et al.* 2017a, 2022).

Genus *Chaitaphis* Nevsky, 1928

115. *Chaitaphis tenuicauda* Nevsky, 1928

Host plant

Kochia sp. (Chenopodiaceae).

Distribution in Pakistan

PB: Faisalabad, Sahiwal (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Clypeoaphis* Soliman, 1938

116. *Clypeoaphis suaedae suaedae* (Mimeur, 1934)

Host plant

Solanum tuberosum (Solanaceae).

Distribution in Pakistan

BA: Quetta; **PB:** Faisalabad, Sahiwal (Naumann-Etienne & Remaudière 1995).

Genus *Coloradoa* Wilson, 1910

117. *Coloradoa angelicae* (del Guercio, 1911)

Host plant

Artemisia absinthium L. (Asteraceae).

Distribution in Pakistan

GB: Hunza (Gulmit) (Naumann-Etienne & Remaudière 1995).

118. *Coloradoa campestellae* Ossiannilsson, 1959

Host plant

Artemisia sp. (Asteraceae).

Distribution in Pakistan

GB: Gilgit; **PB:** Islamabad Capital (Blackman & Eastop 2006).

119. *Coloradoa campestris* Börner, 1939

Host plants

Artemisia campestris L., *A. scoparia* (Asteraceae).

Distribution in Pakistan

GB: Gilgit; **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995).

120. *Coloradoa heinzei* (Börner, 1952)

Host plant

Artemisia sp. (Asteraceae).

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

121. *Coloradoa paradoxa* Szelegiewicz, 1969

Host plant

Artemisia sp. (Asteraceae).

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

122. *Coloradoa rufomaculata* (Wilson, 1908)

Host plants

Chrysanthemum sp., *Dendranthema* sp. (Asteraceae).

Distribution in Pakistan

PB: Attock, Jhelum, Lahore, Rawalpindi; distributed worldwide (Das 1918, as *Stphensonis lahorensis*; Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011).

123. *Coloradoa scopariae* Szelegiewicz, 1969

Host plant

Artemisia scoparia (Asteraceae).

Distribution in Pakistan

GB: Gilgit; **KPK:** Upper Dir; **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995).

124. *Coloradoa submissa* Doncaster, 1961

Host plant

Artemisia brevifolia Wall. ex DC. (Asteraceae).

Distribution in Pakistan

GB: Hunza (Passu); **KPK:** Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Cryptaphis* Hille Ris Lambers, 1947

125. *Cryptaphis rostrata* Chakrabarti & Raychaudhuri, 1974

Host plant

Rabdosia sp. (Lamiaceae).

Distribution in Pakistan

UNK: Northern hills (Naumann-Etienne & Remaudière 1995).

Genus *Cryptomyzus* Oestlund, 1923

126. *Cryptomyzus ballotae* Hille Ris Lambers, 1953

Host plant

Ribes orientale Desf. (Grossulariaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

127. *Cryptomyzus taoi* Hille Ris Lambers, 1963

Host plant

Phlomis bracteosa Royle ex Benth. (Lamiaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Diuraphis* Aizenberg, 1935

128. *Diuraphis noxia* (Kurdjumov 1913)

Host plant

Triticum aestivum (Poaceae).

Distribution in Pakistan

BA; GB: Hunza; **PB:** Layyah, Rawalpindi (Murree), Sargodha, Sialkot (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Muhammad *et al.* 2013; Ghani & Maalik 2020; Riaz *et al.* 2022).

Genus *Dysaphis* Börner, 1931

129. *Dysaphis affinis* (Mordvilko, 1928)

Host plants

Malus sp. (Rosaceae) and unidentified plants of Lamiaceae, Malvaceae, and Oleaceae.

Distribution in Pakistan

GB: Hunza (Passu) (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

130. *Dysaphis atina* Ghosh, Basu & Raychaudhuri, 1969

Host plant

Cirsium sp. (Asteraceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

131. *Dysaphis emicis* (Mimeur, 1934)

Host plant

Rumex dentatus (Polygonaceae).

Distribution in Pakistan

PB: Islamabad Capital (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

132. *Dysaphis foeniculus* (Theobald, 1923)

Host plant

Unidentified plant of Apiaceae.

Distribution in Pakistan

UNK: Northern hills (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

133. *Dysaphis malidauci* Shaposhnikov, 1976

Host plant

Malus sp. (Rosaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995).

134. *Dysaphis physocaulis* Shaposhnikov, 1965

Host plant

No host record in Pakistan.

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

135. *Dysaphis tschildarensis tschildarensis* Daniyarova, 1975

Host plant

The host plant of the species is unknown. However, a few alates were trapped in yellow water pan traps.

Distribution in Pakistan

KPK: Swat (Kalam Valley), Upper Kohistan (Naumann-Etienne & Remaudière 1995).

Remarks

Alatae was collected in a yellow pan trap from Pakistan.

136. *Dysaphis tulipae* (Boyer de Fonscolombe, 1841)

Host plant

Iris sp. (Iridaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **KPK:** Abbottabad (Galiat); almost cosmopolitan (Naumann-Etienne & Remaudière 1995).

Subgenus *Cotoneasteria* Shaposhnikov 1964

137. *Dysaphis (Cotoneasteria) microsiphon* (Nevsky, 1929)

Host plants

Lactuca graciliflora DC. (Asteraceae), *Veronica* sp. (Scrophulariaceae), *Fragaria nubicola* (Lindl. ex Hook.f.) Lacaïta (Rosaceae).

Distribution in Pakistan

AK: Bagh (Sudan Gali); **KPK:** Swat (Kalam Valley); **PB:** Rawalpindi (Murree) (Chakrabarti & Medda 1993; Naumann-Etienne & Remaudière 1995; Chakrabarti & Das 2014).

Subgenus *Pomaphis* Börner, 1939

138. *Dysaphis (Pomaphis) gallica* (Hille Ris Lambers, 1955)

Host plant

Malus pumila (Rosaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995).

139. *Dysaphis (Pomaphis) pavlovskyana pavlovskyana* Narzikulov, 1957

Host plant

Sorbus lanata (D.Don) S.Schauer (Rosaceae).

Distribution in Pakistan

GB: Gilgit; **KPK:** Abbottabad (Dunga Gali, Galiat, Mushkpuri); **PB:** Rawalpindi (Naumann-Etienne & Remaudière 1995).

140. *Dysaphis (Pomaphis) plantaginea* (Passerini, 1860)

Host plants

Plantago sp. (Plantaginaceae), *Malus pumila* (Rosaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

141. *Dysaphis (Pomaphis) pyri* (Boyer de Fonscolombe, 1841)

Host plants

Galium odoratum (L.) Scop. (Rubiaceae), *Pyrus communis* (Rosaceae).

Distribution in Pakistan

BA: Quetta; **KPK:** Swat (Mingora) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Eichinaphis* Narzikulov, 1963

142. *Eichinaphis pamirica* Narzikulov, 1963

Host plant

Ceratoides sp. (Chenopodiaceae).

Distribution in Pakistan

GB: Hunza (Gojal) (Naumann-Etienne & Remaudière 1995).

Genus *Ericolophium* Tao, 1963

143. *Ericolophium holsti* (Takahashi, 1935)

Host plant

Rhododendron sp. (Ericaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Eucarazzia* Del Guercio, 1921

144. *Eucarazzia elegans* (Ferrari, 1872)

Host plant

Nepeta sp. (Lamiaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat), Swat (Kalam Valley, Usho Valley) (Naumann-Etienne & Remaudière 1995; Wiczorek & Chłond 2019).

Genus *Eumyzus* Shinji 1929

145. *Eumyzus clinopodii* Takahashi, 1965

Host plant

Rabdosia rugosa (Wall. ex Benth.) H.Hara (Lamiaceae).

Distribution in Pakistan

KPK: Swat (Mingora) (Naumann-Etienne & Remaudière 1995).

146. *Eumyzus pruni* Chakrabarti & Bhattacharya, 1985

Host plant

Prunus cornuta (Rosaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Genus *Hayhurstia* del Guercio, 1917

147. *Hayhurstia atriplicis* (Linnaeus, 1761)

Host plants

Chenopodium album, *Halimione portulacoides* (L.) Aellen (Chenopodiaceae).

Distribution in Pakistan

PB: Lahore [common in the country] (Naumann-Etienne & Remaudière 1995).

Genus *Hyadaphis* Kirkaldy, 1904

148. *Hyadaphis coriandri* (Das, 1918)

Host plants

Coriandrum sativum (Apiaceae), *Lonicera quinquelocularis* (Caprifoliaceae), and unidentified plant of Moraceae.

Distribution in Pakistan

AK: Poonch (Rawalakot); **PB:** Bhakkar, Chakwal, Jhelum, Khushab, Mianwali, Muzaffargarh, Rawalpindi (Jheeka Gali, Murree) (Das 1918; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Bodlah *et al.* 2011; Amin *et al.* 2017b, 2022; Naseem *et al.* 2019).

149. *Hyadaphis foeniculi* (Passerini, 1860)

Host plants

Lonicera sp. (Caprifoliaceae) and unidentified plant of Apiaceae.

Distribution in Pakistan

UNK: nearly cosmopolitan (Naumann-Etienne & Remaudière 1995).

150. *Hyadaphis passerinii* (del Guercio, 1911)

Host plant

Lonicera sp. (Caprifoliaceae).

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

151. *Hyadaphis tataricae* (Aizenberg, 1935)

Host plant

Lonicera quinquelocularis (Caprifoliaceae).

Distribution in Pakistan

UNK (Remaudière 2000).

Genus *Hydaphias* Börner, 1930

152. *Hydaphias hofmanni* Börner, 1950

Host plant

Galium verum L. (Rubiaceae).

Distribution in Pakistan

KPK: Dir (Lowari valley) (Naumann-Etienne & Remaudière 1995).

Genus *Hyperomyzus* Börner, 1933

153. *Hyperomyzus carduellinus* (Theobald, 1915)

Host plant

Sonchus oleraceus (Asteraceae).

Distribution in Pakistan

AK: Bagh (Bagh), Poonch (Banjosa, Hajira, Haveli, Rawalakot, Thorar, Tolipir), Sudhanoti (Trar Khel) (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017b, 2022).

154. *Hyperomyzus lactucae* (Linnaeus, 1758)

Host plant

Sonchus sp. (Asteraceae).

Distribution in Pakistan

AK: Poonch (Datoot, Hajira, Khai Gala, Rawalakot), Sudhanoti (Trar Khel); PB: Islamabad Capital, Khushab; distributed worldwide (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019; Amin *et al.* 2022).

155. *Hyperomyzus pallidus* Hille Ris Lambers, 1935

Host plants

Ribes sp. (Grossulariaceae), *Sonchus oleraceus* (Asteraceae).

Distribution in Pakistan

AK: Bagh (Bagh), Poonch (Datoot, Khai Gala, Hajira, Rawalakot), Sudhanoti (Trar Khel) (Amin *et al.* 2022, 2023).

Genus *Impatientinum* Mordvilko, 1914

156. *Impatientinum asiaticum* Nevsky, 1929

Host plants

Impatiens edgeworthii Hook. f., *I. parviflora* DC. (Balsaminaceae).

Distribution in Pakistan

KPK: Kohistan, Swat (Naumann-Etienne & Remaudière 1995).

Genus *Indoidiopteris* Chakrabarti, Ghosh & Raychaudhuri, 1972

157. *Indoidiopteris geranii* (Chowdhuri, Basu, Chakrabarti & Raychaudhuri, 1969)

Host plants

Geranium ocellatum Jacquem. ex Cambess., *G. wallichianum* D.Don (Geraniaceae).

Distribution in Pakistan

KPK: Kohistan, Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995, as *Neotoxoptera gerani*; Blackman & Eastop 2006; Nakatani *et al.* 2016).

Genus *Indomasonaphis* Verma, 1971

158. *Indomasonaphis anaphalidis* (Basu, 1964)

Host plants

Inula cuspidata (Wall. ex DC.) C.B. Clarke (Asteraceae), *Rhododendron* sp. (Ericaceae).

Distribution in Pakistan

PB: Murree (Naumann-Etienne & Remaudière 1995 as *Neomasonaphis tuberculatus*; Blackman & Eastop 2006).

159. *Indomasonaphis inulae* (Ghosh & Raychaudhuri, 1972)

Host plant

Rhododendron sp. (Ericaceae).

Distribution in Pakistan

PB: Murree (Chakrabarti *et al.* 1983; Naumann-Etienne & Remaudière 1995 as *Neomasonaphis tuberculatus*; Blackman & Eastop 2006).

Genus *Liosomaphis* Walker, 1868

160. *Liosomaphis atra* Hille Ris Lambers, 1966

Host plant

Berberis lycium (Berberidaceae).

Distribution in Pakistan

PB: Islamabad Capital, Rawalpindi (Murree) (Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995).

Genus *Lipaphis* Mordvilko 1928

161. *Lipaphis erysimi* (Kaltenbach, 1843)

Host plants

Brassica napus, *B. nigra*, *B. oleracea*, *B. rapa*, *Raphanus sativus* (Brassicaceae), *Triticum aestivum*, *Zea mays* (Poaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **KPK:** Peshawar; **PB:** Attock (Fateh Jang, Jand, Pindi Gheb), Bahawalpur, Chakwal (Mogla, Talagang), D.G. Khan, Gujranwala (Kamonke, Nandipur, Qila Didar Singh, Wazirabad), Faisalabad, Islamabad Capital, Jhelum (Dina, Pind Dadan Khan), Khushab, Layyah, Multan, Muzaffargarh, Rawalpindi (Gujar Khan, Mandra, Taxila), Sargodha, Sheikhpura; cosmopolitan species (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Farooq & Tasawar 2007; Zia *et al.* 2010; Bodlah *et al.* 2011; Mushtaq *et al.* 2013; Maryam *et al.* 2019; Atta *et al.* 2019; Amin *et al.* 2022; Ali *et al.* 2022; Riaz *et al.* 2022).

162. *Lipaphis pseudobrassicae* (Davis, 1914)

Host plants

Unidentified plants of Asteraceae, Brassicaceae, Fabaceae, Papaveraceae, and Poaceae.

Distribution in Pakistan

PB: Bahawalpur (Mandi Yazman), Chakwal, Faisalabad, Khushab, Mianwali, Multan; distributed worldwide (Naseem *et al.* 2019).

Subgenus *Lipaphidiella* Doncaster, 1954

163. *Lipaphis (Lipaphidiella) lepidii* (Nevsky, 1929)

Host plant

Cardaria repens (Schrenk.) Jarm. (Brassicaceae).

Distribution in Pakistan

KPK: Kohat (Naumann-Etienne & Remaudière 1995).

Genus *Longicaudus* van der Goot, 1913

164. *Longicaudus naumanni* Remaudière, 1993

Host plants

Aquilegia pubiflora Wall. ex Royle (Ranunculaceae), *Rosa macrophylla* (Rosaceae).

Distribution in Pakistan

KPK: Abbottabad (Dunga Gali, Galiat, Thandianid); **PB:** Rawalpindi (Murree) (Remaudière 1993; Naumann-Etienne & Remaudière 1995).

Genus *Macrosiphoniella* del Guercio, 1911

165. *Macrosiphoniella alata* (Nevsky, 1928)

Host plant

Artemisia dracunculus L. (Asteraceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

166. *Macrosiphoniella artemisiae* (Boyer de Fonscolombe, 1841)

Host plant

Tanacetum artemisioides Sch.Bip. ex Hook.f. (Asteraceae).

Distribution in Pakistan

GB: Hunza (Gojal, Gulmit) (Naumann-Etienne & Remaudière 1995).

167. *Macrosiphoniella himalayana* Saha & Chakrabarti, 1988

Host plants

Artemisia aff. *gmelinii* Weber & Stechm, *A. persica* Boiss. (Asteraceae).

Distribution in Pakistan

GB: Hunza (Gojal, Gulmit); **KPK:** Kohistan, Swat (Matiltan Valley) (Naumann-Etienne & Remaudière 1995).

168. *Macrosiphoniella pulvera pulvera* (Walker, 1848)

Host plants

Artemisia herba-alba Asso, *A. maritima* L. (Asteraceae).

Distribution in Pakistan

BA; GB; KPK (Naumann-Etienne & Remaudière 1995).

169. *Macrosiphoniella sanborni* (Gillette, 1908)

Host plant

Chrysanthemum sp. (Asteraceae).

Distribution in Pakistan

AK: Poonch (Ali Sojal, Rawalakot); **KPK:** Malakand; **PB:** Attock, Bhakkar, Jhelum, Rawalpindi; cosmopolitan species (Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011; Naseem *et al.* 2019; Amin *et al.* 2022).

170. *Macrosiphoniella yomogifoliae* (Shinji, 1922)**Host plant**

Artemisia vulgaris L. (Asteraceae).

Distribution in Pakistan

KPK: Abbottabad (Dunga Gali); **PB:** Rawalpindi (Changla Gali, Islamabad, Murree) (Naumann-Etienne & Remaudière 1995).

Subgenus *Asterobium* Hille Ris Lambers, 1938

171. *Macrosiphoniella (Asterobium) victoriae* Kadyrbekov, 1999**Host plant**

Saussurea heteromalla (D.Don) Hand.-Mazz. (Asteraceae).

Distribution in Pakistan

AK: Poonch (Hajira) (Amin *et al.* 2023).

Subgenus *Phalangomyzus* Börner, 1939

172. *Macrosiphoniella (Phalangomyzus) oblonga* (Mordvilko, 1901)**Host plant**

Artemisia gmelinii (Asteraceae).

Distribution in Pakistan

GB: Hunza (Gulmit); **KPK:** Kohistan, Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Macrosiphum* Passerini, 1860

173. *Macrosiphum euphorbiae* (Thomas, 1878)**Host plants**

Galinsoga parviflora, *Sonchus asper*, *S. oleraceus*, *Tagetes minuta* (Asteraceae), *Ricinus communis* (Euphorbiaceae), *Alcea rosea* (Malvaceae), *Rumex acetosa* (Polygonaceae), *Rosa chinensis* Jacq., *R. indica* L., *R. laevigata* Michx. (Rosaceae), *Solanum tuberosum* (Solanaceae), *Viola biflora* (Violaceae), and unidentified plant of Cucurbitaceae Juss.

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Khai Gala, Hajira, Haveli, Hussainkot, Paniola, Rawalakot, Thorar, Tolipir), Sudhanoti (Mang); **BA:** Quetta; **GB:** Gilgit, Hunza (Gulmit); **KPK:** Abbottabad, Haripur, Mansehra, Upper Dir; **PB:** Attock, Chakwal, Faisalabad, Gujranwala (Gujranwala city, Qila Didar Singh, Rasul Nagar, Nandipur), Islamabad Capital, Rawalpindi (Rawalpindi, Murree), Sialkot; cosmopolitan species (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Naeem *et al.* 2010, 2019; Bodlah *et al.* 2011; Maryam *et al.* 2019; Noor *et al.* 2020; Amin *et al.* 2017a, 2017b, 2022).

174. *Macrosiphum gei* (Koch, 1855)

Host plant

Coriandrum sativum (Apiaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot) (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2022, 2023).

175. *Macrosiphum pachysiphon* Hille Ris Lambers, 1966

Host plants

Rosa sp., *Rubus lasiocarpus* Sm. (Rosaceae).

Distribution in Pakistan

KPK: Swat (Mingora); **PB:** Attock, Chakwal, Faisalabad, Rawalpindi (Rawalpindi, Murree) (Hille Ris Lambers 1966; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Naeem *et al.* 2010; Bodlah *et al.* 2011).

176. *Macrosiphum pseudogeranii* Chakrabarti & Raychaudhuri, 1974

Host plant

Geranium wallichianum (Geraniaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

177. *Macrosiphum rosae* (Linnaeus, 1758)

Host plants

Dipsacus inermis Wall. (Dipsacaceae), *Rosa chinensis*, *R. indica* (Rosaceae).

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khai Gala, Rawalakot, Thorar, Tolipir), Sudhnoti (Mang, Palandari, Trar Khel); **KPK:** Chitral, Swat (Mingora); **GB:** Gilgit (Jaglote, Jalalabad); **PB:** Islamabad Capital, Sargodha; cosmopolitan species (Naumann-Etienne & Remaudière 1995; Irshad 2001; Hassan *et al.* 2010; Amin *et al.* 2017a, 2017b, 2022; Naseem *et al.* 2019; Riaz *et al.* 2022).

Genus *Matsumuraja* Schumacher, 1921

178. *Matsumuraja capitophoroides* Hille Ris Lambers, 1966

Host plant

Rubus sp. (Rosaceae).

Distribution in Pakistan

KPK: Swat (Mingora); **PB:** Rawalpindi (Murree) (Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995).

Genus *Megoura* Buckton, 1876

179. *Megoura dooarsis* (Ghosh & Raychaudhuri, 1969)

Host plant

Indigofera heterantha Brandis (Fabaceae).

Distribution in Pakistan

KPK: Dir (Usheri Valley), Kohistan, Mansehra, **PB:** Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Genus *Metopolophium* Mordvilko, 1914

180. *Metopolophium (Metopolophium) dirhodum* (Walker, 1849)

Host plants

Rosa sp. (Rosaceae), *Sorghum halepense*, *S. sudanense*, *Triticum aestivum* (Poaceae).

Distribution in Pakistan

AK: Bagh (Bagh, Singola), Poonch (Abbaspur, Alisojal, Banjosa, Khai Gala, Paniola, Rawalakot, Tolipir), Sudhanoti (Mang, Trar Khel); **GB:** Gilgit (Baseen); **PB:** Attock (Fateh Jang, Hazro, Jand), Chakwal (Talagang), Islamabad Capital, Jhelum (Khewra, Mangla), Rawalpindi (Taxila); almost cosmopolitan (Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Zia *et al.* 2010; Amin *et al.* 2017a, 2022).

181. *Metopolophium (Metopolophium) montanum* Hille Ris Lambers, 1966

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Poonch (Alisojal, Banjosa, Rawalakot, Khai Gala, Paniola, Tolipir), Sudhanoti (Mang) (Amin *et al.* 2017a, 2022).

Genus *Microlophium* Mordvilko, 1914

182. *Microlophium carnosum* (Buckton, 1876)

Host plant

Urtica sp. (Urticaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley, Matiltan Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Micromyzodium* David, 1958

183. *Micromyzodium filicium* David, 1958

Host plant

Aristolochia punjabensis Lace (Aristolochiaceae).

Distribution in Pakistan

KPK: Abbottabad (Thandiani), Mansehra (Shinkiari), Shangla (Besham); **PB:** Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Genus *Micromyzus* van der Goot, 1917

184. *Micromyzus niger* van der Goot, 1917

Host plant

Unidentified ferns species.

Distribution in Pakistan

KPK: Shangla (Besham); **PB:** Rawalpindi (Margalla Hills) (Naumann-Etienne & Remaudière 1995).

Genus *Myzaphis* van der Goot, 1913

185. *Myzaphis bucktoni* Jacob, 1946

Host plant

Rosa moschata (Rosaceae).

Distribution in Pakistan

AK: Poonch (Alisojal, Khai Gala, Rawalakot); **PB:** Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017a, 2022).

186. *Myzaphis rosarum* (Kaltenbach, 1843)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Poonch (Abbaspur, Ali Sojal, Banjosa, Datoot, Hussainkot, Khai Gala, Rawalakot, Thorar, Tolipir), Sudhanoti (Palandari); **PB:** Rawalpindi (Murree); nearly cosmopolitan species (Amin *et al.* 2017a, 2022).

187. *Myzaphis turanica* Nevsky, 1929

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Poonch; (Khai Gala, Rawalakot) (Amin *et al.* 2017a, 2022).

Genus *Myzus* Passerini, 1860

188. *Myzus cerasi* (Fabricius, 1775)

Host plant

Galium verum (Rubiaceae).

Distribution in Pakistan

KPK: Chitral, Dir (Lowari Pass); widespread species, particularly in the northern hemisphere (Blackman & Eastop 1984; Naumann-Etienne & Remaudière 1995).

189. *Myzus cornutus* Medda & Chakrabarti, 1986

Host plant

Prunus cornuta (Rosaceae).

Distribution in Pakistan

UNK: common in the northeastern hills (Naumann-Etienne & Remaudière 1995).

190. *Myzus hemerocallis* Takahashi, 1921

Host plant

Hemerocallis sp. (Liliaceae).

Distribution in Pakistan

PB: Islamabad Capital (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

191. *Myzus maculocarpus* Basu & Raychaudhuri, 1976

Host plant

Setaria sp. (Poaceae).

Distribution in Pakistan

KPK: Chitral, Dir (Lowari Pass) (Naumann-Etienne & Remaudière 1995).

192. *Myzus obtusirostris* David, Narayanan & Rajasingh, 1972

Host plants

Triticum aestivum, *Zea mays* (Poaceae).

Distribution in Pakistan

KPK: Mansehra (Kaghan Valley, Naran Valley), Swat; **PB:** Rawalpindi (Bhurban, Murre) (Hamid 1983; Naumann-Etienne & Remaudière 1995).

193. *Myzus ornatus* Laing, 1932

Host plants

Aster sp., *Bidens biternata*, *Sonchus asper* (Asteraceae), *Tecoma stans* (L.) Juss. ex Kunth (Bignoniaceae), *Prunus cornuta* (Rosaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Abbaspur, Hajira, Rawalakot, Thorar), Sudhanoti (Mang, Trar Khel); **KPK:** Swat (Kalam Valley); **PB:** Rawalpindi (Murree); cosmopolitan species (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017b, 2019a, 2022).

194. *Myzus siegesbeckicola* Strand, 1929

Host plant

Sigesbeckia orientalis L. (Asteraceae).

Distribution in Pakistan

PB: Islamabad Capital (Naumann-Etienne & Remaudière 1995).

195. *Myzus sorbi* Bhattacharya & Chakrabarti, 1982

Host plant

Sorbaria tomentosa (Lindl.) Rehder (Rosaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

196. *Myzus varians* Davidson, 1912

Host plant

Prunus mume (Siebold) Siebold & Zucc. (Rosaceae).

Distribution in Pakistan

PB: Rawalpindi (Bodlah *et al.* 2011).

Subgenus *Nectarosiphon* Schouteden, 1901

197. *Myzus (Nectarosiphon) persicae* (Sulzer, 1776)

Host plants

Amaranthus viridis (Amaranthaceae), *Daucus carota* (Apiaceae), *Bidens biternata*, *Conyza canadensis*, *Dendranthema indicum*, *Galinsoga parviflora*, *Sonchus asper*, *S. oleraceus*, *Tagetes minuta* (Asteraceae), *Brassica nigra*, *B. oleracea*, *B. rapa*, *Raphanus sativus* (Brassicaceae), *Chenopodium album* (Chenopodiaceae), *Ricinus communis* (Euphorbiaceae), *Alcea rosea* (Malvaceae), *Ficus* sp. (Moraceae), *Plantago major* (Plantaginaceae), *Rumex acutus* (Polygonaceae), *Prunus persica* (Rosaceae), *Capsicum annuum*, *Nicotiana tabacum* L., *Solanum nigrum*, *S. lycopersicum* L., *S. tuberosum* (Solanaceae), *Viola biflora* (Violaceae), and unidentified plants of Cucurbitaceae, Fabaceae, Liliaceae Juss., Lythraceae J.St.-Hil., Nitrariaceae, Papaveraceae Juss., Poaceae, Primulaceae, Rutaceae, Verbenaceae J.St.-Hil., and Zygophyllaceae.

Distribution in Pakistan

AK: Bagh, Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Hussainkot, Paniola, Thorar, Rawalakot), Sudhanoti (Palandari, Mang, Trar Khel); **BA:** Quetta; **GB:** Diamer (Chilas), Gilgit (Jaglot); **KPK:** Charsada, Peshawar, Swat; **PB:** Bahawalpur (Mandi Yazman), Bhakkar, Chakwal, D.G. Khan, Faisalabad, Gujranwala (Gujranwala city, Rasul Nagar, Nandipur, Qila Didar Singh, Wazirabad),

Islamabad Capital, Kasur, Khushab, Lahore, Mianwali, Multan, Muzaffargarh, Rawalpindi (Murree, Taxila), Sargodha, Sheikhpura, Layyah; cosmopolitan species (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Bodlah *et al.* 2011; Khan *et al.* 2012; Mushtaq *et al.* 2013; Amin *et al.* 2017b, 2019a, 2022; Atta *et al.* 2019; Maryam *et al.* 2019; Naseem *et al.* 2019; Riaz *et al.* 2022).

Subgenus *Sciomyzus* Stroyan, 1954

198. *Myzus (Sciomyzus) ascalonicus* Doncaster, 1946

Host plants

Brassica pekinensis (Lour.) Rupr. (Brassicaceae), *Solanum tuberosum* (Solanaceae).

Distribution in Pakistan

AK: Poonch (Khai Gala, Rawalakot); **PB:** Faisalabad; nearly cosmopolitan species (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2022).

199. *Myzus (Sciomyzus) cymbalariae* Stroyan, 1954

Host plants

Allium porrum L., *A. sativum* L. (Liliaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley); **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Nasonovia* Mordvilko, 1914

200. *Nasonovia jammuensis* Verma, 1970

Host plants

Consolida ambigua (L.) P.W.Ball & Heywood, *Delphinium* sp. (Ranunculaceae).

Distribution in Pakistan

KPK: Swat (Shangla Pass); **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995).

201. *Nasonovia ribisnigri* (Mosley, 1841)

Host plant

Sonchus oleraceus (Asteraceae).

Distribution in Pakistan

AK: Bagh, Poonch (Amin *et al.* 2022, 2023).

Genus *Nearctaphis* Shaposhnikov, 1950

202. *Nearctaphis bakeri* (Cowen, 1895)

Host plant

Medicago sativa (Fabaceae).

Distribution in Pakistan

GB: Ghizer; **KPK:** Mansehra (Kaghan Valley) (Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Naseem *et al.* 2019).

Genus *Neomyzus* van der Goot, 1915

203. *Neomyzus circumflexus* (Buckton, 1876)

Host plant

Sonchus oleraceus (Asteraceae).

Distribution in Pakistan

AK: Poonch (Abbaspur, Alisojal); distributed worldwide (Amin *et al.* 2023).

Genus *Neotoxoptera* Theobald, 1915

204. *Neotoxoptera abeliae* Takahashi, 1965

Host plant

Abelia triflora R.Br. ex Wall. (Caprifoliaceae).

Distribution in Pakistan

KPK: Abbottabad (Dunga Gali, Galiat); **PB:** Rawalpindi (Naumann-Etienne & Remaudière 1995).

205. *Neotoxoptera oliveri* (Essig, 1935)

Host plant

Host plant unknown.

Distribution in Pakistan

KPK: Kohistan, Swat (Kalam Valley, Matiltan Valley, Usho Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Obtusicauda* Soliman, 1927

206. *Obtusicauda dolychosiphon* (Umarov, 1964)

Host plant

Artemisia persica (Asteraceae).

Distribution in Pakistan

GB: Hunza (Gojal), Skardu (Sadpara Valley) (Naumann-Etienne & Remaudière 1995).

207. *Obtusicauda moldavica crassitubia* (Narzikulov & Umarov, 1969)

Host plant

Artemisia aff. *gmelinii* Webb. ex Stechm. (Asteraceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Genus *Ovatus* van der Goot, 1913

208. *Ovatus (Ovatus) crataegarius* (Walker, 1850)

Host plant

Host plant unknown.

Distribution in Pakistan

UNK: nearly cosmopolitan species (Naumann-Etienne & Remaudière 1995).

Genus *Pentalonia* Coquerel, 1859

209. *Pentalonia nigronervosa* Coquerel, 1859

Host plants

Musa × *paradisiaca* L. (Musaceae), and unidentified plants of Araceae and Zingiberaceae Martinov.

Distribution in Pakistan

BA; KPK; PB: Gujranwala; SD (Naumann-Etienne & Remaudière 1995; Maryam *et al.* 2019).

Genus *Phorodon* Passerini, 1860

Subgenus *Diphorodon* Börner, 1939

210. *Phorodon (Diphorodon) cannabis* Passerini, 1860

Host plants

Cannabis indica Lam., *C. sativa* L. (Cannabaceae).

Distribution in Pakistan

AK: Poonch (Ali Sojal, Hajira, Haveli); KPK: Kohistan, Swat; PB: Rawalpindi (Murree), Islamabad Capital (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011; Amin *et al.* 2017b, 2022).

Genus *Pleotrichophorus* Börner, 1930

211. *Pleotrichophorus chrysanthemi* (Theobald, 1920)

Host plant

Chrysanthemum sp. (Asteraceae).

Distribution in Pakistan

AK: Poonch (Rawalakot) (Amin *et al.* 2023).

212. *Pleotrichophorus glandulosus glandulosus* (Kaltenbach, 1846)

Host plant

Artemisia vulgaris var. *indica* (Asteraceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat) (Naumann-Etienne & Remaudière 1995).

213. *Pleotrichophorus persimilis persimilis* Börner, 1950

Host plant

Artemisia scoparia (Asteraceae).

Distribution in Pakistan

GB: Gilgit (Naumann-Etienne & Remaudière 1995).

Genus *Pterocomma* Buckton, 1879

214. *Pterocomma beulahense* (Cockerell, 1904)

Host plant

Populus ciliata Wall. ex Royle (Salicaceae).

Distribution in Pakistan

AK: Poonch (Hajira) (Amin *et al.* 2019a, 2022).

215. *Pterocomma pilosum pilosum* Buckton, 1879

Host plant

Salix acmophylla Boiss. (Salicaceae).

Distribution in Pakistan

GB: Gilgit; **KPK:** Dir (Naumann-Etienne & Remaudière 1995).

216. *Pterocomma populeum* (Kaltenbach, 1843)

Host plant

Populus alba L. (Salicaceae).

Distribution in Pakistan

BA (Naumann-Etienne & Remaudière 1995).

Genus *Rhodobium* Hille Ris Lambers, 1947

217. *Rhodobium porosum* (Sanderson, 1900)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Hajira, Haveli), Sudhnoti (Mang); **BA:** Quetta; **PB:** Chakwal, Islamabad Capital, Rawalpindi; cosmopolitan species (Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011; Amin *et al.* 2017a, 2022; Naseem *et al.* 2019).

Genus *Rhopalomyzus* Mordvilko, 1921

218. *Rhopalomyzus codonopsidis* Umarov, 1963

Host plant

Codonopsis clematidea (Schrenk) C.B. Clarke (Campanulaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

219. *Rhopalomyzus poae* (Gillette, 1908)

Host plants

Lonicera sp. (Caprifoliaceae) and unidentified plant of Poaceae.

Distribution in Pakistan

KPK: Kohistan, Swat (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Rhopalosiphoninus* Baker, 1920

220. *Rhopalosiphoninus latysiphon* (Davidson, 1912)

Host plants

Allium cepa L. (Liliaceae), *Solanum tuberosum* (Solanaceae).

Distribution in Pakistan

GB: Hunza (Gojal); **KPK:** Kohistan, Swat (Kalam Valley, Matiltan Valley); **PB:** Rawalpindi (Murree); nearly cosmopolitan species (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Semiaphis* van der Goot, 1913

221. *Semiaphis heraclei* (Takahashi, 1921)

Host plant

Coriandrum sativum (Apiaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **KPK:** Kohistan, Peshawar (Gulabad), Swat (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2022).

Genus *Shinjia* Takahashi, 1938

222. *Shinjia orientalis* (Mordvilko, 1929)

Host plant

The host plant of the species is unknown. However, a few alates were trapped in yellow water pan traps.

Distribution in Pakistan

KPK: Kohistan, Swat (Kalam Valley, Matiltan Valley, Usho Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Sitobion* Mordvilko, 1914

223. *Sitobion africanum* (Hille Ris Lambers, 1954)

Host plant

Ficus sp. (Moraceae).

Distribution in Pakistan

AK: Poonch (Hajira, Thorar) (Amin *et al.* 2022, 2023).

224. *Sitobion avenae* (Fabricius, 1775)

Host plants

Brassica napus (Brassicaceae), *Avena sativa*, *Hordeum vulgare*, *Oryza sativa*, *Pennisetum glaucum* (L.) R.Br., *P. typhoideum*, *Sorghum bicolor*, *S. halepense*, *S. sudanense*, *Triticum aestivum*, *T. durum* Desf., *Zea mays* (Poaceae), and unidentified plants of Cucurbitaceae, Polygonaceae, Rosaceae, and Solanaceae.

Distribution in Pakistan

AK: Poonch (Rawalakot); **BA:** Quetta; **PB:** Bhakkar, Chakwal (Choa Syedan Shah), DG Khan, Gujranwala (Gujranwala city, Kamonke, Nandipur, Wazirabad), Islamabad Capital, Jhelum (Dina, Khewra, Mangla, Sohawa), Khanewal, Khushab, Multan, Mianwali, Narowal, Rawalpindi (Kahuta, Jheeka Gali), Sargodha; **KPK:** Charsadda (Tarnab), Chitral, Malakand, Mansehra (Naran Valley), Peshawar, Upper Dir; **SD:** Hyderabad [common all over Pakistan]; widespread species (Hamid 1983; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Saleem *et al.* 2009; Zia *et al.* 2010; Faheem *et al.* 2019; Maryam *et al.* 2019; Naseem *et al.* 2019; Zeb *et al.* 2020; Riaz *et al.* 2022).

Remarks

The Oriental specimens are identified as *Sitobion miscanthi* (Takahashi, 1921).

225. *Sitobion fragariae* (Walker, 1848)

Host plants

Poa annua L., *Triticum turanicum* Jakubz. (Poaceae), *Rosa* sp. (Rosaceae).

Distribution in Pakistan

BA: Quetta; **GB:** Gilgit, Ghizer; **PB:** Faisalabad, Islamabad Capital, Lahore (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010).

226. *Sitobion miscanthi* (Takahashi, 1921)

Host plants

Avena sativa, *Hordeum vulgare*, *Triticum aestivum* (Poaceae).

Distribution in Pakistan

PB: Islamabad Capital, Jhelum, Layyah, Mianwali, Rawalpindi (Murree) (Das 1918; Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011).

227. *Sitobion rosaeiformis* (Das, 1918)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

PB: Lahore, Sargodha [common in the Himalayan foothills of Pakistan] (Das 1918; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Riaz *et al.* 2022).

Genus *Staticobium* Mordvilko, 1914

228. *Staticobium latifoliae* (Bozhko, 1950)

Host plant

Limonium sp. (Plumbaginaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Genus *Titanosiphon* Nevsky, 1928

229. *Titanosiphon neoartemisiae* (Takahashi, 1921)

Host plant

Artemisia scoparia (Asteraceae).

Distribution in Pakistan

UNK: Common in Northern Hills (Naumann-Etienne & Remaudière 1995).

Genus *Tricaudatus* Narzikulov, 1957

230. *Tricaudatus polygوني* (Narzikulov, 1953)

Host plants

Polygonum sp. (Polygonaceae), *Spiraea* sp. (Rosaceae).

Distribution in Pakistan

KPK: Dir, Kohistan, Swat (Kalam Valley, Matiltan Valley, Usho Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Trichosiphonaphis* Takahashi, 1922
Subgenus *Xenomyzus* Aizenberg, 1935

231. *Trichosiphonaphis (Xenomyzus) polygona* (van der Goot, 1917)

Host plant

Polygonum sp. (Polygonaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Genus *Tubaphis* Hille Ris Lambers, 1947

232. *Tubaphis clematophila* (Takahashi, 1965)

Host plant

Clematis connata DC. (Ranunculaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat) (Naumann-Etienne & Remaudière 1995).

Genus *Tuberocephalus* Shinji, 1929
Subgenus *Tuberocephalus* Shinji, 1929

233. *Tuberocephalus naumanni* Sorin & Remaudière, 1998

Host plant

Prunus cornuta (Rosaceae).

Distribution in Pakistan

PB: Murree (Dungagali) (Nakatani *et al.* 2016).

234. *Tuberocephalus pakistanicus* Remaudière & Sorin, 1993

Host plant

Prunus cornuta (Rosaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat), Kohistan, Swat; **PB:** Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Genus *Uroleucon* Mordvilko, 1914

235. *Uroleucon achilleae* (Koch, 1855)

Host plant

Achillea millefolium L. (Asteraceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

236. *Uroleucon ambrosiae* (Thomas, 1878)

Host plants

Conyza canadensis, *Sonchus asper* (Asteraceae).

Distribution in Pakistan

AK: Poonch (Hajira, Thorar, Rawalakot); **PB:** Rawalpindi (Murree) (Nasir & Yousuf 1992; Amin *et al.* 2022, 2023).

237. *Uroleucon longisetosum* Chakrabarti & Verma, 1975

Host plant

Lactuca graciliflora (Asteraceae).

Distribution in Pakistan

GB: Gilgit (Naltar); **KPK:** Swat (Kalam Valley); **PB:** Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

238. *Uroleucon kashmiricum* (Verma, 1966)

Host plant

Campanula cashmeriana Royle (Campanulaceae).

Distribution in Pakistan

KPK: Chitral, Dir (Lowari Pass) (Naumann-Etienne & Remaudière 1995).

239. *Uroleucon kumaoni* Banerjee, Ghosh & Raychaudhuri, 1969

Host plant

Saussurea albescens Hook. f & Thomson, *Tricholepis stewartii* C.B. Clarke ex Hook.f. (Asteraceae).

Distribution in Pakistan

KPK: Abbottabad (Dunga Gali), Swat (Matiltan Valley); **PB:** Rawalpindi (Naumann-Etienne & Remaudière 1995).

240. *Uroleucon sonchi* (Linnaeus, 1767)

Host plant

Sonchus sp. (Asteraceae).

Distribution in Pakistan

PB: Khushab [common in Pakistan, especially abundant in the hills]; cosmopolitan species (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

Subgenus *Lambersius* Olive, 1965

241. *Uroleucon (Lambersius) erigeronense* (Thomas, 1878)

Host plant

Conyza canadensis (Asteraceae).

Distribution in Pakistan

GB: Gilgit; **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995).

Subgenus *Uromelan* Mordvilko, 1914

242. *Uroleucon (Uromelan) carthami* (Hille Ris Lambers, 1948)

Host plant

Carthamus sp. (Asteraceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

243. *Uroleucon (Uromelan) compositae* (Theobald, 1915)

Host plants

Cryptotaenia canadensis (L.) DC. (Apiaceae), *Sonchus asper*, *S. oleraceus*, *Tagetes minuta* (Asteraceae).

Distribution in Pakistan

AK: Bagh (Singola), Poonch (Ali Sojal, Hajira, Khaigala, Rawalakot, Thorar), Sudhnoti (Mang) (Amin *et al.* 2017b, 2022, 2023).

244. *Uroleucon (Uromelan) jaceae* (Linnaeus, 1758)

Host plant

Unidentified plant of Boraginaceae Juss.

Distribution in Pakistan

UNK (Blackman & Eastop 2006; Basky 2016).

Genus *Wahlgreniella* Hille Ris Lambers, 1949

245. *Wahlgreniella nervata* (Gillete, 1908)

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **BA:** Quetta (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2017a, 2022).

Subfamily Calaphidinae Oestlund, 1919
Tribe Calaphidini Oestlund, 1919
Genus *Betulaphis* Glendenning, 1926

246. *Betulaphis hissarica* Narzikulov, 1963

Host plant

Betula utilis D.Don (Betulaceae).

Distribution in Pakistan

GB: Gilgit (Babusar Pass); **KPK:** Swat (Kalam Valley); Central Asia and India (Naumann-Etienne & Remaudière 1995).

247. *Betulaphis longicornis* Quednau & Chakrabarti, 1980

Host plant

Betula sp. (Betulaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley, Matiltan Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Taoia* Quednau, 1973

248. *Taoia indica* (Ghosh & Raychaudhuri, 1972)

Host plant

Alnus nitida (Spach) Endl. (Betulaceae).

Distribution in Pakistan

GB: Darel Valley; **KPK:** Manehra, Swat (Mingora) (Chakrabarti 1988; Naumann-Etienne & Remaudière 1995).

Tribe Myzocallidini Börner, 1942
Genus *Hoplocallis* Pintera, 1952

249. *Hoplocallis microsetosa* (Quednau & Chakrabarti, 1976)

Host plants

Quercus leucotrichophora A.Camus ex Bahadur (Fagaceae).

Distribution in Pakistan

PB: Islamabad (Margalla Hills) (Naumann-Etienne & Remaudière 1995; Quednau 1999).

Remarks

The species was described as *Myzocallis (Hoplocallis) microsetosus* Quednau & Chakrabarti, 1976.

Genus *Hoplochaitophorus* Granovsky, 1933

250. *Hoplochaitophorus quercicola* (Monell, 1879)

Host plant

Quercus serrata Murray (Fagaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot) (Amin *et al.* 2019a).

Genus *Myzocallis* Passerini, 1860

251. *Myzocallis coryli* (Goeze, 1778)

Host plant

Corylus sp. (Corylaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley); widespread species (Naumann-Etienne & Remaudière 1995).

Subgenus *Globulicaudaphis* Hille Ris Lambers, 1966

252. *Myzocallis (Globulicaudaphis) pakistanicus* (Hille Ris Lambers, 1966)

Host plant

Quercus dilatata Royle (Fagaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley); **PB:** Rawalpindi (Murree) (Hille Ris Lambers 1966; Chakrabarti 1988; Blackman & Eastop 1994; Naumann-Etienne & Remaudière 1995).

Subgenus *Neodryomyzus* Quednau & Remaudière, 1994

253. *Myzocallis (Neodryomyzus) polychaetus* (David, 1969)

Host plants

Quercus sp. (Fagaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Genus *Serratocallis* Quednau & Chakrabarti, 1976

254. *Serratocallis takahashii* Quednau & Chakrabarti, 1976

Host plant

Quercus leucotrichophora (Fagaceae).

Distribution in Pakistan

UNK: Lower Hills (Naumann-Etienne & Remaudière 1995).

Tribe Panaphidini Oestlund, 1923
Genus *Chromaphis* Walker, 1870

255. *Chromaphis juglandicola* (Kaltenbach, 1843)

Host plant

Juglans regia L. (Juglandaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **BA:** Quetta; **KPK:** Malakand (Chakrabarti 1988; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000; Naseem *et al.* 2019; Amin *et al.* 2019a, 2022).

Genus *Panaphis* Kirkaldy, 1904

256. *Panaphis juglandis* (Goeze, 1778)

Host plant

Juglans regia (Juglandaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **GB:** Gilgit (Nomal Valley, Rakaposhi), Hunza (Gulmit) (Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010; Amin *et al.* 2019a).

Tribe Pterocallidini Quednau, 1954
Genus *Pterocallis* Passerini, 1860

257. *Pterocallis affinis* Chakrabarti, 1988

Host plant

Corylus colurna L. (Corylaceae).

Distribution in Pakistan

KPK: Kohistan, Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Tribe Saltusaphidini Baker, 1920
Subtribe Saltusaphidina Baker, 1920
Genus *Saltusaphis* Theobald, 1915

258. *Saltusaphis scirpus* Theobald, 1915

Host plant

Cyperus rotundus (Cyperaceae).

Distribution in Pakistan

PB: Faisalabad, Lahore (Ponsen 1990; Naumann-Etienne & Remaudière 1995).

Genus *Subsaltusaphis* Quednau, 1952

259. *Subsaltusaphis rossneri* (Börner, 1940)

Host plant

Unidentified plant of Cyperaceae.

Distribution in Pakistan

GB: Gilgit; **KPK:** Dassu; **PB:** Islamabad (Naumann-Etienne & Remaudière 1995).

Subtribe Thripsaphidina Börner, 1949

Genus *Thripsaphis* Gillette, 1917

260. *Thripsaphis ballii* (Gillette, 1908)

Host plants

Avena sativa (Poaceae) and unidentified plant of Cyperaceae.

Distribution in Pakistan

PB: Islamabad Capital (Rawal Lake) (Naumann-Etienne & Remaudière 1995).

Tribe Shivaphidini Lee, Kanturski & Footitt 2021

Genus *Shivaphis* Das, 1918

261. *Shivaphis celti* Das, 1918

Host plant

Celtis australis L. (Ulmaceae).

Distribution in Pakistan

PB: Lahore (Das 1918; Chakrabarti 1988; Naumann-Etienne & Remaudière 1995).

Subgenus *Sinishivaphis* Zhang, 1982

262. *Shivaphis (Sinishivaphis) celticola* (Nevsky, 1929)

Host plant

Celtis sp. (Ulmaceae).

Distribution in Pakistan

BA: Quetta; **KPK:** Kohistan, Swat (Naumann-Etienne & Remaudière 1995).

Tribe Therioaphidini Börner, 1944

Genus *Indiochaitophorus* Verma, 1970

263. *Indiochaitophorus furcatus* Verma, 1970

Host plant

Ulmus wallichiana Planch. (Ulmaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Genus *Sarucallis* Shinji, 1922

264. *Sarucallis kahawaluokalani* (Kirkaldy, 1907)

Host plant

Lagerstroemia sp. (Lythraceae).

Distribution in Pakistan

PB: Islamabad Capital (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

Genus *Therioaphis* Walker, 1870

Subgenus *Pterocallidium* Börner, 1949

265. *Therioaphis (Pterocallidium) trifolii* (Monell, 1882)

Host plants

Medicago sativa, *Melilotus indica*, *Trifolium* sp. (Fabaceae).

Distribution in Pakistan

BA: Quetta; **GB:** Gilgit (Chilas); **PB:** Bahawalpur, Bhakkar, Chakwal, D.G. Khan, Faisalabad, Layyah, Minawali, Muzaffargarh, Sargodha; widespread species (Ponsen 1990; Nasir & Yousuf 1992, 1995; Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011; Naseem *et al.* 2019; Riaz *et al.* 2022).

Genus *Tinocallis* Matsumura, 1919

Subgenus *Sappocallis* Matsumura, 1919

266. *Tinocallis (Sappocallis) nevskyi* Remaudière, Quednau & Heie, 1988

Host plant

Ulmus sp. (Ulmaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley); **PB:** Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

267. *Tinocallis (Sappocallis) saltans* (Nevsky, 1929)

Host plant

Ulmus sp. (Ulmaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Subfamily Chaitophorinae Mordvilko, 1909
Tribe Chaitophorini Mordvilko, 1909
Genus *Chaitophorus* Koch, 1854

268. *Chaitophorus himalayensis* (Das, 1918)

Host plants

Populus ciliata, *Salix tetrasperma* Roxb. (Salicaceae).

Distribution in Pakistan

PB: Lahore (Das 1918; Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000).

269. *Chaitophorus indicus* Ghosh, Ghosh & Raychaudhuri, 1970

Host plant

Populus sp. (Salicaceae).

Distribution in Pakistan

PB: Murree (Nasir & Yousuf 1994).

270. *Chaitophorus kapuri* Hille Ris Lambers, 1966

Host plant

Populus ciliata (Salicaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Hille Ris Lambers 1966; Chakrabarti 1977; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000).

271. *Chaitophorus melanosiphon* Pintera, 1987

Host plant

Populus alba (Salicaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995).

272. *Chaitophorus nigrinus* Hille Ris Lambers, 1966

Host plant

Salix sp. (Salicaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Hille Ris Lambers 1966; Blackman & Eastop 1994, 2000; Naumann-Etienne & Remaudière 1995).

273. *Chaitophorus pakistanicus* Hille Ris Lambers, 1966

Host plants

Salix acmophylla, *S. tetrasperma* (Salicaceae).

Distribution in Pakistan

AK: Poonch (Hajira, Thorar); **GB:** Gilgit, Hunza (Gulmit); **KPK:** Abbottabad, Hangu, Mardan; **PB:** Faisalabad, Islamabad Capital, Rawalpindi (Hille Ris Lambers 1966; Chakrabarti 1977; Blackman & Eastop 1994, 2000; Naumann-Etienne & Remaudière 1995; Amin *et al.* 2019a).

274. *Chaitophorus populialbae* (Boyer de Fonscolombe, 1841)

Host plant

Populus alba (Salicaceae).

Distribution in Pakistan

PB: Murree (Ghora Gali) (Naumann-Etienne & Remaudière 1995).

275. *Chaitophorus populeti populeti* (Panzer, 1801)

Host plant

Populus alba (Salicaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Genus *Periphyllus* van der Hoeven, 1863

276. *Periphyllus aceriphaga* Chakrabarti & Mandal, 1987

Host plant

Acer sp. (Aceraceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995; Remaudière 2002).

277. *Periphyllus aesculi* Hille Ris Lambers, 1933

Host plant

Aesculus indica (Wall. ex Cambess.) Hook. (Hippocastanaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree); **KPK:** Abbottabad (Galiat), Mansehra (Kalam Valley, Naran Valley) (Blackman & Eastop 1994; Naumann-Etienne & Remaudière 1995; Remaudière 2002).

278. *Periphyllus changlai* Remaudière, 2002

Host plant

Acer caesium Wall. ex Brandis (Aceraceae).

Distribution in Pakistan

KPK: Abbottabad (Changla Gali) (Remaudière 2002).

279. *Periphyllus lyropictus* (Kessler, 1886)

Host plant

Acer sp. (Aceraceae).

Distribution in Pakistan

PB: Islamabad Capital (Naseem *et al.* 2019).

280. *Periphyllus pakistanicus* Remaudière, 2002

Host plant

Acer oblongum Wall. ex DC. (Aceraceae).

Distribution in Pakistan

PB: Islamabad Capital (Remaudière 2002).

281. *Periphyllus vandenboschi* Hille Ris Lambers, 1966

Host plants

Acer caesium, *A. oblongum* (Aceraceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley, Matiltan Valley); **PB:** Islamabad Capital, Rawalpindi (Murree) (Chakrabarti 1977; Naumann-Etienne & Remaudière 1995; Remaudière 2002).

282. *Periphyllus villosii* Chakrabarti, 1977

Host plant

Acer caesium (Aceraceae).

Distribution in Pakistan

KPK: Abbottabad (Changla Gali), Mansehra (Kaghan Valley) (Naumann-Etienne & Remaudière 1995; Remaudière 2002).

Genus *Trichaitophorus* Takahashi, 1937

283. *Trichaitophorus aceris* Takahashi, 1937

Host plants

Acer caesium, *A. villosum* C.Presl (Aceraceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat) (Naumann-Etienne & Remaudière 1995).

Tribe Siphini Mordvilko, 1928
Genus *Sipha* Passerini, 1860
Subgenus *Rungisia* Mimeur, 1933

284. *Sipha (Rungisia) elegans* del Guercio, 1905

Host plants

Cynodon dactylon, *Hordeum jubatum* L., *H. murinum* L., *H. vulgare*, *Phalaris arundinacea* L., *Polypogon fugax* Nees ex Steud., *Triticum aestivum* (Poaceae).

Distribution in Pakistan

BA: Quetta; **KPK:** Kurram (Parachinar) (Mahmood *et al.* 2002; Wieczorek 2010).

285. *Sipha (Rungisia) maydis* Passerini, 1860

Host plants

Cynodon dactylon, *Hordeum murinum*, *H. vulgare*, *Triticum aestivum*, *Sorghum bicolor*, *Polypogon fugax*, *Zea mays* (Poaceae).

Distribution in Pakistan

AK: Poonch (Hajira); **BA:** Quetta; **KPK:** Dir, Hangu (Thall), Kohistan, Kurram (Parachinar), Swat; **PB:** Islamabad Capital, Rawalpindi (Taxila); **SD:** Hyderabad; widely distributed species (Hamid 1983; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000; Mahmood *et al.* 2002; Wieczorek 2010; Amin *et al.* 2021).

Subfamily Drepanosiphinae Herrich-Schaeffer, 1857
Genus *Drepanosiphum* Koch, 1855

286. *Drepanosiphum oregonense* Granovsky, 1939

Host plant

Acer oblongum (Aceraceae).

Distribution in Pakistan

PB: Islamabad Capital (Naumann-Etienne & Remaudière 1995).

Subfamily Eriosomatinae Kirkaldy, 1905
Tribe Eriosomatini Kirkaldy, 1905
Genus *Eriosoma* Leach, 1818

287. *Eriosoma kashmiricum* Ghosh, Verma & Raychaudhuri, 1976

Host plant

Ulmus sp. (Ulmaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

288. *Eriosoma lanigerum* (Hausmann, 1802)

Host plants

Malus domestica, *M. pumila* (Rosaceae).

Distribution in Pakistan

GB: Gilgit; **PB:** Islamabad Capital, Jhelum, Rawalpindi (Murree); cosmopolitan (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Hassan *et al.* 2010).

289. *Eriosoma lanuginosum* (Hartig, 1839)

Host plants

Malus sp., *Pyrus* sp. (Rosaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

290. *Eriosoma phaenax* Mordvilko, 1923

Host plants

Andrachne cordifolia Müll.Arg. (Euphorbiaceae), *Ulmus minor* Mill. (Ulmaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat); **PB:** Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000).

291. *Eriosoma ulmi* (Linnaeus, 1758)

Host plant

Ulmus sp. (Ulmaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat) (Naumann-Etienne & Remaudière 1995).

Genus *Ghariesia* Stroyan, 1963

292. *Ghariesia polunini* Stroyan, 1963

Host plants

Carex sp., *Kobresia* sp. (Cyperaceae).

Distribution in Pakistan

GB: Nagar (*Ghariesia glacier*) (Ghosh 1984; Naumann-Etienne & Remaudière 1995).

Genus *Kaltenbachiella* Schouteden, 1906

293. *Kaltenbachiella spinosa* Akimoto, 1985

Host plant

Ulmus sp. (Ulmaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Genus *Schizoneurella* Hille Ris Lambers, 1973

294. *Schizoneurella indica* Hille Ris Lambers, 1973

Host plants

Malus pumila (Rosaceae), *Ulmus villosa* Brandis ex Gamble, *U. wallichiana* (Ulmaceae).

Distribution in Pakistan

AK: Bagh, Muzaffarabad, Poonch (Rawalakot); **KPK:** Mansehra (Balakot); **PB:** Rawalpindi (Murree) (Hille Ris Lambers 1973; Ghosh 1984; Blackman & Eastop 1994; Naumann-Etienne & Remaudière 1995).

Genus *Tetraneura* Hartig, 1841

295. *Tetraneura africana* van der Goot, 1912

Host plant

Cynodon dactylon (Poaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

296. *Tetraneura ulmi* (Linnaeus, 1758)

Host plant

Ulmus wallichiana (Ulmaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

297. *Tetraneura yezoensis* Matsumura, 1917

Host plants

Grass roots (Poaceae).

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

Subgenus *Indotetraneura* Chakrabarti & Maity, 1978

298. *Tetraneura (Indotetraneura) javensis* van der Goot, 1917

Host plants

Neyraudia arundinacea (L.) Henrard (Poaceae), *Ulmus wallichiana* (Ulmaceae).

Distribution in Pakistan

PB: Faisalabad, Sahiwal, Rawalpindi (Murree) (Hille Ris Lambers 1970; Ghosh 1984; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006).

Subgenus *Tetraneurella* Hille Ris Lambers, 1970

299. *Tetraneura (Tetraneurella) fusiformis* Matsumura, 1917

Host plant

Unidentified plant of Poaceae.

Distribution in Pakistan

UNK (Blackman & Eastop 2006).

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

Host plants

Echinochloa colonum (Poaceae), *Ulmus* sp. (Ulmaceae), and vagrant on Brassicaceae.

Distribution in Pakistan

PB: Chakwal, Islamabad Capital, Rawalpindi (Murree), Sahiwal; **KPK:** Abbottabad (Ayubia) (Naumann-Etienne & Remaudière 1995; Naseem *et al.* 2019).

301. *Tetraneura (Tetraneurella) polychaeta* Hille Ris Lambers, 1970

Host plants

Ulmus villosa, *U. wallichiana* (Ulmaceae).

Distribution in Pakistan

KPK: Mansehra (Balakot) (Naumann-Etienne & Remaudière 1995).

Tribe Fordini Baker, 1920

Genus *Asiphonella* Theobald, 1923

302. *Asiphonella cynodonti* (Das, 1918)

Host plant

Cynodon dactylon (Poaceae).

Distribution in Pakistan

GB: Hunza; **KPK:** Dir; **PB:** Lahore (Das 1918; Blackman & Eastop 2000, 2006).

Genus *Baizongia* Rondani, 1848

303. *Baizongia pistaciae* (Linnaeus, 1767)

Host plants

Pistacia integerrima J.L.Stewart, *P. terebinthus* L. (Anacardiaceae).

Distribution in Pakistan

BA: Quetta; **GB;** **KPK;** **PB:** Chakwal, Islamabad Capital, Lahore (Das 1918; Doncaster 1969, 1973; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2006; Naseem *et al.* 2019).

Genus *Forda* von Heyden, 1837

304. *Forda formicaria* von Heyden, 1837

Host plant

Setaria sp. (Poaceae).

Distribution in Pakistan

BA; **SD** (Hyderabad District) (Hamid 1983; Naumann-Etienne & Remaudière 1995).

305. *Forda hirsuta* Mordvilko 1928

Host plants

Pistacia sp. (Anacardiaceae), *Dichanthium annulatum* (Forssk.) Stapf., *Dichanthium* sp., *Heteropogon contortus* (L.) P.Beauv. ex Roem. & Schult. (Poaceae).

Distribution in Pakistan

BA: Quetta National Park; **PB:** Islamabad Capital (Margalla Hills) (Naumann-Etienne & Remaudière 1995).

Remarks

Blackman & Eastop (1994) suspected that the valid name of this species may be *Forda pawlowae* Mordvilko, 1901.

306. *Forda orientalis* George, 1928

Host plant

Sorghum bicolor (Poaceae).

Distribution in Pakistan

BA: Quetta (Ghosh 1984; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000, 2006).

307. *Forda sichangensis* Remaudière & Tao, 1957

Host plant

Pistacia chinensis Bunge (Anacardiaceae).

Distribution in Pakistan

KPK: Mansehra; **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000).

Genus *Geoica* Hart, 1894

308. *Geoica lucifuga* (Zehntner, 1897)

Host plants

Pistacia chinensis, *P. khinjuk* Stocks (Anacardiaceae).

Distribution in Pakistan

UNK (Blackman & Eastop 1984, 2006; Naumann-Etienne & Remaudière 1995).

Genus *Melaphis* Walsh, 1867

309. *Melaphis rhois* (Fitch, 1866)

Host plant

Rhus javanica L. (Anacardiaceae).

Distribution in Pakistan

AK: Poonch (Hajira) (Amin 2018).

Genus *Slavum* Mordvilko, 1927

310. *Slavum lentiscoides* Mordvilko, 1927

Host plants

Pistacia atlantica Desf., *P. khinjuk* (Anacardiaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995).

Genus *Smynthuodes* Westwood, 1849

311. *Smynthuodes betae* Westwood, 1849

Host plants

Pistacia atlantica (Anacardiaceae), *Solanum tuberosum* (Solanaceae).

Distribution in Pakistan

KPK: Swat (Kalam Valley) (Naumann-Etienne & Remaudière 1995).

Tribe Pemphigini Herrich-Schaeffer, 1854
Genus *Epipemphigus* Hille Ris Lambers, 1966

312. *Epipemphigus imaicus* (Cholodkovsky, 1912)

Host plants

Populus ciliata (Salicaceae), *Pinus griffithii* Parl. (Pinaceae).

Distribution in Pakistan

KPK: Mansehra (Shogran); **PB:** Rawalpindi (Murree) (Hille Ris Lambers 1966; Habib & Ghani 1970; Naumann-Etienne & Remaudière 1995; Chakrabarti & Banerjee 1997; Blackman & Eastop 2000).

Genus *Pemphigus* Hartig, 1839

313. *Pemphigus immunis* Buckton, 1896

Host plants

Euphorbia helioscopia (Euphorbiaceae), *Populus* sp. (Salicaceae).

Distribution in Pakistan

BA: Quetta; **GB:** Gilgit; **KPK:** Swat (Mingora); **PB:** Islamabad Capital, Rawalpindi (Doncaster 1969; Habib & Ghani 1970; Hille Ris Lambers 1973; Naumann-Etienne & Remaudière 1995).

314. *Pemphigus matsumurai* Monzen, 1927

Host plant

Populus ciliata (Salicaceae).

Distribution in Pakistan

KPK: Mansehra (Naran Valley); **PB:** Rawalpindi (Murree) (Maity & Chakrabarti 1981; Naumann-Etienne & Remaudière 1995).

315. *Pemphigus mordwilkoii* Cholodkovsky, 1912

Host plant

Populus ciliata (Salicaceae).

Distribution in Pakistan

KPK: Swat (Matiltan Valley); **PB:** Rawalpindi (Murree) (Maity & Chakrabarti 1981; Ghosh 1984; Naumann-Etienne & Remaudière 1995).

316. *Pemphigus napaeus* Buckton, 1896

Host plant

Populus sp. (Salicaceae).

Distribution in Pakistan

GB: Gilgit (Naumann-Etienne & Remaudière 1995).

317. *Pemphigus siphunculatus* Hille Ris Lambers, 1973

Host plant

Populus ciliata (Salicaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Habib & Ghani 1970; Hille Ris Lambers 1973; Maity & Chakrabarti 1981; Blackman & Eastop 1994; Naumann-Etienne & Remaudière 1995).

318. *Pemphigus spyrothecae* Passerini, 1860

Host plant

Populus nigra L. (Salicaceae).

Distribution in Pakistan

BA: Quetta (Naumann-Etienne & Remaudière 1995).

319. *Pemphigus vesicarius* Passerini, 1861

Host plant

Populus pyramidalis Rozier (Salicaceae).

Distribution in Pakistan

BA: Quetta; **GB:** Gilgit (Chilas); **KPK:** Swat (Mingora); **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995).

Genus *Prociphilus* Koch, 1857

320. *Prociphilus oleae* (Leach, 1826)

Host plant

Olea europaea L. (Oleaceae).

Distribution in Pakistan

PB: Islamabad Capital (Blackman & Eastop 2006; Zia *et al.* 2010).

321. *Prociphilus taxus* (Ghosh, Chakrabarti, Chowdhuri & Raychaudhuri, 1969)

Host plant

Taxus baccata L. (Taxaceae).

Distribution in Pakistan

KPK: Kohistan, Swat (Matiltan Valley) (Naumann-Etienne & Remaudière 1995; Chakrabarti *et al.* 2020).

Subgenus *Neoparaclletus* Strom, 1942

322. *Prociphilus (Neoparaclletus) ghanii* Hille Ris Lambers, 1973

Host plant

Salix wallichiana Andersson (Salicaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Hille Ris Lambers 1973; Naumann-Etienne & Remaudière 1995).

Subgenus *Stagona* Koch, 1857

323. *Prociphilus (Stagona) himalayaensis* Chakrabarti, 1976

Host plants

Lonicera quinquelocularis (Caprifoliaceae), *Pinus griffithii* (Pinaceae).

Distribution in Pakistan

PB: Murree (Dungagali, Nathiagali); **KPK:** Abbottabad, Swat (Matiltan Valley) (Naumann-Etienne & Remaudière 1995).

Subfamily Greenideinae Baker, 1920

Tribe Greenideini Baker, 1920

Genus *Eutrichosiphum* Essig & Kuwana, 1918

324. *Eutrichosiphum khasyanum* (Ghosh & Raychaudhuri, 1962)

Host plant

Quercus leucotrichophora (Fagaceae).

Distribution in Pakistan

PB: Islamabad Capital (Naumann-Etienne & Remaudière 1995).

325. *Eutrichosiphum raychaudhurii* (Ghosh, 1969)

Host plant

Alnus nitida (Betulaceae).

Distribution in Pakistan

KPK: Mansehra, Swat (Naumann-Etienne & Remaudière 1995).

326. *Eutrichosiphum tattakanum* (Takahashi, 1925)

Host plant

Quercus leucotrichophora (Fagaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Ghosh & Agarwala 1993; Naumann-Etienne & Remaudière 1995).

Genus *Greenidea* Schouteden, 1905

327. *Greenidea ficicola* Takahashi, 1921

Host plant

Ficus religiosa L. (Moraceae).

Distribution in Pakistan

AK: Poonch (Hajira); **PB:** Islamabad Capital, Rawalpindi (Changa Gali, Murree) (Naumann-Etienne & Remaudière 1995; Amin *et al.* 2019a, 2022).

Subgenus *Trichosiphum* Pergande, 1906

328. *Greenidea (Trichosiphum) eugeniae* Takahashi, 1941

Host plant

Eugenia jambolana Lam. (Myrtaceae).

Distribution in Pakistan

PB: Gujranwala (Ponsen 1990).

329. *Greenidea (Trichosiphum) nipponica* Suenaga, 1934

Host plants

Quercus baloot Griff., *Q. dilatata*, *Q. leucotrichophora* (Fagaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat); **PB:** Islamabad Capital (Naumann-Etienne & Remaudière 1995).

330. *Greenidea (Trichosiphum) psidii* van der Goot, 1917

Host plants

Psidium guajava, *Syzygium cumini* (L.) Skeels (Myrtaceae).

Distribution in Pakistan

AK: Poonch (Abbaspur); **PB:** Gujranwala (Gujranwala city, Kamonke, Nandipur, Qila Didar Singh), Lahore (Nasir & Yousuf 1992; Naumann-Etienne & Remaudière 1995; Amin *et al.* 2019a, 2022; Maryam *et al.* 2019).

Remarks

Noordam (1994) suggested this species as a synonym of *Greenidea (Trichosiphum) formosana* Make, 1917.

Tribe Schoutedeniini Rübsaamen, 1905
Genus *Schoutedenia* Rübsaamen, 1905

331. *Schoutedenia emblica* (Patel & Kulkarni, 1952)

Host plant

Phyllanthus emblica L. (Euphorbiaceae).

Distribution in Pakistan

PB: Islamabad (Margalla Hills) (Naumann-Etienne & Remaudière 1995; Nakatani *et al.* 2016).

332. *Schoutedenia ralumensis* Rübsaamen, 1905

Host plant

Phyllanthus floribundus Kunth (Euphorbiaceae).

Distribution in Pakistan

PB (Ghosh & Agarwala 1993).

Subfamily Hormaphidinae Mordvilko, 1909
Tribe Cerataphidini Baker, 1920
Genus *Astegopteryx* Karsch, 1890

333. *Astegopteryx bambusae* (Buckton, 1893)

Host plant

Bambusa sp. (Poaceae).

Distribution in Pakistan

AK: Poonch (Abbaspur) (Blackman & Eastop, 1994; Naumann-Etienne & Remaudière 1995; Amin *et al.* 2019a, 2020, 2022).

Tribe Nipponaphidini Ghosh, 1988
Genus *Pseudothoracaphis* Raychaudhuri, Ghosh & Das, 1980

334. *Pseudothoracaphis himachali* Raychaudhuri, Ghosh & Das, 1980

Host plants

Quercus baloot, *Q. leucotrichophora* (Fagaceae).

Distribution in Pakistan

PB: Islamabad Capital (Margalla Hills), Rawalpindi (Murree) (Naumann-Etienne & Remaudière 1995).

Subfamily Lachninae Herrich-Schaeffer, 1854
Tribe Eulachnini Baker, 1920
Genus *Cinara* Curtis, 1835

335. *Cinara abietispindrow* Remaudière & Binazzi, 2003

Host plant

Abies pindrow (Royle ex D.Don) Royle (Pinaceae).

Distribution in Pakistan

PB: Murree (Dungagali) (Remaudière & Binazzi 2003b).

336. *Cinara antennalis* Remaudière & Binazzi, 2003

Host plant

Abies pindrow (Pinaceae).

Distribution in Pakistan

PB: Murree (Dungagali, Nathiagali) (Remaudière & Binazzi 2003b).

337. *Cinara comata* (Doncaster, 1956)

Host plants

Abies sp., *Picea morinda* Link (Pinaceae).

Distribution in Pakistan

KPK: Mansehra (Kaghan Valley, Shogran); **PB:** Murree (Dungagali) (Naumann-Etienne & Remaudière 1995; Remaudière & Binazzi 2003b; Chakrabarti *et al.* 2020).

338. *Cinara confinis* (Koch, 1856)

Host plant

Abies pindrow (Pinaceae).

Distribution in Pakistan

KPK: Abbottabad (Galiat); **PB:** Rawalpindi (Changagali, Murree) (Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000; Remaudière & Binazzi 2003b; Chakrabarti *et al.* 2020).

339. *Cinara eastopi* Pintera, 1965

Host plant

Pinus griffithii (Pinaceae).

Distribution in Pakistan

PB: Rawalpindi (Ghoragali, Murree) (Naumann-Etienne & Remaudière 1995; Remaudière & Binazzi 2003b; Chakrabarti *et al.* 2020).

340. *Cinara lachnirostris* Hille Ris Lambers, 1966

Host plants

Pinus griffithii, *P. wallichiana* A.B.Jacks. (Pinaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **PB:** Rawalpindi (Murree) (Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000; Remaudière & Binazzi 2003b; Amin *et al.* 2019a; Chakrabarti *et al.* 2020).

341. *Cinara maculipes* Hille Ris Lambers, 1966

Host plants

Pinus griffithii, *P. wallichiana* (Pinaceae).

Distribution in Pakistan

AK: Poonch (Rawalakot); **KPK:** Dir; **PB:** Rawalpindi (Dungagali, Ghoragali, Murree) (Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995; Blackman & Eastop 2000; Remaudière & Binazzi 2003b; Amin *et al.* 2019a, 2022; Chakrabarti *et al.* 2020).

342. *Cinara micropunctata* Remaudière & Binazzi, 2003

Host plant

Abies pindrow (Pinaceae).

Distribution in Pakistan

PB: Murree (Dungagali, Nathiagali) (Remaudière & Binazzi 2003b).

343. *Cinara polymorpha* Remaudière & Binazzi, 2003

Host plant

Abies pindrow (Pinaceae).

Distribution in Pakistan

KPK: Mansehra (Shogran); **PB:** Murree (Dungagali) (Remaudière & Binazzi 2003b).

344. *Cinara takahashii* Chakrabarti, Medda & Kanturski, 2020

Host plant

Pinus wallichiana (Pinaceae).

Distribution in Pakistan

PB: Murree (Chara Pani, Kuldana) (Chakrabarti *et al.* 2020; Gull-E-Fareen *et al.* 2020).

Subgenus *Cupressobium* Börner, 1940

345. *Cinara (Cupressobium) cupressi* (Buckton, 1881)

Host plants

Cupressus sp., *Juniperus excelsa* M.Bieb. (Cupressaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Abbaspur, Hajira, Rawalakot, Thorar, Sudhanoti (Tarar Khel); **KPK** (Remaudière & Binazzi 2003a; Amin *et al.* 2019a; Chakrabarti *et al.* 2020).

346. *Cinara (Cupressobium) lalazarica* Remaudière & Binazzi, 2003

Host plant

Juniperus communis L. (Cupressaceae).

Distribution in Pakistan

KPK: Mansehra (Lalazar) (Remaudière & Binazzi 2003a).

347. *Cinara (Cupressobium) pseudosabinae* (Nevsky, 1929)

Host plant

Juniperus excelsa (Cupressaceae).

Distribution in Pakistan

GB: Diامر (Chilas), Gupis-Yasin (Gupis) (Remaudière & Binazzi 2003a).

Remarks

This species may be a synonym of *Cinara (Cupressobium) tujafilina* (del Guercio, 1909).

348. *Cinara (Cupressobium) tujafilina* (del Guercio, 1909)

Host plant

Thuja orientalis L. (Cupressaceae).

Distribution in Pakistan

AK: Poonch (Hajira, Rawalakot); **KPK:** Haripur (Khanpur Lake); **PB:** Gujranwala (Gujranwala city, Wazirabad); almost cosmopolitan, much wider distribution in the warmer parts of the world (Naumann-Etienne & Remaudière 1995; Remaudière & Binazzi 2003a; Maryam *et al.* 2019; Naseem *et al.* 2019; Chakrabarti *et al.* 2020).

Subgenus *Schizolachnus* Mordvilko, 1909

349. *Cinara (Schizolachnus) pineti* (Fabricius, 1781)

Host plant

Pinus nigra J.F.Arnold (Pinaceae).

Distribution in Pakistan

UNK (Holman 2009).

Genus *Eulachnus* Del Guercio, 1909

350. *Eulachnus tuberculostemmatus tuberculostemmatus* (Theobald, 1915)

Host plant

Pinus sp. (Pinaceae).

Distribution in Pakistan

BA: Quetta; **GB:** Gilgit, Skardu; **KPK:** Dir, Kohat (Naumann-Etienne & Remaudière 1995).

Genus *Pseudessigella* Hille Ris Lambers, 1966

351. *Pseudessigella brachychaeta* Hille Ris Lambers, 1966

Host plants

Pinus griffithii, *P. wallichiana* (Pinaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Hille Ris Lambers 1966; Naumann-Etienne & Remaudière 1995; Kanturski *et al.* 2017b; Chakrabarti *et al.* 2020).

Tribe Lachnini Herrich-Schaeffer, 1854

Genus *Lachnus* Burmeister, 1835

352. *Lachnus acutihirsutus* Kumar & Burkhardt, 1970

Host plants

Quercus dilatata, *Q. leucotrichophora* (Fagaceae).

Distribution in Pakistan

PB: Rawalpindi (Ghoragali, Murree) [common in the northern hills] (Naumann-Etienne & Remaudière 1995; Kanturski *et al.* 2017a).

353. *Lachnus margallaensis* Kanturski & Zia, 2017

Host plant

Quercus oblongata D. Don (Fagaceae).

Distribution in Pakistan

PB: Islamabad Capital (Pir Sohawa, Maralla Hills) (Kanturski *et al.* 2017a).

354. *Lachnus tatakaensis* Takahashi, 1937

Host plant

Salix sp. (Salicaceae).

Distribution in Pakistan

AK: Poonch (Hajira) (Amin *et al.* 2022).

Genus *Maculolachnus* Gaumont, 1920

355. *Maculolachnus blackmani* Kanturski & Chakrabarti, 2022

Host plant

Rosa sp. (Rosaceae).

Distribution in Pakistan

GB: Gilgit (Naltar Valley); India (Kanturski & Chakrabarti 2022).

Remarks

Naumann-Etienne & Remaudière (1995) and Mehrparvar & Lashkari (2021) reported this species as *Maculolachnus submacula* (Walker, 1848).

Genus *Pterochloroides* Mordvilko, 1914

356. *Pterochloroides persicae* (Cholodkovsky, 1898)

Host plant

Prunus armeniaca (Rosaceae).

Distribution in Pakistan

AK: Bagh, Poonch (Alisojal, Rawalakot), Sudhnoti (Trar Khel); **GB:** Gilgit (Jaglote); **PB:** Lahore (Das 1918; Naumann-Etienne & Remaudière 1995; Tuatay 1999; Amin *et al.* 2019a, 2022).

Tribe Tramini Herrich-Schaeffer, 1854

Genus *Protrama* Baker, 1920

357. *Protrama longitarsus sclerodensis* Kumar, 1973

Host plant

Unidentified of Asteraceae.

Distribution in Pakistan

KPK: Hazara, Mansehra (Battakundi) (Naumann-Etienne & Remaudière 1995).

358. *Trama (Neotrama) penecaeca* (Stroyan, 1964)

Host plant

Helianthus tuberosus L. (Asteraceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Tribe Tuberolachnini Oestlund, 1942
Genus *Pyrolachnus* Basu & Hille Ris Lambers, 1968

359. *Pyrolachnus pyri* (Buckton, 1899)

Host plant

Pyrus communis (Rosaceae).

Distribution in Pakistan

KPK: Lower Dir (Timergara) (Naumann-Etienne & Remaudière 1995).

Genus *Tuberolachnus* Mordvilko, 1909

360. *Tuberolachnus salignus* (Gmelin, 1790)

Host plant

Salix sp. (Salicaceae).

Distribution in Pakistan

PB: Attock, Chakwal, Islamabad Capital, Jhelum, Rawalpindi (Murree) [abundant all over Pakistan]; widely distributed species (Naumann-Etienne & Remaudière 1995; Gull-E-Fareen *et al.* 2020).

Subfamily Mindarinae Tullgren, 1909

Genus *Mindarus* Koch, 1857

361. *Mindarus abietinus* Koch, 1857

Host plant

Abies pindrow (Pinaceae).

Distribution in Pakistan

UNK: Northern areas (Naumann-Etienne & Remaudière 1995; Chakrabarti *et al.* 2020).

362. *Mindarus japonicus* Takahashi, 1931

Host plant

Not mentioned.

Distribution in Pakistan

UNK (Agarwala & Ghosh 1985).

Subfamily Phloeomyzinae Mordvilko, 1934

Genus *Phloeomyzus* de Horváth, 1896

363. *Phloeomyzus passerinii* (Signoret, 1875)

Host plant

Populus ciliata (Salicaceae).

Distribution in Pakistan

UNK (Naumann-Etienne & Remaudière 1995).

Additional list of species designated as nomen nudum

1. *Chaitophorus murensis* Nasir & Yousuf, 1994

Host plant

Platanus orientalis L. (Platanaceae).

Distribution in Pakistan

PB: Rawalpindi (Murree) (Nasir & Yousuf 1994; Naumann-Etienne & Remaudière 1995; Bodlah *et al.* 2011).

2. *Pemphigus ignotus* Habib & Ghani, 1970

Host plant

Populus ciliata (Salicaceae).

Distribution in Pakistan

UNK (Habib & Ghani 1970; Naumann-Etienne & Remaudière 1995).

3. *Pemphigus venosus* Habib & Ghani, 1970

Host plant

Populus ciliata (Salicaceae).

Distribution in Pakistan

UNK (Habib & Ghani 1970; Naumann-Etienne & Remaudière 1995).

Discussion

Over 27 years ago, Naumann-Etienne & Remaudière (1995) summarized the existing knowledge of Pakistani Aphididae and updated the country fauna to over 300 species. Following this outstanding contribution, local and foreign taxonomists have reported several new species and country records for Pakistan. Consequently, the understanding of the aphid fauna in Pakistan has significantly evolved in subsequent studies. This paper is the second updated catalogue of the aphid fauna and the first comprehensive list of host plant species in Pakistan. It also summarizes the distribution data, host plants and aphid species reported from Pakistan before and after Naumann-Etienne & Remaudière till 2022. The considerable number of aphid species in Pakistan, particularly in the northern areas, can be attributed to extensive field sampling surveys conducted by Naumann-Etienne & Remaudière and several regional and foreign taxonomists over the past four decades.

The present complete checklist of aphids, their regional distribution data, and host plants (Tables 1–2; Fig. 1) have broad applications in faunistic, biodiversity, conservation, and pest management and can further be elaborated in future research in Pakistan. Unfortunately, 46 species of Aphididae (Aphidinae 32; Eriosomatinae six; Lachninae two; Mindarinae two; Calaphidinae two; Chaitophorinae one; and Phloeomyzinae one) are currently listed from Pakistan but lack precise location data in published records. The regional distribution data of aphid fauna in Pakistan is biased toward the northern and eastern parts, including Punjab (172), Khyber Pakhtunkhwa (155), Azad Kashmir (80), and Gilgit-

Table 1. Species richness and regional distribution data of Aphididae Latreille, 1802 and their host plants in Pakistan. Abbreviations: AK = Azad Kashmir; BA = Balochistan; GB = Gilgit-Baltistan; KPK = Khyber Pakhtunkhawa; PB = Punjab; SD = Sindh; UNK = unknown locality.

Aphididae	Plant diversity			Aphid species diversity in different Provinces/Territories								
	Subfamilies	Genus	Species	Families	Genus	Species	AK	BA	GB	KPK	PB	SD
Anoeciinae	1	3	3	2	3	–	–	–	3	–	–	–
Aphidinae	80	242	77	219	374	64	38	46	106	102	8	32
Calaphidinae	17	22	9	13	20	3	3	5	11	10	–	2
Chaitophorinae	4	19	4	11	20	2	3	1	8	13	1	1
Drepanosiphinae	1	1	1	1	1	–	–	–	–	1	–	–
Eriosomatinae	15	39	16	25	38	2	9	6	15	20	1	6
Greenideinae	3	9	5	7	11	2	–	–	2	8	–	–
Hormaphidinae	2	2	2	2	3	1	–	–	–	1	–	–
Lachninae	9	26	6	10	18	6	1	4	9	17	–	2
Mindarinae	1	2	1	1	1	–	–	–	–	–	–	2
Phloeomyzinae	1	1	1	1	1	–	–	–	–	–	–	1
Total	134	367				80	54	62	155	172	10	46

Baltistan (62). Such information may be related to the more significant number of universities and research laboratories in Punjab and Khyber Pakhtunkhwa provinces or attracted to a more considerable number of foreign taxonomists to the scenic beauty and unique valleys having the great potential of rare and endemic species in Azad Kashmir, Gilgit-Baltistan, Balochistan, Khyber Pakhtunkhwa, and Islamabad Capital Territory.

Understanding the host plant specificity/preferences of aphids is important for pest management practices. Among the aphid genera, *Aphis* records the maximum number of host plants, followed by *Cinara*, *Dysaphis*, *Acyrtosiphon*, *Myzus*, and *Uroleucon* with 35, 15, 13, 12, 12, and 10 species, respectively, while the remaining genera have less than ten host plant species. Similarly, the host plant family Asteraceae has the highest number of species (54), followed by Fabaceae, Poaceae, Rosaceae, Malvaceae, Lamiaceae, Brassicaceae, Solanaceae, Polygonaceae, and Salicaceae Mirb. with 39, 33, 31, 15, 14, 13, 12, nine, and nine species respectively, while the remaining families have less than nine species. Out of 366 aphid species, 234 (64 %) are monophagous, and are associated with a single host plant, 71 species (19 %) are oligophagous, and are associated with two hosts, 8 species (2%) are restricted on closely related plant species of one plant family only. Additionally, 16 species (5 %) lack host plant records, while 35 species (10 %) are polyphagous (feeding on multiple host plants) (Fig. 2). These findings further allow a preliminary assessment of the host plant interactions along with altitudinal gradients in Pakistan, as most of the species are known from the high elevations in the northern and eastern parts of the country. The following aphid species are associated with more

than 11 host plant species: *Aphis gossypii* (40 families, 104 species), *Aphis craccivora* (23 families, 41 species), *Aphis fabae* (13 families, 26 species), *Myzus (Nectarosiphon) persicae* (24 families, 26 species), *Acyrtosiphon pisum* (three families, 20 species), *Brachycaudus helichrysi* (seven families, 18 species), *Aulacorthum solani* (10 families, 14 species), *Rhopalosiphum padi* (10 families, 13 species), *Aphis spiraecola* (nine families, 12 species), *Macrosiphum euphorbiae* (eight families, 12 species), and *Sitobion avenae* (seven families, 12 species).

The detailed regional distribution data of each aphid species in 11 subfamilies of the family Aphididae and their associated host plants are summarized. Among the subfamilies, Aphidinae is the most specious and diverse group with 242 species, 68 % of the country fauna, and are recorded from 77 host plant families. A further 10 subfamilies with no more than 13 host plant families were reported from the country. However, Anoeciinae was recorded only with three species from Khyber Pakhtunkhwa, while Drepanosiphinae and Hormaphidinae each had a single species from Punjab. In contrast, Aphidiinae, Calaphidinae, Chaitophorinae, Eriosomatinae, and Lachninae were found throughout the country. Phloeomyzinae and Mindarinae with a single and two species, respectively, are known from the country but their precise locations are unspecified. Additionally, 54 species are known from Balochistan, the southwestern part of the country.

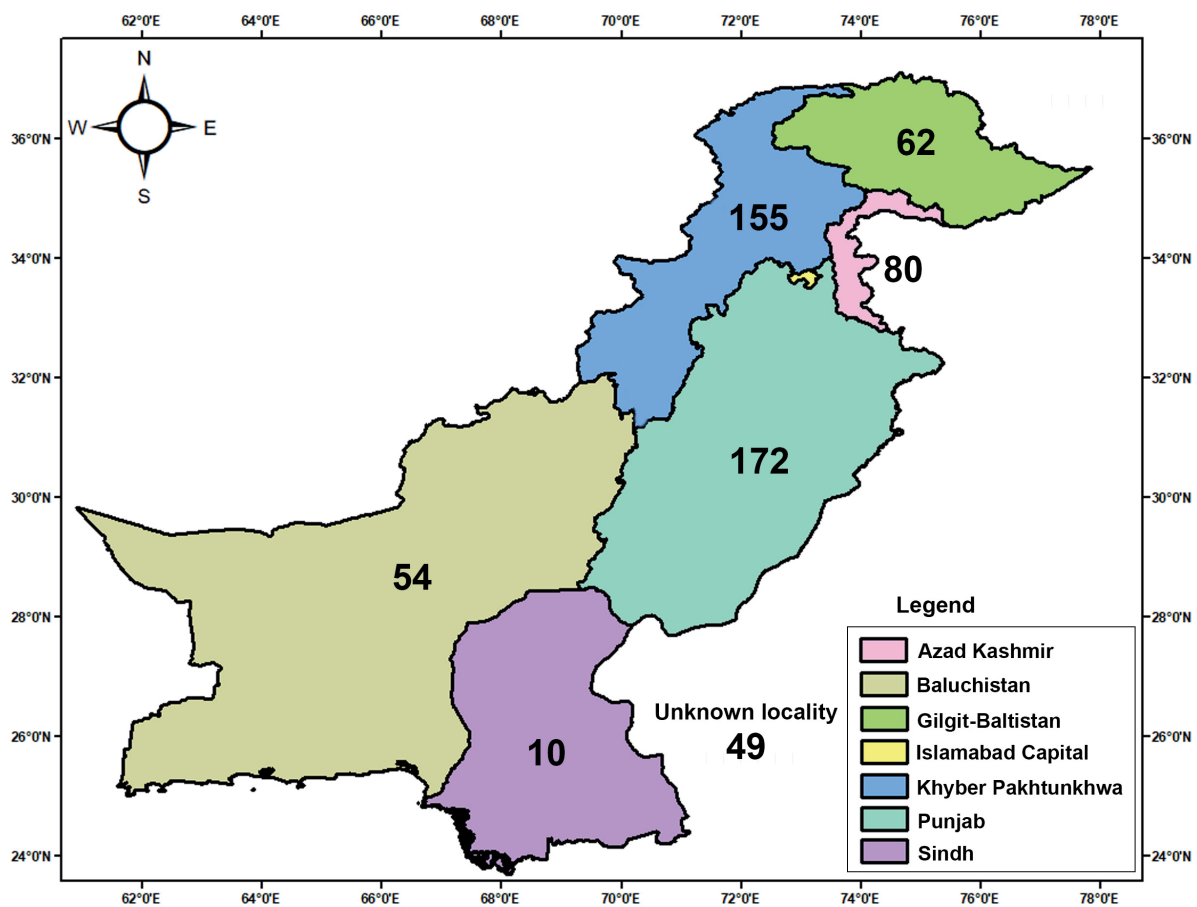


Fig. 1. Species diversity in the different provinces/states of Pakistan. The number represents the known species in each province/territory in Pakistan.

Table 2 (continued on next twenty pages). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
1	Aceraceae	<i>Acer caesium</i>	<i>Periphyllus changlai</i> , <i>P. vandenboschi</i> , <i>P. villosii</i> , <i>Trichaitophorus aceris</i>
		<i>Acer oblongum</i>	<i>Drepanosiphum oregonense</i> , <i>Periphyllus vandenboschi</i> , <i>P. pakistanicus</i>
		<i>Acer villosum</i>	<i>Trichaitophorus aceris</i>
		<i>Acer</i> sp.	<i>Periphyllus aceriphaga</i> , <i>P. lyropictus</i>
		<i>Achyranthes aspera</i>	<i>Aphis achyranthi</i> , <i>Brachyunguis tamaricis</i>
2	Amaranthaceae	<i>Amaranthus viridis</i>	<i>Aphis craccivora</i> , <i>A. fabae</i> , <i>A. gossypii</i> , <i>Myzus persicae</i>
		Indet.	<i>Brevicoryne brassicae</i>
3	Amaryllidaceae	<i>Bomarea caldasiana</i>	<i>Brachycaudus helichrysi</i>
		Indet.	<i>Hysteroneura setariae</i>
4	Anacardiaceae	<i>Pistacia atlantica</i>	<i>Slavum lentiscoides</i> , <i>Smynthurodes betae</i>
		<i>Pistacia chinensis</i>	<i>Forda sichangensis</i> , <i>Geoica lucifuga</i>
		<i>Pistacia integerrima</i>	<i>Baizongia pistaciae</i>
		<i>Pistacia khinjuk</i>	<i>Geoica lucifuga</i> , <i>Slavum lentiscoides</i>
		<i>Pistacia terebinthus</i>	<i>Baizongia pistaciae</i>
		<i>Pistacia</i> sp.	<i>Forda hirsuta</i>
		<i>Rhus javanica</i>	<i>Melaphis rhois</i>
5	Apiaceae	<i>Coriandrum sativum</i>	<i>Aphis craccivora</i> , <i>A. fabae</i> , <i>A. gossypii</i> , <i>Aulacorthum solani</i> , <i>Hyadaphis coriandri</i> , <i>Macrosiphum gei</i> , <i>Semiaphis heraclei</i>
		<i>Cryptotaenia canadensis</i>	<i>Uroleucon compositae</i>
		<i>Daucus carota</i>	<i>Aphis fabae</i> , <i>Myzus persicae</i>
		Indet.	<i>Rhopalosiphum padi</i> , <i>Cavariella aegopodii</i> , <i>Dysaphia foeniculus</i> , <i>Hyadaphis foeniculi</i>
		<i>Nerium indicum</i>	<i>Aphis gossypii</i>
6	Apocynaceae	<i>Nerium odorum</i>	<i>Aphis nerii</i>
		<i>Nerium oleander</i>	<i>Aphis fabae solanella</i> , <i>A. nerii</i>
		Indet.	<i>Aphis spiraeicola</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
7	Araceae	<i>Colocasia antiquorum</i> Indet.	<i>Aphis gossypii</i> <i>Aphis nerii</i>
8	Araliaceae	<i>Aralia cordata</i>	<i>Aphis eugeniae</i>
8	Aristolochiaceae	<i>Aristolochia punjabensis</i>	<i>Micromyzodidium filicium</i>
9	Asclepiadaceae	<i>Calotropis gigantea</i> <i>Calotropis procera</i> <i>Cryptostegia grandiflora</i> <i>Dregea volubilis</i> <i>Hoya longifolia</i>	<i>Aphis nerii</i> <i>Aphis nerii</i> <i>Aphis gossypii</i> <i>Aphis nerii</i> <i>Aphis nerii</i>
10	Asteraceae	<i>Achillea millefolium</i> <i>Ageratum conyzoides</i> <i>Artemisia absinthium</i> <i>Artemisia brevifolia</i> <i>Artemisia campestris</i> <i>Artemisia dracuncululus</i> <i>Artemisia gmelinii</i> <i>Artemisia herba-alba</i> <i>Artemisia maritima</i> <i>Artemisia myriantha</i> <i>Artemisia persica</i> <i>Artemisia scoparia</i>	<i>Uroleucon achilleae</i> <i>Aphis gossypii</i> , <i>Brachycaudus helichrysi</i> <i>Coloradoa angelicae</i> <i>Coloradoa submissa</i> <i>Coloradoa campestris</i> , <i>Obtusicauda moldavica crassitubia</i> <i>Macrosiphoniella alatavica</i> <i>Colorodoa heinzei</i> , <i>Macrosiphoniella oblonga</i> , <i>Obtusicauda moldavica</i> <i>Macrosiphoniella pulvera pulvera</i> <i>Macrosiphoniella pulvera pulvera</i> <i>Capitophorus formosartemisiae</i> <i>Macrosiphoniella himalayana</i> , <i>Obtusicauda dolychosiphon</i> <i>Coloradoa campestris</i> , <i>C. scopariae</i> , <i>Pleotrichophorus persimilis persimilis</i> , <i>Titanosiphon neoartemisiae</i> , <i>Xerobion cinae</i> , <i>X. lambersi</i> <i>Macrosiphoniella yomogifoliae</i>
		<i>Artemisia vulgaris</i> <i>Artemisia vulgaris</i> var. <i>indica</i>	<i>Capitophorus formosartemisiae</i> , <i>C. hippophaes hippophaes</i> , <i>Pleotrichophorus glandulosus glandulosus</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Artemisia</i> sp.	<i>Colorodoa parado</i>
		<i>Aster</i> sp.	<i>Myzus ornatus</i>
		<i>Bidens biternata</i>	<i>Aphis craccivora</i> , <i>Myzus ornatus</i> , <i>M. persicae</i>
		<i>Bidens pilosa</i>	<i>Aphis spiraeola</i>
		<i>Blumea lacera</i>	<i>Brachycaudus helichrysi</i>
		<i>Bidens</i> sp.	<i>Acyrtosiphon ilka</i>
		<i>Calendula officinalis</i>	<i>Aphis fabae solanella</i> , <i>A. gossypii</i> , <i>Capitophorus archangelskii</i>
		<i>Carduus edelbergii</i>	<i>Capitophorus elaeagni</i>
		<i>Carthamus oxyacanthus</i>	<i>Protaphis carthami</i>
		<i>Carthamus tinctorius</i>	<i>Aphis asclepiadis</i>
		<i>Carthamus</i> sp.	<i>Uroleucon carthamai</i>
		<i>Centaurea iberica</i>	<i>Protaphis terricola</i>
		<i>Centaurea</i> sp.	<i>Aphis fabae solanella</i>
		<i>Cichorium intybus</i>	<i>Acyrtosiphon ilka</i> , <i>Aphis intybi</i>
		<i>Cirsium arvense</i>	<i>Aphis fabae solanella</i>
		<i>Chrysanthemum</i> sp.	<i>Brachycaudus helichrysi</i> , <i>Colorado rufomaculata</i> , <i>Macrosiphoniella sanborni</i> , <i>Pleotrichophorus chrysanthemi</i>
		<i>Cirsium</i> sp.	<i>Brachycaudus cardui</i> , <i>Dysaphis atina</i>
		<i>Cnicus wallichii</i>	<i>Aphis gossypii</i> , <i>Brachycaudus cardui</i> , <i>Capitophorus carduinus</i>
		<i>Conyza canadensis</i>	<i>Aphis craccivora</i> , <i>A. fabae</i> , <i>A. gossypii</i> , <i>Aulacorthum solani</i> , <i>Myzus persicae</i> , <i>Uroleucon erigeronense</i> , <i>Uroleucon ambrosiae</i>
		<i>Dendranthema indicum</i>	<i>Aphis craccivora</i> , <i>A. gossypii</i> , <i>A. nasturtii</i> , <i>A. nerii</i> , <i>A. spiraeola</i> , <i>Myzus persicae</i>
		<i>Dendranthema morifolium</i>	<i>Aphis gossypii</i>
		<i>Dendranthema</i> sp.	<i>Colodoa rufomaculata</i>
		<i>Emilia sonchifolia</i>	<i>Aphis spiraeola</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Eupatorium</i> sp.	<i>Aphis spiraeicola</i>
		<i>Galinsoga parviflora</i>	<i>Aphis gossypii</i> , <i>Aulacorthum solani</i> , <i>Brachycaudus helichrysi</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus persicae</i>
		<i>Helianthus annuus</i>	<i>Aphis asclepiadis</i>
		<i>Helianthus tuberosus</i>	<i>Trama penecaeca</i>
		<i>Inula cuspidata</i>	<i>Indomasonaphis anaphalidis</i>
		<i>Lactuca virosa</i>	<i>Acyrtosiphon lactucae</i>
		<i>Lactuca graciliflora</i>	<i>Dysaphis microsiphon</i> , <i>Uroleucon longisetosum</i>
		<i>Lactuca</i> sp.	<i>Acyrtosiphon ilka</i>
		<i>Parthenium hysterophorus</i>	<i>Aphis craccivora</i> , <i>A. faba</i> , <i>A. gossypii</i>
		<i>Mikania scandens</i>	<i>Aphis spiraeicola</i>
		<i>Saussurea albescens</i>	<i>Uroleucon kumaoni</i>
		<i>Saussurea heteromalla</i>	<i>Macrosiphoniella victoriae</i>
		<i>Scorzonera subaphylla</i>	<i>Acyrtosiphon ghanii</i>
		<i>Senecio cruentus</i>	<i>Aphis gossypii</i> , <i>Brachycaudus helichrysi</i>
		<i>Senecio</i> sp.	<i>Brachycaudus cardui</i>
		<i>Sigesbeckia orientalis</i>	<i>Myzus siegesbeckicola</i>
		<i>Silybum marianum</i>	<i>Aulacorthum solani</i> , <i>Brachycaudus helichrysi</i> , <i>Capitophorus carduius</i>
		<i>Sonchus asper</i>	<i>Aphis craccivora</i> , <i>A. fabae</i> , <i>A. gossypii</i> , <i>A. spiraeicola</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus ornatus</i> , <i>M. persicae</i> , <i>Uroleucon compositae</i> , <i>U. ambrosiae</i>
		<i>Sonchus oleraceus</i>	<i>Acyrtosiphon ghanii</i> , <i>Aulacorthum solani</i> , <i>Brachycaudus helichrysi</i> , <i>Hyperomyzus carduelinus</i> , <i>Hyperomyzus pallidus</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus persicae</i> , <i>Nasonovia ribisnigri</i> , <i>Neomyzus circumflexus</i> , <i>Uroleucon compositae</i>
		<i>Sonchus</i> sp.	<i>Acyrtosiphon ilka</i> , <i>Hyperomyzus lactucae</i> , <i>Uroleucon sonchi</i>
		<i>Tagetes minuta</i>	<i>Aphis fabae</i> , <i>A. gossypii</i> , <i>A. spiraeicola</i> , <i>Aulacorthum solani</i> , <i>Brachycaudus helichrysi</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus persicae</i> , <i>Uroleucon compositae</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Tanacetum artemisioides</i>	<i>Macrosiphoniella artemisiae</i>
		<i>Tragopogon</i> sp.	<i>Brachycaudus tragopogonis setosus</i>
		<i>Taraxacum officinale</i>	<i>Aphis fabae</i> , <i>A. spiraeicola</i>
		<i>Taraxacum</i> sp.	<i>Aphis taraxacicola</i>
		<i>Tricholepis stewartii</i>	<i>Uroleucon kumaoni</i>
		<i>Vernonia cinerea</i>	<i>Protaphis carthami</i>
		<i>Zinnia elegans</i>	<i>Aphis nerii</i>
		Indet.	<i>Protaphis anuraphoides</i> , <i>Acyrtosiphon malvae</i> , <i>Lipaphis pseudobrassicae</i> , <i>Protrama longisetosus sclerodensis</i>
11	Balsaminaceae	<i>Impatiens edgeworthii</i>	<i>Impatientinum asiaticum</i>
		<i>Impatiens parviflora</i>	<i>Impatientinum asiaticum</i>
12	Berberidaceae	<i>Berberis lycium</i>	<i>Berberidaphis lydiae</i> , <i>Liosomaphis atra</i>
13	Betulaceae	<i>Alnus nitida</i>	<i>Eutrichosiphum raychaudhurii</i> , <i>Taoia indica</i>
		<i>Betula utilis</i>	<i>Betulaphis hissarica</i>
14	Bignoniaceae	<i>Tecoma stans</i>	<i>Myzus ornatus</i>
		<i>Tecomaria capensis</i>	<i>Aphis gossypii</i>
15	Boraginaceae	<i>Cynoglossum furcatum</i>	<i>Brachycaudus helichrysi</i>
		<i>Trichodesma indicum</i>	<i>Aphis gossypii</i>
		Indet.	<i>Uroleucon jacea</i>
16	Brassicaceae	<i>Brassica chinensis</i>	<i>Brevicoryne brassicae</i>
		<i>Brassica juncea</i>	<i>Brevicoryne brassicae</i>
		<i>Brassica napus</i>	<i>Brevicoryne brassicae</i> , <i>Lipaphis erysimi</i> , <i>Rhopalosiphum padi</i> , <i>Sitobion avenae</i>
		<i>Brassica nigra</i>	<i>Brevicoryne brassicae</i> , <i>Lipaphis erysimi</i> , <i>Myzus persicae</i>
		<i>Brassica oleracea</i>	<i>Aphis gossypii</i> , <i>Brevicoryne brassicae</i> , <i>Lipaphis erysimi</i> , <i>Myzus persicae</i>
		<i>Brassica pekinensis</i>	<i>Myzus ascalonicus</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Brassica rapa</i>	<i>Aphis gossypii</i> , <i>Brevicoryne brassicae</i> , <i>Lipaphis erysimi</i> , <i>Myzus persicae</i>
		<i>Capsella bursa-pastoris</i>	<i>Aphis gossypii</i>
		<i>Cardaria repens</i>	<i>Lipaphis lepidii</i>
		<i>Iberis</i> sp.	<i>Brevicoryne brassicae</i>
		<i>Nasturtium</i> sp.	<i>Aphis nasturtii</i>
		<i>Raphanus sativus</i>	<i>Aphis gossypii</i> , <i>Brevicoryne brassicae</i> , <i>Lipaphis erysimi</i> , <i>Myzus persicae</i>
		<i>Rorippa indica</i>	<i>Aphis nasturtii</i>
		Indet.	<i>Aphis craccivora</i> , <i>Aphis spiraeicola</i> , <i>Hysteroneura setariae</i> , <i>Rhopalosiphum maidis</i> , <i>Rhopalosiphum rufiabdominalis</i> , <i>Acyrtosiphon malvae</i>
17	Campanulaceae	<i>Campanula cashmeriana</i>	<i>Uroleucon kashmiricum</i>
		<i>Campanula</i> sp.	<i>Aulocorthum solani</i>
		<i>Codonopsis clematidea</i>	<i>Rhopalomyzus codonopsidis</i>
18	Cannabaceae	<i>Cannabis indica</i>	<i>Phorodon cannabis</i>
		<i>Cannabis sativa</i>	<i>Phorodon cannabis</i>
19	Caprifoliaceae	<i>Abelia triflora</i>	<i>Neotoxoptera abeliae</i>
		<i>Lonicera myrtillos</i>	<i>Brachycorynella lonicerina</i>
		<i>Lonicera obovata</i>	<i>Brachycorynella lonicerina</i>
		<i>Lonicera quinquelocularis</i>	<i>Aphis fabae</i> , <i>A. gossypii</i> , <i>Amphicercidus loniceriae</i> , <i>Hyadaphis coriandri</i> , <i>H. tataricae</i> , <i>Prociphilus himalayaensis</i>
		<i>Lonicera</i> sp.	<i>Hyadaphis coriandri</i> , <i>Hyadaphis passerinii</i> , <i>Rhopalomyzus poae</i>
		<i>Viburnum cotinifolium</i>	<i>Ceruraphis eastopi</i>
20	Caryophyllaceae	<i>Dianthus barbatus</i>	<i>Aphidura picta picta</i>
		<i>Dianthus caryophyllus</i>	<i>Aphis gossypii</i>
		<i>Dianthus crinitus</i>	<i>Aphidura picta picta</i>
		<i>Dianthus</i> sp.	<i>Aphidura pakistanicus</i> , <i>Aphidura pujoli</i>
		<i>Silene vulgaris</i>	<i>Aphidura ornatella</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
21	Chenopodiaceae	<i>Ceratoides</i> sp.	<i>Eichinaphis pamirica</i>
		<i>Chenopodium album</i>	<i>Aphis craccivora</i> , <i>A. fabae</i> , <i>A. gossypii</i> , <i>A. nasturtii</i> , <i>Aulacorthum solani</i> , <i>Hayhurstia atriplicis</i> , <i>Myzus persicae</i>
		<i>Chenopodium</i> sp.	<i>Aphis fabae</i>
		<i>Halimione portulacoides</i>	<i>Hayhurstia atriplicis</i>
		<i>Kochia</i> sp.	<i>Chaitaphis tenuicauda</i> , <i>Xerobion eriosomatinum</i>
22	Convolvulaceae	<i>Argyrea argentea</i>	<i>Brachyunguis letsoniae</i>
		<i>Convolvulus arvensis</i>	<i>Aphis gossypii</i>
		<i>Ipomoea mexicana</i>	<i>Aphis gossypii</i>
		<i>Ipomoea palmata</i>	<i>Aphis gossypii</i>
		<i>Ipomoea tricolor</i>	<i>Aphis gossypii</i>
		<i>Cornus macrophylla</i>	<i>Anoecia himalayensis</i>
		<i>Corylus colurna</i>	<i>Pterocallis affinis</i>
23	Cornaceae	<i>Corylus</i> sp.	<i>Myzocallis coryli</i>
		<i>Citrullus lanatus</i>	<i>Aphis gossypii</i>
24	Corylaceae	<i>Cucumis melo</i>	<i>Aphis gossypii</i>
		<i>Cucumis sativus</i>	<i>Aphis gossypii</i>
		<i>Cucurbita moschata</i>	<i>Aphis gossypii</i>
		<i>Cucurbita pepo</i>	<i>Aphis gossypii</i>
		<i>Cucurbita</i> sp.	<i>Aphis fabae</i>
		<i>Lagenaria siceraria</i>	<i>Aphis gossypii</i>
		<i>Luffa</i> sp.	<i>Aphis gossypii</i>
		<i>Luffa acutangula</i>	<i>Aphis gossypii</i>
		Indet.	<i>Schizaphis minuta</i> , <i>Schizaphis piricola</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus persicae</i> , <i>Sitobion avenae</i>
		<i>Cupressus</i> sp.	<i>Cinara cupressi</i>
26	Cupressaceae		

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Juniperus communis</i>	<i>Cinara lalazarica</i>
		<i>Juniperus excelsa</i>	<i>Cinara cupressi</i> , <i>C. pseudosabinae</i>
		<i>Thuja orientalis</i>	<i>Cinara tujafilina</i>
27	Cyperaceae	<i>Carex</i> sp.	<i>Ghariesia polunini</i>
		<i>Cyperus rotundus</i>	<i>Aphis fabae</i> , <i>Rhopalosiphum maidis</i> , <i>Saltusaphis scirpus</i> , <i>Schizaphis graminum</i> , <i>Schizaphis rotundiventris</i>
		<i>Kobresia</i> sp.	<i>Ghariesia polunini</i>
		<i>Scirpus lacustris</i>	<i>Rhopalosiphum nymphaeae</i>
		Indet.	<i>Acutosiphon obliquoris</i> , <i>Subsaltusaphis rossneri</i> , <i>Thripsaphis ballii</i>
28	Dipsacaceae	<i>Dipsacus inermis</i>	<i>Macrosiphum rosae</i>
29	Elaeagnaceae	<i>Elaeagnus angustifolia</i>	<i>Capitophorus archangelskii</i>
		Indet.	<i>Capitophorus elaeagni</i>
30	Ephedraceae	<i>Ephedra</i> sp.	<i>Ephedraphis ephedrae</i>
31	Ericaceae	<i>Rhododendron</i> sp.	<i>Indomasonaphis anaphalidis</i> , <i>Ericolophium holostii</i>
		Indet.	<i>Acutosiphon obliquoris</i>
32	Euphorbiaceae	<i>Androchne cordifolia</i>	<i>Eriosoma phaenax</i>
		<i>Arachis hypogaea</i>	<i>Aphis craccivora</i>
		<i>Euphorbia helioscopia</i>	<i>Acyrtosiphon moltschanovi</i> , <i>Pemphigus immunitis</i>
		<i>Euphorbia prostrata</i>	<i>Aphis craccivora</i>
		<i>Euphorbia</i> sp.	<i>Aphis fabae</i> , <i>Aphis tirucallis</i>
		<i>Phyllanthus emblica</i>	<i>Schoutedenia emblica</i>
		<i>Phyllanthus floribundus</i>	<i>Schoutedenia rdlumensis</i>
		<i>Ricinus communis</i>	<i>Aulacorthum solani</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus persicae</i>
33	Fabaceae	<i>Albizia lebeck</i>	<i>Aphis gossypii</i>
		<i>Alhagi</i> sp.	<i>Acyrtosiphon gossypii</i>
		<i>Astragalus paucijugus</i>	<i>Aphis gossypii</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Astragalus</i> sp.	<i>Acyrtosiphon astragali</i>
		<i>Alhagi bucharica</i>	<i>Acyrtosiphon pisum</i>
		<i>Alhagi maurorum</i>	<i>Acyrtosiphon pisum</i> , <i>Aphis craccivora</i>
		<i>Cajanus indicus</i>	<i>Aphis craccivora</i>
		<i>Cassia fistula</i>	<i>Aphis craccivora</i> , <i>Aphis gossypii</i>
		<i>Clianthus oxleyi</i>	<i>Acyrtosiphon pisum</i>
		<i>Colutea</i> sp.	<i>Acyrtosiphon caraganae</i>
		<i>Crotalaria juncea</i>	<i>Aphis gossypii</i>
		<i>Dalbergia sissoo</i>	<i>Aphis craccivora</i>
		<i>Dolichos lablab</i>	<i>Acyrtosiphon pisum</i> , <i>Aphis craccivora</i>
		<i>Dolichos</i> sp.	<i>Acyrtosiphon gossypii</i>
		<i>Indigofera heterantha</i>	<i>Megoura dooarsis</i>
		<i>Indigofera tinctoria</i>	<i>Aphis craccivora</i>
		<i>Lathyrus odoratus</i>	<i>Acyrtosiphon pisum</i>
		<i>Lathyrus sativus</i>	<i>Aphis craccivora</i>
		<i>Lens culinaris</i>	<i>Aphis craccivora</i>
		<i>Leucaena leucocephala</i>	<i>Aphis fabae</i> , <i>Aphis gossypii</i>
		<i>Medicago falcata</i>	<i>Acyrtosiphon pisum</i>
		<i>Medicago lupulina</i>	<i>Acyrtosiphon pisum</i>
		<i>Medicago sativa</i>	<i>Acyrtosiphon kondoi</i> , <i>A. pisum</i> , <i>Aphis craccivora</i> , <i>Nearctaphis bakeri</i> , <i>Therioaphis trifolii</i>
		<i>Medicago polymorpha</i>	<i>Acyrtosiphon pisum</i> , <i>Aphis craccivora</i>
		<i>Melilotus alba</i>	<i>Acyrtosiphon pisum</i>
		<i>Melilotus indica</i>	<i>Aphis craccivora</i> , <i>Therioaphis trifolii</i>
		<i>Melilotus</i> sp.	<i>Acyrtosiphon pisum</i>
		<i>Phaseolus radiatus</i>	<i>Aphis craccivora</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Phaseolus</i> sp.	<i>Aphis gossypii</i> , <i>Acyrtosiphon gossypii</i>
		<i>Pisum sativum</i>	<i>Acyrtosiphon pisum</i>
		<i>Robinia pseudoacacia</i>	<i>Aphis craccivora</i>
		<i>Senna surratensis</i>	<i>Aphis craccivora</i>
		<i>Sesbania aegyptiaca</i>	<i>Aphis craccivora</i>
		<i>Sesbania grandiflora</i>	<i>Acyrtosiphon pisum</i>
		<i>Sophora alopecuroides</i>	<i>Acyrtosiphon sophorae</i>
		<i>Sophora mollis</i>	<i>Acyrtosiphon sophorae</i>
		<i>Sophora</i> sp.	<i>Acyrtosiphon gossypii</i>
		<i>Spartium</i> sp.	<i>Aphis gossypii</i> , <i>Acyrtosiphon gossypii</i>
		<i>Tephrosia purpurea</i>	<i>Aphis craccivora</i>
		<i>Trifolium alexandrinum</i>	<i>Acyrtosiphon pisum</i>
		<i>Trifolium pratense</i>	<i>Acyrtosiphon kondoi</i>
		<i>Trifolium</i> sp.	<i>Aphis gossypii</i> , <i>Acyrtosiphon pisum</i> , <i>Therioaphis trifolii</i>
		<i>Trigonella foenum-graecum</i>	<i>Acyrtosiphon pisum</i> , <i>Aphis craccivora</i>
		<i>Trigonella</i> sp.	<i>Acyrtosiphon gossypii</i>
		<i>Vicia faba</i>	<i>Aphis craccivora</i>
		<i>Vicia sativa</i>	<i>Aphis gossypii</i> , <i>Brachycaudus helichrysi</i>
		<i>Vicia</i> sp.	<i>Acyrtosiphon gossypii</i>
		Indet.	<i>Aphis spiraeicola</i> , <i>Hysteroneura setariae</i> , <i>Schizaphis rotundiventris</i> , <i>Acyrtosiphon malvae</i> , <i>Lipaphis pseudobrassicae</i> , <i>Myzus persicae</i>
34	Fagaceae	<i>Quercus baloot</i>	<i>Greenidea nipponica</i> , <i>Pseudothoracaphis himachali</i>
		<i>Quercus dilatata</i>	<i>Greenidea nipponica</i> , <i>Lachnus acutihirsutus</i> , <i>Myzocallis pakistanicus</i>
		<i>Quercus leucotrichophora</i>	<i>Eutrichosiphum khasyanum</i> , <i>Eutrichosiphum tattakanum</i> , <i>Greenidea nipponica</i> , <i>Hoplocallis microsetosa</i> , <i>Lachnus acutihirsutus</i> , <i>Pseudothoracaphis himachali</i> , <i>Serratocallis takahashii</i>
		<i>Quercus oblongata</i>	<i>Lachnus margallaeensis</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Quercus serrata</i>	<i>Hoplochaitophorus quercicola</i>
		<i>Quercus</i> sp.	<i>Myzocallis polychaeta</i>
35	Geraniaceae	<i>Geranium ocellatum</i>	<i>Indoidiopterus geranii</i>
		<i>Geranium wallichianum</i>	<i>Indoidiopterus geranii</i> , <i>Macrosiphum pseudogeranii</i>
36	Grossulariaceae	<i>Ribes orientale</i>	<i>Cryptomyzus ballotae</i>
		<i>Ribes</i> sp.	<i>Hyperomyzus pallidus</i>
37	Hippocastanaceae	<i>Aesculus indica</i>	<i>Periphyllus aesculi</i>
38	Hydrocharitaceae	<i>Vallisneria spiralis</i>	<i>Rhopalosiphum nymphaeae</i>
39	Iridaceae	<i>Iris</i> sp.	<i>Dysaphis tulipae</i>
40	Juglandaceae	<i>Juglans regia</i>	<i>Chromaphis juglandicola</i> , <i>Panaphis juglandis</i>
41	Lamiaceae	<i>Lemna</i> sp.	<i>Rhopalosiphum nymphaeae</i>
		<i>Leucas</i> sp.	<i>Aphis gossypii</i>
		<i>Leucas cephalotes</i>	<i>Aphis gossypii</i>
		<i>Mentha longifolia</i>	<i>Aphis affinis</i> , <i>Aphis gossypii</i>
		<i>Mentha requienii</i>	<i>Aphis affinis</i> , <i>Protaphis middletonii</i>
		<i>Mentha spicata</i>	<i>Aphis affinis</i>
		<i>Nepeta</i> sp.	<i>Aphis gossypii</i> , <i>Eucarazzia elegans</i>
		<i>Origanum</i> sp.	<i>Aphis origani</i>
		<i>Phlomis bracteosa</i>	<i>Cryptomyzus taoi</i>
		<i>Rabdosia rugosa</i>	<i>Eumyzus clinopodii</i>
		<i>Rabdosia</i> sp.	<i>Cryptaphis rostrata</i>
		<i>Salvia plebeia</i>	<i>Aphis gossypii</i>
		<i>Salvia pratensis</i>	<i>Aphis gossypii</i>
		<i>Salvia</i> sp.	<i>Aphis gossypii</i>
		<i>Teucrium</i> sp.	<i>Aphis aliena</i> , <i>A. astragalina</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
42	Liliaceae	Indet.	<i>Aphis spiraeicola</i> , <i>Dysaphis affinis</i>
		<i>Allium cepa</i>	<i>Rhopalosiphoninus latysiphon</i>
		<i>Allium porrum</i>	<i>Myzus cymbalariae</i>
		<i>Allium sativum</i>	<i>Myzus cymbalariae</i>
		<i>Asparagus</i> sp.	<i>Aphis craccivora</i>
		<i>Hemerocallis</i> sp.	<i>Myzus hemerocallis</i>
43	Linaceae	Indet.	<i>Myzus persicae</i>
			<i>Acyrtosiphon ilka</i>
44	Lythraceae	<i>Lagerstroemia</i> sp.	<i>Sarucallis kahawaluokalani</i>
		<i>Woodfordia floribunda</i>	<i>Aphis gossypii</i>
		Indet.	<i>Myzus persicae</i>
		<i>Abelmoschus esculentus</i>	<i>Aphis gossypii</i>
		<i>Abutilon indicum</i>	<i>Aphis gossypii</i>
45	Malvaceae	<i>Alcea rosea</i>	<i>Aphis craccivora</i> , <i>A. fabae</i> , <i>A. gossypii</i> , <i>A. spiraeicola</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus persicae</i>
		<i>Althaea rosea</i>	<i>Acyrtosiphon malvae</i>
		<i>Gossypium</i> sp.	<i>Aphis gossypii</i>
		<i>Gossypium herbaceum</i>	<i>Aphis gossypii</i>
		<i>Hibiscus cannabinus</i>	<i>Aphis gossypii</i>
		<i>Hibiscus magnificus</i>	<i>Aphis gossypii</i>
		<i>Hibiscus rosa-sinensis</i>	<i>Aphis gossypii</i>
		<i>Hibiscus syriacus</i>	<i>Aphis gossypii</i>
		<i>Hibiscus</i> sp.	<i>Aphis craccivora</i>
		<i>Malva parviflora</i>	<i>Acyrtosiphon pisum</i> , <i>Aphis gossypii</i>
		<i>Malva sylvestris</i>	<i>Aphis fabae</i> , <i>A. gossypii</i>
		<i>Malvastrum</i> sp.	<i>Aphis gossypii</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Malvastrum coromandelianum</i>	<i>Aphis gossypii</i>
		<i>Malvastrum tricuspidatum</i>	<i>Aphis gossypii</i>
		Indet.	<i>Rhopalosiphum padi</i> , <i>Dysaphis affinis</i>
46	Moraceae	<i>Broussonetia papayifera</i>	<i>Aphis gossypii</i>
		<i>Ficus carica</i>	<i>Aphis craccivora</i> , <i>A. gossypii</i>
		<i>Ficus religiosa</i>	<i>Greenidea ficicola</i>
		<i>Ficus</i> sp.	<i>Myzus persicae</i> , <i>Stobion africana</i>
		Indet.	<i>Rhopalosiphum padi</i> , <i>Rhopalosiphum ruftabdominalis</i> , <i>Hyadaphis coriandri</i>
47	Musaceae	<i>Musa × paradisiaca</i>	<i>Hysteronura setariae</i> , <i>Pentalonia nigronervosa</i>
		Indet.	<i>Aphis craccivora</i> , <i>Hysteronura setariae</i>
48	Myrtaceae	<i>Eugenia jambolana</i>	<i>Greenidea (T.) eugeniae</i>
		<i>Psidium guajava</i>	<i>Aphis craccivora</i> , <i>A. gossypii</i> , <i>Greenidea psidii</i>
		<i>Syzygium cumini</i>	<i>Greenidea psidii</i>
		Indet.	<i>Rhopalosiphum maidis</i>
49	Nelumbonaceae	<i>Nelumbo nucifera</i>	<i>Rhopalosiphum nymphaeae</i>
50	Nitrariaceae	Indet.	<i>Aphis craccivora</i> , <i>Brachyunguis harmatae</i> , <i>Myzus persicae</i>
51	Nyctaginaceae	<i>Bougainvillea</i> sp.	<i>Aphis craccivora</i> , <i>Aphis gossypii</i>
52	Oleaceae	<i>Olea europaea</i>	<i>Prociphilus oleae</i>
		<i>Jasminum</i> sp.	<i>Aphis gossypii</i>
		Indet.	<i>Rhopalosiphum padi</i> , <i>Dysaphis affinis</i>
53	Onagraceae	<i>Epilobium hirsutum</i>	<i>Aphis epilobiaria</i> , <i>A. praeterita</i>
		<i>Epilobium minutiflorum</i>	<i>Aphis grossulariae</i>
54	Osmundaceae	Indet.	<i>Amphorophora ampullata ampullata</i>
55	Papaveraceae	<i>Argemone mexicana</i>	<i>Brachycaudus persicae</i>
		<i>Glaucium</i> sp.	<i>Acyrtosiphon ilka</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Papaver somniferum</i>	<i>Aphis gossypii</i>
		<i>Papaver</i> sp.	<i>Acyrtosiphon ilka</i>
		Indet.	<i>Rhopalosiphum maidis</i> , <i>Lipaphis pseudobrassicae</i> , <i>Myzus persicae</i>
56	Pinaceae	<i>Abies pindrow</i>	<i>Cinara abietispindrow</i> , <i>C. antennalis</i> , <i>C. confinis</i> , <i>C. micropunctata</i> , <i>C. polymorpha</i> , <i>Mindarus abietinus</i>
		<i>Abies</i> sp.	<i>Cinara commata</i>
		<i>Pinus griffithii</i>	<i>Cinara eastopi</i> , <i>C. lachnirostris</i> , <i>C. maculipes</i> , <i>Epipemphigus imaicus</i> , <i>Prociphilus himalayaensis</i> , <i>Pseudessigella brachychaeta</i>
		<i>Picea morinda</i>	<i>Cinara comata</i>
		<i>Pinus nigra</i>	<i>Cinara pineti</i>
		<i>Pinus wallichiana</i>	<i>Cinara lachnirostris</i> , <i>C. maculipes</i> , <i>C. takahashii</i> , <i>Pseudessigella brachychaeta</i>
		<i>Pinus</i> sp.	<i>Eulachnus tuberculostemmatus</i>
57	Plantaginaceae	<i>Plantago major</i>	<i>Aphis fabae</i> , <i>A. gossypii</i> , <i>Brachycaudus helichrysi</i> , <i>Myzus persicae</i>
		<i>Plantago</i> sp.	<i>Dysaphis plantaginea</i>
58	Platanaceae	<i>Platanus orientalis</i>	<i>Chaitophorus murensis</i>
59	Plumbaginaceae	<i>Limonium</i> sp.	<i>Staticobium latifolia</i>
60	Poaceae	<i>Arundo donax</i>	<i>Hyalopterus pruni</i> , <i>Melanaphis donacis</i>
		<i>Avena sativa</i>	<i>Rhopalosiphum padi</i> , <i>Sitobion avenae</i> , <i>S. miscanthi</i> , <i>Thripsaphis ballii</i>
		<i>Bambusa</i> sp.	<i>Astegopteryx bambusae</i>
		<i>Cynodon dactylon</i>	<i>Asiphonella cynodonti</i> , <i>Hysteroneura setariae</i> , <i>Rhopalosiphum maidis</i> , <i>R. padi</i> , <i>Schizaphis graminum</i> , <i>Sipha elegans</i> , <i>S. maydis</i> , <i>Tetraneura africana</i>
		<i>Echinochloa colorum</i>	<i>Melanaphis sacchari</i> , <i>Rhopalosiphum maidis</i> , <i>Tetraneura nigriabdominalis</i>
		<i>Echinochloa crus-galli</i>	<i>Rhopalosiphum padi</i>
		<i>Eragrostis</i> sp.	<i>Rhopalosiphum padi</i>
		<i>Dichanthium annulatum</i>	<i>Forda hirsuta</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Dichanthium</i> sp.	<i>Forda hirsuta</i>
		<i>Heteropogon contortus</i>	<i>Forda hirsuta</i>
		<i>Hordeum jubatum</i>	<i>Sipha elegans</i>
		<i>Hordeum murinum</i>	<i>Sipha elegans</i> , <i>S. maydis</i>
		<i>Hordeum vulgare</i>	<i>Rhopalosiphum maidis</i> , <i>R. padi</i> , <i>Schizaphis graminum</i> , <i>Sipha elegans</i> , <i>S. maydis</i> , <i>Sitobion avenae</i>
		<i>Imperata cylindrica</i>	<i>Rhopalosiphum padi</i>
		<i>Neyraudia arundinacea</i>	<i>Tetraneura javensis</i>
		<i>Oryza sativa</i>	<i>Rhopalosiphum padi</i> , <i>Sitobion avenae</i>
		<i>Pennisetum glaucum</i>	<i>Sitobion avenae</i>
		<i>Pennisetum typhoideum</i>	<i>Rhopalosiphum maidis</i> , <i>Sitobion avenae</i>
		<i>Phalaris arundinacea</i>	<i>Sipha elegans</i> , <i>S. maydis</i>
		<i>Phalaris minor</i>	<i>Rhopalosiphum padi</i> , <i>Schizaphis graminum</i>
		<i>Phragmites karka</i>	<i>Hyalopterus pruni</i>
		<i>Poa annua</i>	<i>Sitobion fragariae</i>
		<i>Polypogon fugax</i>	<i>Sipha elegans</i> , <i>S. maydis</i>
		<i>Saccharum officinarum</i>	<i>Melanaphis sacchari</i>
		<i>Setaria verticillata</i>	<i>Rhopalosiphum maidis</i>
		<i>Setaria</i> sp.	<i>Forda formicaria</i>
		<i>Sorghum bicolor</i>	<i>Forda orientalis</i> , <i>Melanaphis sacchari</i> , <i>Rhopalosiphum maidis</i> , <i>R. padi</i> , <i>Sitobion</i> <i>avenae</i> , <i>Sipha maydis</i>
		<i>Sorghum halepense</i>	<i>Metopolophium dirhodum</i> , <i>Rhopalosiphum padi</i> , <i>Sitobion avenae</i>
		<i>Sorghum sudanense</i>	<i>Metopolophium dirhodum</i> , <i>Rhopalosiphum padi</i> , <i>Sitobion avenae</i>
		<i>Triticum aestivum</i>	<i>Diuraphis noxia</i> , <i>Lipaphis erysimi</i> , <i>Metopolophium dirhodum</i> , <i>Myzus</i> <i>obtusirostris</i> , <i>Rhopalosiphum padi</i> , <i>Schizaphis graminum</i> , <i>Sipha elegans</i> , <i>S. maydis</i> , <i>Sitobion avenae</i> , <i>S. miscanthi</i>
		<i>Triticum durum</i>	<i>Sitobion avenae</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Triticum turanicum</i>	<i>Sitobion fragariae</i>
		<i>Zea mays</i>	<i>Lipaphis erysimi</i> , <i>Myzus obtusirostris</i> , <i>Rhopalosiphum maidis</i> , <i>R. padi</i> , <i>Sipha maydis</i> , <i>Sitobion avenae</i>
		Indet.	<i>Anoecia himalayensis</i> , <i>Aphis craccivora</i> , <i>Melanaphis sorghi</i> , <i>Rhopalosiphum ruftabdominalis</i> , <i>Lipaphis pseudobrassicae</i> , <i>Myzus persicae</i> , <i>Rhopalomyzus codonopsidisae</i> , <i>Rhopalomyzus poae</i> , <i>Tetraneura fusiformis</i>
61	Polygonaceae	<i>Polygonum aviculare</i>	<i>Aphis polygonata</i> , <i>Aspidaphis adjuvans</i>
		<i>Polygonum capitatum</i>	<i>Capitophorus hippophaes hippophaes</i>
		<i>Polygonum hydropiper</i>	<i>Capitophorus hippophaes hippophaes</i>
		<i>Polygonum</i> sp.	<i>Tricaudatus polygona</i> , <i>Trichosiphonaphis polygona</i>
		<i>Rumex acetosa</i>	<i>Aphis fabae</i> , <i>Macrosiphum euphorbiae</i>
		<i>Rumex acutus</i>	<i>Myzus persicae</i>
		<i>Rumex dentatus</i>	<i>Aphis fabae</i> , <i>A. fabae solanella</i> , <i>A. gossypii</i> , <i>Dysaphis emicis</i>
		<i>Rumex hastatus</i>	<i>Brachycaudus rumexicolens</i>
		<i>Rumex rugosus</i>	<i>Aphis acetosae</i>
		<i>Rumex</i> sp.	<i>Aphis rumicis</i>
		<i>Setaria</i> sp.	<i>Forda formicaria</i> , <i>Myzus maculocarpus</i>
		Indet.	<i>Aphis spiraeicola</i> , <i>Rhopalosiphum maidis</i> , <i>Sitobion avenae</i>
62	Primulaceae	Indet.	<i>Aphis gossypii</i> , <i>Acyrtosiphon malvae</i> , <i>Myzus persicae</i>
63	Punicaceae	<i>Punica granatum</i>	<i>Aphis craccivora</i> , <i>A. punicae</i>
64	Ranunculaceae	<i>Aquilegia pubiflora</i>	<i>Longicaudus naumannii</i>
		<i>Clematis connata</i>	<i>Tubaphis clematophila</i>
		<i>Clematis</i> sp.	<i>Aphis longituba</i>
		<i>Consolida ambigua</i>	<i>Nasonovia jammuensis</i>
		<i>Delphinium</i> sp.	<i>Nasonovia jammuensis</i>
		<i>Rhamnus</i> sp.	<i>Aphis gossypii</i>
65	Rhamnaceae	<i>Sageretia branchethiana</i>	<i>Aphis farinosa farinosa</i> , <i>A. frangulae</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
66	Rosaceae	<i>Amygdalus brahuica</i>	<i>Brachycaudus amygdalinus</i>
		<i>Amygdalus scoparia</i>	<i>Brachycaudus bicolor</i>
		<i>Eriobotrya japonica</i>	<i>Aphis craccivora</i> , <i>A. eugeniae</i> , <i>A. gossypii</i>
		<i>Fragaria nubicola</i>	<i>Dysaphis microsiphon</i>
		<i>Malus domestica</i>	<i>Aphis gossypii</i> , <i>Eriosoma lanigerum</i>
		<i>Malus pumila</i>	<i>Aphis pomi</i> , <i>Dysaphis gallica</i> , <i>D. plantaginea</i> , <i>Eriosoma lanigerum</i> , <i>Schizoneurella indica</i>
		<i>Malus</i> sp.	<i>Dysaphis affinis</i> , <i>Dysaphis malidauci</i> , <i>Eriosoma lanuginosum</i>
		<i>Prunus armeniaca</i>	<i>Brachycaudus helichrysi</i> , <i>Hyalopterus amygdali</i> , <i>Pterochloroides persicae</i> , <i>Rhopalosiphum nymphaeae</i>
		<i>Prunus bokhariensis</i>	<i>Hyalopterus amygdali</i>
		<i>Prunus cornuta</i>	<i>Eumyzus pruni</i> , <i>Myzus cornutus</i> , <i>M. ornatus</i> , <i>Rhopalosiphum maidis</i> , <i>Tuberocephalus naumanni</i> , <i>T. pakistanicus</i>
		<i>Prunus domestica</i>	<i>Brachycaudus helichrysi</i> , <i>B. prunicola</i> , <i>Rhopalosiphum nymphaeae</i>
		<i>Prunus dulcis</i>	<i>Brachycaudus helichrysi</i> , <i>Hyalopterus amygdali</i>
		<i>Prunus japonica</i>	<i>Brachycaudus helichrysi</i>
		<i>Pyrus malus</i>	<i>Aphis craccivora</i>
		<i>Prunus mume</i>	<i>Myzus varians</i>
		<i>Prunus padus</i>	<i>Brachycaudus helichrysi</i>
		<i>Prunus persica</i>	<i>Brachycaudus helichrysi</i> , <i>Hyalopterus amygdali</i> , <i>H. pruni</i> , <i>Rhopalosiphum nymphaeae</i> , <i>Myzus persicae</i>
		<i>Prunus prostrata</i>	<i>Brachycaudus pilosu</i>
		<i>Prunus spinosa</i>	<i>Brachycaudus prunicola</i>
		<i>Pyrus communis</i>	<i>Aphis gossypii</i> , <i>Dysaphis pyri</i> , <i>Pyrolachnus pyri</i> , <i>Schizaphis rotundiventris</i>
		<i>Pyrus malus</i>	<i>Aphis craccivora</i>
		<i>Pyrus</i> sp.	<i>Aphis eugeniae</i> , <i>Eriosoma lanuginosum</i>
		<i>Rosa chinensis</i>	<i>Macrosiphum euphorbiae</i> , <i>M. rosae</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Rosa indica</i>	<i>Macrosiphum euphorbiae</i> , <i>M. rosae</i>
		<i>Rosa laevigata</i>	<i>Macrosiphum euphorbiae</i>
		<i>Rosa macrophylla</i>	<i>Chaetosiphon glabrum</i> , <i>Longicaudus naumanni</i>
		<i>Rosa moschata</i>	<i>Chaetosiphon gracilicorne</i> , <i>C. glabrum</i> , <i>Myzaphis bucktoni</i>
		<i>Rosa</i> sp.	<i>Amphorophora catharinae</i> , <i>Chaetosiphon chaetosiphon chaetosiphon</i> , <i>C. fragaefolii</i> , <i>C. tetrahodum</i> , <i>C. thomasi</i> , <i>Macrosiphum pachysiphon</i> , <i>Maculolachnus blackmani</i> <i>Metopolophium dirhodum</i> , <i>M. montanum</i> , <i>Myzaphis rosarum</i> , <i>M. turanica</i> , <i>Rhodobium porosum</i> , <i>Sitobion fragariae</i> , <i>Wahlgreniella nervata</i>
		<i>Rubus ellipticus</i>	<i>Acyrtosiphon rubi</i> , <i>Aphis longisetosa</i>
		<i>Rubus lasiocarpus</i>	<i>Macrosiphum pachysiphon</i>
		<i>Rubus spinosus</i>	<i>Acyrtosiphon rubi</i>
		<i>Rubus ulmifolius</i>	<i>Aphis ruborum</i>
		<i>Sorbus lanata</i>	<i>Dysaphis pavlovskyana pavlovskyana</i>
		<i>Sorbaria tomentosa</i>	<i>Myzus sorbi</i>
		<i>Spiraea</i> sp.	<i>Aphis spiraeicola</i> , <i>Tricaudatus polygona</i>
		Indet.	<i>Aphis nerii</i> , <i>Sitobion avenae</i>
67	Rubiaceae	<i>Galium odoratum</i>	<i>Dysaphis pyri</i>
		<i>Galium verum</i>	<i>Hydaphias hofmanni</i> , <i>Myzus cerasi</i>
68	Rutaceae	<i>Citrus × aurantium</i>	<i>Aphis gossypii</i>
		<i>Citrus sinensis</i>	<i>Aphis citricidus</i>
		<i>Citrus</i> sp.	<i>Aphis spiraeicola</i> , <i>Aphis (T.) aurantii</i>
		Indet.	<i>Aphis craccivora</i> , <i>Brachyunguis harmatae</i> , <i>Rhopalosiphum padi</i> , <i>Myzus persicae</i>
69	Salicaceae	<i>Populus alba</i>	<i>Chaitophorus melanosiphon</i> , <i>C. populialbae</i> , <i>C. populeti populeti</i> , <i>Pterocomma populeum</i>
		<i>Populus ciliata</i>	<i>Chaitophorus himalayensis</i> , <i>C. kapuri</i> , <i>Epipemphigus imaicus</i> , <i>Pemphigus ignotus</i> , <i>P. matsumurai</i> , <i>P. mordwilkoii</i> , <i>P. siphunculatus</i> , <i>P. venosus</i> , <i>Phloeomyzus passerinii</i> , <i>Pterocomma beulahense</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Populus pyramidalis</i>	<i>Pemphigus vesicarius</i>
		<i>Populus nigra</i>	<i>Pemphigus spyrothecae</i>
		<i>Populus</i> sp.	<i>Chaitophorus indicus</i> , <i>Pemphigus immunis</i> , <i>P. napaeus</i>
		<i>Salix alba</i>	<i>Aphis gossypii</i>
		<i>Salix acmophylla</i>	<i>Chaitophorus pakistanicus</i> , <i>Pterocomma pilosum pilosum</i>
		<i>Salix purpurea</i>	<i>Cavariella aquatica</i>
		<i>Salix tetrasperma</i>	<i>Chaitophorus himalayensis</i> , <i>C. pakistanicus</i>
		<i>Salix wallichiana</i>	<i>Prociphilus ghanii</i>
		<i>Salix</i> sp.	<i>Cavariella aegopodii</i> , <i>Aphis craccivora</i> , <i>A. farinose farinose</i> , <i>Chaitophorus nigrinus</i> , <i>Lachnus tatakaensis</i> , <i>Tuberolachnus salignus</i>
70	Salvadoraceae	Indet.	<i>Aphis gossypii</i>
71	Sapindaceae	<i>Dodonea</i> sp.	<i>Aphis gossypii</i>
72	Scrophulariaceae	<i>Verbascum thapsus</i> <i>Verbascum</i> sp. <i>Veronica</i> sp.	<i>Aphis gossypii</i> <i>Aphis verbasci</i> <i>Dysaphis microsiphon</i>
73	Simaroubaceae	<i>Ailanthus altissima</i>	<i>Aphis craccivora</i> , <i>A. gossypii</i>
74	Solanaceae	<i>Capsicum annuum</i> <i>Cestrum nocturnum</i> <i>Cestrum</i> sp. <i>Datura metel</i> <i>Lycopersicon esculentum</i> <i>Nicotiana tabacum</i> <i>Solanum indicum</i> <i>Solanum melongena</i> <i>Solanum nigrum</i>	<i>Aphis gossypii</i> , <i>Myzus persicae</i> <i>Aphis fabae</i> , <i>Aphis gossypii</i> <i>Aphis craccivora</i> <i>Aphis gossypii</i> <i>Aphis gossypii</i> <i>Myzus persicae</i> <i>Aphis gossypii</i> <i>Aphis gossypii</i> <i>Aphis gossypii</i> <i>Aphis craccivora</i> , <i>A. fabae</i> , <i>A. fabae solanella</i> , <i>A. gossypii</i> , <i>A. sambuci</i> , <i>Myzus persicae</i>
		<i>Solanum lycopersicum</i>	<i>Myzus persicae</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Solanum surattense</i>	<i>Aphis gossypii</i>
		<i>Solanum tuberosum</i>	<i>Anoecia corni</i> , <i>Aphis gossypii</i> , <i>Aspidaphis adjuvans</i> , <i>Aulacorthum solani</i> , <i>Clypeoaphis suaedae suaedae</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus ascalonicus</i> , <i>M. persicae</i> , <i>Rhopalosiphoninus latysiphon</i> , <i>R. rufiabdominale</i> , <i>Smynturodes betae</i>
		<i>Withania somnifera</i>	<i>Aphis fabae</i> , <i>A. gossypii</i>
		Indet.	<i>Aphis nerii</i> , <i>Brachyunguis harmalae</i> , <i>Melanaphis sacchari</i> , <i>Rhopalosiphum padi</i> , <i>Acyrtosiphon malvae</i> , <i>Sitobion avenae</i>
75	Tamaricaceae	<i>Tamarix aphylla</i>	<i>Brachyunguis tamaricis</i>
76	Taxaceae	<i>Taxus baccata</i>	<i>Prociphilus taxus</i>
77	Tiliaceae	<i>Grewia asiatica</i>	<i>Aphis gossypii</i>
78	Tropaeolaceae	<i>Tropaeolum majus</i>	<i>Acyrtosiphon malvae</i> , <i>Aphis nasturtii</i>
79	Typhaceae	<i>Typha domingensis</i>	<i>Schizaphis eastopi</i>
		<i>Typha elephantina</i>	<i>Schizaphis eastopi</i>
80	Ulmaceae	<i>Celtis australis</i>	<i>Shivaphis celti</i>
		<i>Celtis</i> sp.	<i>Aulacorthum solani</i> , <i>Shivaphis celticola</i>
		<i>Ulmus minor</i>	<i>Eriosoma phaenax</i>
		<i>Ulmus villosa</i>	<i>Schizoneurella indica</i> , <i>Tetraneura polychaeta</i>
		<i>Ulmus wallichiana</i>	<i>Indiochaitophorus furcatus</i> , <i>Schizoneurella indica</i> , <i>Tetraneura javensis</i> , <i>T. polychaeta</i> , <i>T. ulmi</i>
		<i>Ulmus</i> sp.	<i>Tetraneura nigriabdominalis</i> , <i>Tinocallis saltans</i> , <i>Eriosoma kashmiricum</i> , <i>Eriosoma ulmi</i> , <i>Kaltenbachella spinosa</i>
81	Urticaceae	<i>Urtica dioica</i>	<i>Aphis urticata</i>
		<i>Urtica</i> sp.	<i>Aulacorthum solani</i> , <i>Microlophium carnosum</i>
82	Verbenaceae	<i>Duranta repens</i>	<i>Aphis gossypii</i> , <i>A. punicea</i>
		<i>Duranta</i> sp.	<i>Aphis gossypii</i>
		<i>Lantana camara</i>	<i>Aphis gossypii</i>

Table 2 (continued). List of host plant families and their species associated with Aphididae Latreille, 1802 in Pakistan.

No.	Host plant family	Plant species	Aphid species
		<i>Vitex negundo</i>	<i>Aphis gossypii</i>
		Indet.	<i>Myzus persicae</i>
83	Violaceae	<i>Viola biflora</i>	<i>Aphis nasturtii</i> , <i>Brachycaudus helichrysi</i> , <i>Macrosiphum euphorbiae</i> , <i>Myzus persicae</i>
		<i>Viola tricolor</i>	<i>Aphis gossypii</i>
		<i>Viola</i> sp.	<i>Aulacorthum solani</i>
84	Zingiberaceae		<i>Pentalonia nigronervosa</i>
85	Zygophyllaceae	<i>Peganum harmala</i>	<i>Acyrtosiphon pisum</i> , <i>A. fabae</i> , <i>A. gossypii</i> , <i>Brachyunguis harmalae</i>
		<i>Tribulus terrestris</i>	<i>Aphis craccivora</i>
		Indet.	<i>Rhopalosiphum padi</i> , <i>Acyrtosiphon malvae</i> , <i>Myzus persicae</i>

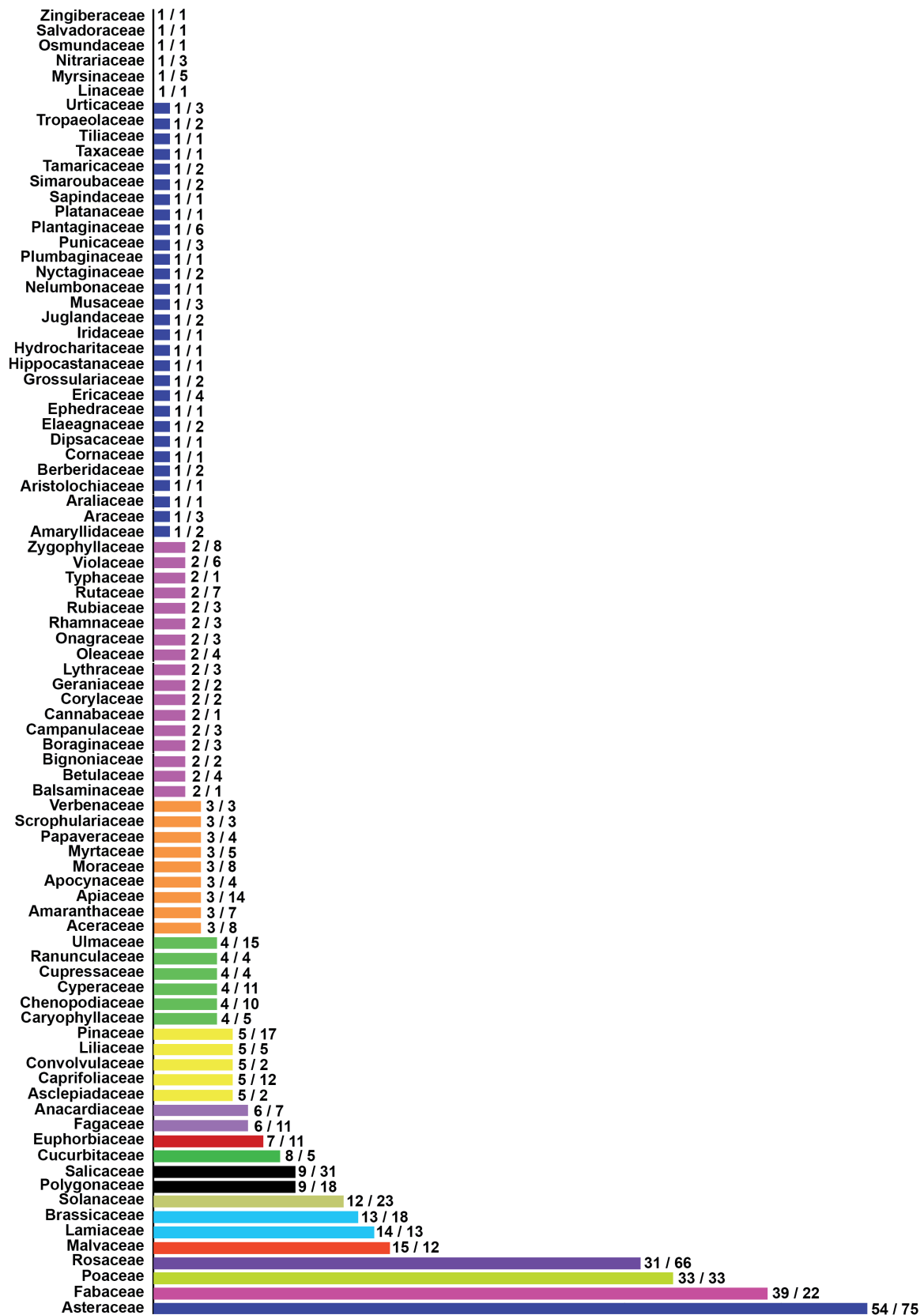


Fig. 2. Species diversity of host plant families and aphids in Pakistan.

In contrast to the other provinces, the diversity is surprisingly low in Sindh, with only ten species, about 2.7 % of the aphid fauna of Pakistan (Table 1). Among the 11 subfamilies, only Aphidinae with eight species and Chaitophorinae and Eriosomatinae, each with a single species, are known from Sindh. However, Iran, the neighboring country to Balochistan and Sindh province of Pakistan, has 543 species and 24 subspecies (Momeni Shahraki *et al.* 2019). The lowest diversity in Sindh reflects poor sampling, as is the case for other insects. Although this area has not been properly surveyed, it has a potential in view of the wide range of habitats for host plants, including agricultural lands and national and provisional parks, for further research.

It is necessary to further investigate the regional fauna from all parts of the country, especially those areas with limited access or difficulty due to geographical barriers or safety reasons, covering all habitat types suitable for aphids in Pakistan.

Acknowledgments

We are grateful to Dr Ahmed Zia (National Insect Museum Islamabad, Pakistan) and Dr Shalva Barjadze (Institute of Zoology, Iliia State University, Georgia) for sharing us the utmost important literature on the aphids of Pakistan, and the two anonymous reviewers for their comments and suggestions on the earlier version of the manuscript that helped us to improve the present one.

References

- Agarwala B.K. & Ghosh A.K. 1985. Oriental Aphidoidea, key to the genera and synoptic list. *Memoirs of the Zoological Survey of India* 16: 1–118.
- Ali W., Javid A., Hussain A. & Bukhari S.M. 2018. Diversity and habitat preferences of amphibians and reptiles in Pakistan: a review. *Journal of Asia-Pacific Biodiversity* 11: 173–187. <https://doi.org/10.1080/14888386.2018.1468820>
- Ali Y., Younas M. & Tahira Q.A. 2022. Population density of canola aphid, *Lipaphis erysimi* (Kalt.) (Homoptera: Aphididae) and its related natural enemies in three brassica lines. *Annals of the Romanian Society for Cell Biology* 26: 1817–1825.
- Amin M. 2018. Biosystematics of aphids (Hemiptera: Aphidoidea) from Poonch Divisions of Azad Jammu and Kashmir-Pakistan. PhD thesis, University of Poonch, Rawalakot, Azad Jammu & Kashmir, Pakistan.
- Amin M., Mahmood K., Bodlah I. & Khan M.R. 2017a. New additions to Pakistan's aphididae (Hemiptera: Aphidoidea) damaging *Rosa* species. *Sarhad Journal of Agriculture* 33: 511–518. <https://doi.org/10.17582/journal.sja/2017/33.4.511.518>
- Amin M., Mahmood K. & Bodlah I. 2017b. Aphid species (Hemiptera: Aphididae) infesting medicinal and aromatic plants in the Poonch division of Azad Jammu and Kashmir, Pakistan. *The Journal of Animal & Plant Sciences* 27: 1377–1385.
- Amin M., Mahmood K. & Bodlah I. 2019a. Systematics, host plants and distribution of Aphids (Hemiptera: Aphididae) infesting tree flora in Azad Kashmir, Pakistan. *Sarhad Journal of Agriculture* 35: 847–855. <https://doi.org/10.17582/journal.sja/2019/35.3.847.855>
- Amin M., Bodlah I., Qasim M. & Jajja N.I. 2019b. First record of *Melanaphis donacis* (Passerini) (Hemiptera: Aphididae) from Quetta, Balochistan: westernmost range in Pakistan. *Asian Journal of Agriculture and Biology* 7: 381–385.
- Amin M., Mahmood K. & Bodlah I. 2020. *Asptegopteryx bumbusae* (Buckton, 1893) (Hemiptera: Aphidoidea): new to Pakistan! Westernmost range in Asia redefined. *Munis Entomology & Zoology* 15: 111–117.

- Amin M., Mahmood K., Bodlah I. & Qasim M. 2022. Assessing diversity of aphids (Hemiptera: Aphididae) along elevation gradient in Azad Jammu and Kashmir-Pakistan. *International Journal of Tropical Insect Science* 42: 573–580.
- Amin M., Mahmood K., Bodlah I., Hassan M.A. & Qasim M. 2023. New data on alien aphid species from Pakistan (Hemiptera: Aphididae). *Journal of Insect Biodiversity* 42 (2): 34–45. <https://doi.org/10.12976/jib/2023.42.2.2>
- Atta B., Rizwan M., Sabir A.M., Ayub M.A., Akhtar M.F., Ayyub M.B. & Nadeem S. 2019. Comparative incidence and abundance of aphids and their associated predators on canola in Pakistan. *Pakistan Entomologist* 41: 147–152.
- Bánki O., Roskov Y., Döring M., Ower G., Vandepitte L., Hobern D., Remsen D., Schalk P., DeWalt R.E., Keping M., Miller J., Orrell T., Aalbu R., Adlard R., Adriaenssens E.M., Aedo C., Aesch E., Akkari N., Alfenas-Zerbini P., et al. 2022. *Catalogue of Life Checklist (Version 2022-07-12)*. <https://doi.org/10.48580/dfpz>
- Basky Z.S. 2016. Aphid species colonizing perennial Asteraceae host species along Hungarian motorways. *Acta Phytopathologica et Entomologica Hungarica* 51: 77–86. <https://doi.org/10.1556/038.51.2016.1.7>
- Blackman R.L. & Eastop V.F. 1994. *Aphids of the World's Trees. An Identification and Information Guide*. CAB International.
- Blackman R.L. & Eastop V.F. 2006. *Aphids on the World's Herbaceous Plants and Shrubs. Vol. 1. Host Lists and Keys. Vol. 2. The Aphids*. The Natural History Museum, John Wiley and Sons, England.
- Blackman R.L. & Eastop V.F. 1984. *Aphids on the World's Crops*. Chichester, UK.
- Blackman R.L. & Eastop V.F. 2000. *Aphids on the World's Crops, 2nd edition*. John Wiley, Chichester UK.
- Blackman R.L. & Eastop V.F. 2011. Additions and amendments to “Aphids on the World's Plants”. *Zootaxa* 2774: 57–68. <https://doi.org/10.11646/zootaxa.2774.1.3>
- Blackman R.L. & Eastop V.F. 2020. *Aphids on the World's Plants. An Online Identification and Information Guide*. Available from <http://www.aphidsonworldsplants.info> [accessed 10 Feb. 2022].
- Blackman, R.L. & Eastop, V.F. 2022 *Aphids on the World's Plants. An online information and identification guide*. Available from <http://www.aphidsonworldsplants.info/> [accessed 10 Feb. 2022].
- Blackman R.L. & Eastop V.F. 2023. *Aphids on the World's Plants. An Online Identification and Information Guide*. Available from <http://www.aphidsonworldsplants.info> [accessed Jun. 2023].
- Bodlah I., Naeem M. & Mohsin A.U. 2011. Checklist distribution host range and ecology of Aphidoidea (Homoptera) from the rainfed region of Punjab province of Pakistan. *Sarhad Journal of Agriculture* 27: 93–101.
- Bodlah I., Naeem M. & Rakhshani E. 2012. Genus *Binodoxys* Mackauer, 1960 (Hymenoptera: Braconidae: Aphidiinae) from Punjab province of Pakistan. *Pakistan Journal of Zoology* 44: 551–557.
- Bodlah I., Bodlah M.A. & Hussain M. 2017. New distributional records of aphid, *Melanaphis donacis* (Passerini) in osia and surrounding areas, Punjab, Pakistan. *Journal of Applied Agriculture and Biotechnology* 2 (1): 48–51.
- Chakrabarti S. 1977. *Chaitophorinae* (Aphididae: Homoptera) of India with descriptions of two new species from northwest India. *Oriental Insects* 11: 205–224. <https://doi.org/10.1080/00305316.1977.10434535>

- Chakrabarti S. 1988. Revision of the *Drepanosiphinae* (Homoptera: Aphididae) from the Indian subregion. *Oriental Insects* 22: 1–86. <https://doi.org/10.1080/00305316.1988.11835482>
- Chakrabarti S. 2021. Aphids (Hemiptera: Aphididae) in the Himalaya: Present status. *Indian Entomologists* 2: 6–19.
- Chakrabarti S. & Banerjee P.K. 1997. A new species, hitherto unknown morphs and biological notes on *Epipemphigus* Hille Ris Lambers (Homoptera: Aphididae) from India. *Oriental Insects* 27: 293–315. <https://doi.org/10.1080/00305316.1993.10432282>
- Chakrabarti S. & Das D. 2014. A new species and new records of aphids (Hemiptera) from Bhutan. *Oriental Insects* 48: 327–336. <https://doi.org/10.1080/00305316.2015.1013183>
- Chakrabarti S. & Maity S.P. 1978. Aphids (Homoptera: Aphididae) of northwest India: new subgenus, new species and new records of root inhabiting aphids. *Entomon* 3: 265–272.
- Chakrabarti S. & Medda P.K. 1993. Taxonomic studies on *Dysaphis* Börner (Homoptera: Aphididae) from the Indian subcontinent. *Oriental Insects* 27: 93–130. <https://doi.org/10.1080/00305316.1993.10432265>
- Chakrabarti S., Medda P.K. & Kanturski M. 2020. Conifer-feeding aphids (Insecta: Hemiptera: Aphididae) of India, Bhutan and Nepal with descriptions of three new species of the genus *Cinara*. *The European Zoological Journal* 87: 659–687. <https://doi.org/10.1080/24750263.2020.1831086>
- Das B. 1918. The Aphididae of Lahore. *Memoirs of the Indian Museum* 6: 135–274.
- Doncaster J.P. 1956. Two aphids from the Indian region. *Proceedings of the Royal Entomological Society of London* 25: 111–116. <https://doi.org/10.1111/j.1365-3113.1956.tb01106.x>
- Doncaster J.P. 1969. Some species of *Pemphigus* (Homoptera: Aphididae) described from the Indian region by G.B. Buckton. *Proceedings of the Royal Entomological Society of London* 38: 157–164. <https://doi.org/10.1111/j.1365-3113.1969.tb00222.x>
- Doncaster J.P. 1973. G.B. Buckton's works on Aphidoidea (Hemiptera). *Bulletin of the British Museum (Natural History) Entomology* 28: 25–109. Available from <https://www.biodiversitylibrary.org/page/2252143> [accessed Mar. 2023].
- Eastop V.F. 1971. Keys for the identification of *Acyrtosiphon* (Hemiptera: Aphididae). *Bulletin of the British Museum (Natural History) Entomology* 26: 1–115. Available from <https://www.biodiversitylibrary.org/page/2329024> [accessed Mar. 2023].
- Ehlers S., Baum D., Mühlethaler R., Hoch H. & Bräunig P. 2022. Large abdominal mechanoreceptive sense organs in small plant-dwelling insects. *Biology Letters* 18: 20220078. <https://doi.org/10.1098/rsbl.2022.0078>
- Faheem M., Saeed S., Sajjad A., Wang S. & Ali A. 2019. Spatio-temporal variations in wheat aphid populations and their natural enemies in four agroecological zones of Pakistan. *PLoS ONE* 14: e0222635. <https://doi.org/10.1371/journal.pone.0222635>
- Farooq A. & Tasawar Z. 2007. Varietal screening of *Brassica* spp. against aphids in southern Punjab (Pakistan). *Pakistan Journal of Zoology* 39: 195–198.
- Favret C. 2023. Aphid species file. Version 5.0/5.0. Available from <https://aphid.speciesfile.org/> [accessed Mar. 2023].
- Ghani A. & Maalik S. 2020. Assessment of diversity and relative abundance of insect fauna associated with *Triticum aestivum* from district Sialkot, Pakistan. *Journal of King Saud University-Science* 32: 986–995. <https://doi.org/10.1016/j.jksus.2019.09.002>

- Ghosh A.K. 1984. *Fauna of India. Homoptera: Aphidoidea. Part 3. Subfamily Pemphiginae*. Zoological Survey of India.
- Ghosh A.K. 1988. *Fauna of India. Homoptera: Aphidoidea. Part 4. Subfamilies: Phloemyzinae, Anoeciinae and Hormaphidinae*. Zoological Survey of India.
- Ghosh A.K. & Agarwala B.K. 1993. *Fauna of India. Homoptera: Aphidoidea. Part 6. Subfamily Greenideinae*. Zoological Survey of India.
- Ghosh A.K. & Ghosh L.K. 2006. *The Fauna of India and the Adjacent Countries. Homoptera: Aphidoidea, Part 7/1, Subfamily Aphidinae, Tribe Aphidini*. Zoological Survey of India.
- Gull-E-Fareen A., Bodlah I., Rasheed M.R., Niaz Y., Bodlah M.A., Asif M. & Khokhar N.M. 2020. Trophic associations of ants with aphid partners and new distribution records of some ants in Pothwar Region of Pakistan. *Pakistan Journal of Zoology* 53: 1–10.
<https://doi.org/10.17582/journal.pjz/20190510120507>
- Habib R. & Ghani M.A. 1970. Eriosomatinae on poplars and their natural enemies in west Pakistan. *Technical Bulletin, Commonwealth Institute of Biological Control* 13: 43–58.
- Hamid S. 1983. Natural balance of graminicolous aphids in Pakistan. Survey of populations. *Agronomie* 3: 665–673. <https://doi.org/10.1051/agro:19830708>
- Hassan A.S., Rafi M.A., Javed H., Zia A., Naeem M., Khan I.A. & Bilal H. 2010. Aphidoidea (Homoptera) from the northern areas of Pakistan. *Sarhad Journal of Agriculture* 26: 609–611.
- Hassan M.A. Oswald J.D., Zia A. & Liu X.Y. 2019. Neuropterida (Insecta: Megaloptera, Raphidioptera, Neuroptera) of Pakistan: a catalogue and faunistic review. *Zootaxa* 4686: 497–541.
<https://doi.org/10.11646/zootaxa.4686.4.3>
- Hille Ris Lambers D. 1966. New and little-known aphids from Pakistan (Homoptera, Aphididae). *Tijdschrift voor Entomologie* 109: 193–220.
- Hille Ris Lambers D. 1970 [1968–1969]. A study of *Tetraneura* Hartig, 1841 (Homoptera, Aphididae), with descriptions of a new subgenus and new species. *Bollettino di Zoologia agraria e di Bachicoltura, Serie II* 9: 21–101.
- Hille Ris Lambers D. 1973. Notes on some oriental aphids, with descriptions of a new genus and four new species (Homoptera: Aphididae). *Oriental Insects* 7: 239–258.
<https://doi.org/10.1080/00305316.1973.10434217>
- Holman J. 2009. *Host Plant Catalog of Aphids. Palaearctic Region*. Springer, Dordrecht.
<https://doi.org/10.1007/978-1-4020-8286-3>
- ICZN (International Commission on Zoological Nomenclature) 1999. *International Code of Zoological Nomenclature. Fourth edition*. International Trust for Zoological Nomenclature, c/o The Natural History Museum, London. Available from <https://www.iczn.org/the-code/the-code-online/> [accessed 10 Feb. 2022].
- Inayatullah C., Ehsan-ul-Haq & Chaudhry M.F. 1993. Incidence of greenbug, *Schizoaphis graminum* (Rondani) (Homoptera: Aphididae) in Pakistan and resistance in wheat against it. *Insect Science and its Applications* 14: 247–254. <https://doi.org/10.1017/S1742758400014697>
- Irshad M. 2001. Aphids and their biological control in Pakistan. *Pakistan Journal of Biological Sciences* 4: 537–541. <https://doi.org/10.3923/pjbs.2001.537.541>
- Javed H., Iqbal J. & Mateen Z. 2014. Response of different cultivars of groundnut, *Arachis hypogaea* L. (Fabaceae: Fabales) to aphids, *Aphis craccivora* K. (Aphididae: Homoptera) in interaction with local weather factors. *Pakistan Journal of Zoology* 46: 75–81.

- Kadyrbekov R.Kh. 2014. A revision of genus *Xerobion* Nevsky, 1928 (Homoptera: Aphididae). *Russian Entomological Journal* 23: 169–178. <https://doi.org/10.15298/rusentj.23.3.02>
- Kanturski M. & Chakrabarti S. 2022. *Maculolachnus blackmani* (Hemiptera: Aphididae: Lachninae) – A new aphid species from India and Pakistan with key to species of the genus. *Zootaxa* 5183: 361–368. <https://doi.org/10.11646/zootaxa.5183.1.26>
- Kanturski M. & Stekolshchikov A.V. 2018. *Rhinariaphis* – A remarkable new aphid genus from Afghanistan (Hemiptera: Aphididae: Aphidinae). *Zoologischer Anzeiger* 277: 75–84. <https://doi.org/10.1016/j.jcz.2018.09.004>
- Kanturski M., Zia A., & Rafi M.A. 2017a. The *Lachnus* of Pakistan with description of a new species (Hemiptera: Aphididae: Lachninae). *Journal of Asia-Pacific Entomology* 20: 1219–1227. <https://doi.org/10.1016/j.aspen.2017.09.001>
- Kanturski M., Akbar S.A. & Favret C. 2017b. The Bhutan pine aphid *Pseudessigella brachychaeta* Hille Ris Lambers (Hemiptera: Aphididae: Lachninae) from India reveals the hitherto unknown oviparous female and dwarfish male. *Zoological Studies* 56: 1–27. <https://doi.org/10.6620/ZS.2017.56-12>
- Khalique U., Zahid M., Fatima N. & Shah S.J.A. 2021. Evaluation of Pakistani wheat against aphid, *Schizaphis graminum* (Rondani) under favourable weather conditions in Peshawar, Pakistan. *Journal of Innovative Sciences* 7: 215–221. <https://doi.org/10.17582/journal.jis/2021/7.2.215.221>
- Khan I.A., Naeem M., Hassan S.A., Bilal H., Mohsin A.U. & Bodlah, I. 2012. Trophic relationships between aphids and their primary parasitoids. *Journal of Insect Science* 12 (1): 78. <https://doi.org/10.1673/031.012.7801>
- Khan M., Lanjar A.G., Chang B.H., Bukero A., Rajput A., Magsi F.H., Shah R., Solangi A.W. & Chang A.H. 2019. Insect pests associated with ornamental plants. *Biological Sciences-PJSIR* 62: 188–194. <https://doi.org/10.52763/PJSIR.BIOL.SCI.62.3.2019.188.194>
- Khan M.S. 1998 Affinities and zoogeography of herpetiles of Pakistan. *Biologia (Lahore)* 26: 113–171.
- Koch C.L. 1856. *Die Pflanzenläuse Aphiden getreu nach dem Leben abgebildet und beschrieben*. Vol. 8. J.L. Lotzbeck, Nürnberg. <https://doi.org/10.5962/bhl.title.77523>
- Mahmood R., Poswal M.A. & Shehzad A. 2002. Distribution, host range and seasonal abundance of *Sipha* sp. (Homoptera: Aphididae) and their natural enemies in Pakistan. *Pakistan Journal of Biological Sciences* 5: 47–50. <https://doi.org/10.3923/pjbs.2002.47.50>
- Maity S.P. & Chakrabarti S. 1981. On the poplar inhabiting aphids (Homoptera, Aphididae) of India and adjoining countries with notes on some species. *Entomon* 6: 297–305.
- Maryam S., Sandhu A.A., Bodlah I., Aziz M.A. & Aihetasham A. 2019. Contribution to aphid's fauna of Gujranwala (Punjab), Pakistan. *Punjab University Journal of Zoology* 34: 9–16. <https://doi.org/10.17582/journal.pujz/2019.34.1.9.16>
- Mehrparvar M. & Lashkari M. 2021. Aphids living on *Rosa* spp. (Rosaceae) in Iran: *Maculolachnus sijpkensi* Hille Ris Lambers, 1962 and *M. submacula* (Walker, 1848) (Hemiptera: Aphididae: Lachninae) as new records. *Journal of Crop Protection* 10: 565–573.
- Momeni Shahraki F., Minaei K. & Barjadze S. 2019. Checklist of Iranian Aphids (Hemiptera: Stenorrhyncha: Aphidomorpha). *Journal of Insect Biodiversity and Systematics* 5: 269–300. <https://doi.org/10.52547/jibs.5.4.269>
- Muhammad W., Nasir M., Abbas S.K., Irshad M., Abbas M.W., Nawaz A. & Rehman A. 2013. Resistance pattern against aphid (*Diuraphis noxia*) in different wheat varieties/lines at district Layyah. *Academic Journal of Entomology* 6: 116–120.

- Mushtaq S., Rana S.A., Khan H.A. & Ashfaq M. 2013. Diversity and abundance of family Aphididae from selected crops of Faisalabad, Pakistan. *Pakistan Journal of Agricultural Research* 50: 103–109.
- Naeem M., Mohsan A.A., Mohsin A.-ul- & Abbassi N.A. 2010. Bionomics of rose aphids and their natural enemies. *Biological Sciences – PJSIR* 53 (4): 212–217.
- Naseem M.T., Ashfaq M., Khan A.M., Rasool A., Asif M. & Hebert. P.D.N. 2019. BIN overlap confirms transcontinental distribution of pest aphids (Hemiptera: Aphididae). *PLoS ONE* 14 (12): e0220426. <https://doi.org/10.1371/journal.pone.0220426>
- Nakatani Y., Yoshimatsu S., Yoshitake K. & Miyazaki M. 2016. Masato Sobayashi, Aphididae, owned by National Institute for Agro-Environmental Sciences (Insects: Hemiptera) Collection Specimen Catalog. *Agricultural Environmental Research Report* 37: 57–132.
- Naseem M.T., Ashfaq M., Khan A.M., Rasool A., Asif M. & Hebert P.D.N. 2019. BIN overlap confirms transcontinental distribution of pest aphids (Hemiptera: Aphididae). *PLoS ONE* 14: e0220426. <https://doi.org/10.1371/journal.pone.0220426>
- Nasir A. & Yousuf M. 1992. A checklist of Aphidoidea of the Punjab province. *Pakistan Journal of Zoology* 24: 84–86.
- Nasir A. & Yousuf M. 1994. Chaitophoridae (Homoptera: Aphidoidea) of the Punjab with description of one new species. *Pakistan Journal of Zoology* 26: 207–208.
- Nasir A. & Yousuf M. 1995. Aphids and their host plants in the province of Punjab, Pakistan. *Pakistan Journal of Zoology* 27: 282–284.
- Naumann-Etienne K. & Remaudière G. 1995. A commented preliminary checklist of the aphids (Homoptera: Aphididae) of Pakistan and their host plants *Parasitica* 51: 1–61.
- Nieto Nafria J.M., Favret C., Akimoto S., Barbagallo S., Chakrabarti S., Mier Durante M.P., Miller G.L., Qiao G., Sano M., Pérez Hidalgo N., Stekolshchikov A.V. & Wegierek P. 2011. In: Nieto Nafria J.M. & Favret C. (eds) *Registers of Family-Group and Genus-Group Taxa of Aphidoidea (Hemiptera Sternorrhyncha)*. University de Leon, Spain.
- Nieto Nafria J.M., Mier Durante M.P. & Remaudière G. 2013. The genus *Aphidura* (Hemiptera, Aphididae) in the collection of the Muséum national d'Histoire naturelle of Paris, with six new species. *ZooKeys* 318: 1–33. <https://doi.org/10.3897/zookeys.318.5693>
- Nieto Nafria J.M., Blackman R.L. & Martin J.H. 2014. Two more new species of *Aphidura* (Hemiptera, Aphididae), and a note on variation in *Aphidura bozhkoeae* Narzikulov. *ZooKeys* 425: 113–130. <https://doi.org/10.3897/zookeys.425.7797>
- Noor S., Rafique N., Batool H., Ali M., Batool M. & Ali S. 2020. The composition of aphidofauna (Hemiptera: Aphidoidea) and their hostplant range in Quetta, Pakistan. *Pure and Applied Biology* 9: 2014–2024. <https://doi.org/10.19045/bspab.2020.90215>
- Noordam D. 1994. Greenideinae from Java (Homoptera: Aphididae). *Zoologische Verhandelingen* 296 (1): 1–284. Available from <https://repository.naturalis.nl/pub/317639> [accessed Mar. 2023].
- Panizzi A.R., Lucini T. & Mitchell P.L. 2021. Introduction to electronic monitoring of the feeding behavior of phytophagous true bugs. In: *Electronic Monitoring of Feeding Behavior of Phytophagous True Bugs (Heteroptera)*: 1–24. Entomology in Focus 6. Springer, Cham. https://doi.org/10.1007/978-3-030-64674-5_1
- Pintera A. 1965. Two new species of Lachnidae in the collections of the British Museum (Hemiptera, Aphidoidea). *The Entomologist* 98: 60–63.

- Ponsen M.B. 1990. *Phylogenetic Implications of the Structure of the Alimentary Tract of the Aphidoidea. I: Greenidea, Isrelaphis and Neophyllaphis. II: The Aphis Group*. Wageningen Agricultural University Papers 90–4.
- Qadri M.A.H. 1968. *Zoogeography of Pakistan*. Central Urdu Board, Lahore. [In Urdu.]
- Quednau, F.W. 1999. Atlas of drepanosiphine aphids of the world. Part 1: Panaphidini Oestlund, 1922 – Myzocallidina Börner, 1942 (1930) (Hemiptera: Aphididae: Callaphidinae). *Contributions of the Entomological Institute* 31 (1): 1–281.
- Quednau F.W. & Remaudière G. 1994. The genus *Myzocallis* Passerini, 1860: a worldwide classification of its subgenera with descriptions of new Palaearctic species (Homoptera: Aphididae). *The Canadian Entomologist* 126: 303–326. <https://doi.org/10.4039/Ent126303-2>
- Rafi M.A., Jürgen W., Matin M.A., Zia A., Sultan A. & Naz F. 2010. Faunistics of tiger beetles (Coleoptera: Cicindelidae) from Pakistan. *Journal of Insect Science* 10: 116. <https://doi.org/10.1673/031.010.11601>
- Remaudière G. 1993. Révision du genre *Longicaudatus*, et description de deux nouveaux taxa du Pakistan et de l’Iran (Homoptera, Aphididae). *Bulletin de la Société entomologique de France* 97: 403–414. <https://doi.org/10.3406/bsef.1992.17833>
- Remaudière G. 2000. *Hyadaphis coriandri* (Das), espèce hétéroecique au Moyen-Orient, récemment introduite sur le continent américain (Hemiptera: Aphididae). *Annales de la Société entomologique de France (N.S.)* 36: 157–163.
- Remaudière G. 2002. Espèces et formes inédites du genre *Periphyllus* au Pakistan (Hemiptera, Aphididae, Chaitophorinae). *Bulletin de la Société entomologique de France* 107: 381–386. <https://doi.org/10.3406/bsef.2002.16878>
- Remaudière G. & Binazzi A. 2003a. Les *Cinara* du Pakistan. II. Le sous-genre *Cupressobium* (Hemiptera, Aphididae, Lachninae). *Revue française d’Entomologie. Nouvelle Série* 25: 85–96.
- Remaudière G. & Binazzi A. 2003b. Les *Cinara* du Pakistan I. *Cinara* s. str. vivant sur Pinaceae (Hemiptera, Aphididae, Lachninae). *Revue française d’Entomologie* 25: 1–22.
- Remaudière G. & Naumann-Etienne K. 1991. Découverte au Pakistan de l’hôte primaire de *Rhopalosiphum maidis*. *Comptes Rendus de l’Académie d’Agriculture de France* 77: 61–62.
- Riaz M.F., Raza A.B.M., Majeed M.Z. & Nazir T. 2022. Diversity and species distribution of aphids (Hemiptera: Aphididae) in district Sargodha (Punjab, Pakistan). *Sarhad Journal of Agriculture* 38: 540–547. <https://doi.org/10.17582/journal.sja/2022/38.2.540.547>
- Saleem S., Ullah F. & Ashfaq M. 2009. Population dynamics and natural enemies of aphids on winter wheat in Peshawar, Pakistan. *Pakistan Journal of Zoology* 41: 505–513.
- Smith C.A. 1983. *Effects of Population Density and Host Plant on Form Determination of the Blue Alfalfa Aphid, Acyrthosiphon kondoi Shinji*. The University of Arizona.
- Sorin M. & Remaudière G. 1998. A review of the genus *Tuberocephalus* Shinji (Hemiptera, Aphididae) with descriptions of two new species from Pakistan and Japan. *Bulletin of Faculty List of Kogakkan University* 37: 91–146.
- Tahir M. & Khaliq T. 2018. Land use in Pakistan. In: *Developing Sustainable Agriculture in Pakistan*: 33–57. CRC Press. <https://doi.org/10.1201/9781351208239-2>
- Tuatay N. 1999. Aphids (Homoptera: Aphididae) of Türkiye: V. Chaitophinae, Lachinae and Thelaxinae. *Plant Protection Bulletin* 39: 1–21.

Ullah F., Gul H., Said F., Ali A., Tariq K., Zaman M. & Song D. 2020. Population dynamics of wheat aphids *Rhopalosiphum padi* (Linnaeus) and *Sitobion avenae* (Fabricius) at District Mardan, Khyber Pakhtunkhwa, Pakistan. *Pure and Applied Biology* 9: 27–35.

<https://doi.org/10.19045/bspab.2020.90004>

Wieczorek K. 2010. *A Monograph of Siphini Mordvilko, 1928 (Hemiptera, Aphidoidea: Chaitophorinae)*. Wydawnictwo Uniwersytetu Śląskiego, Katowice.

Wieczorek K. & Chłond D. 2019. Description of the previously unknown sexual morphs of *Eucarazzia elegans* from Iran and Pakistan and the northernmost record of viviparous generation from Europe. *Bulletin of Insectology* 72: 177–186.

Zeb Q., Rondon S.I., Badshah H. & Khan A. 2020. Influence of cultivar on aphids (Hemiptera: Aphididae) and associated natural enemies in Pakistani wheat ecosystems. *Pakistan Journal of Zoology* 52: 503–512. <https://doi.org/10.17582/journal.pjz/20181009151041>

Zia A., Hassan S.A., Shehzad A. & Naz F. 2010. Diversity of Aphidoidea in Rawalpindi Division (Punjab) Pakistan, with a list of host plant studied. *Halteres* 1: 38–43.

Manuscript received: 8 August 2023

Manuscript accepted: 3 April 2024

Published on: 25 July 2024

Topic editor: Tony Robillard

Section editor: Christopher Dietrich

Desk editor: Pepe Fernández

Printed versions of all papers are deposited in the libraries of four of the institutes that are members of the EJT consortium: Muséum national d’Histoire naturelle, Paris, France; Meise Botanic Garden, Belgium; Royal Museum for Central Africa, Tervuren, Belgium; Royal Belgian Institute of Natural Sciences, Brussels, Belgium. The other members of the consortium are: Natural History Museum of Denmark, Copenhagen, Denmark; Naturalis Biodiversity Center, Leiden, the Netherlands; Museo Nacional de Ciencias Naturales-CSIC, Madrid, Spain; Leibniz Institute for the Analysis of Biodiversity Change, Bonn – Hamburg, Germany; National Museum of the Czech Republic, Prague, Czech Republic; The Steinhardt Museum of Natural History, Tel Aviv, Israël.