



Preliminary Checklist, Distribution and Host Plants of Family Aphididae (Insecta: Hemiptera) from Azad Jammu and Kashmir, Pakistan

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Abstract: The northern areas of Pakistan, located at the junction of the Oriental and Palaearctic regions, are expected to harbor a rich diversity of flora and fauna. Azad Jammu & Kashmir, situated at the junction of these two regions with multiple climatic zones, extensive forest types, and rich plant diversity, remains underexplored in terms of aphid fauna. This study, based on comprehensive field surveys conducted in the Poonch division from 2015 to 2016, identified 69 aphid species in 39 genera and 10 tribes under seven subfamilies. These aphid species were associated with 71 host plant species under 59 genera and 39 families. The study also provided the first preliminary checklist of aphids in Azad Jammu & Kashmir, documenting their distribution and associated host plants.

Keywords: Aphids, Checklist, Distribution, Host Plants, Oriental, Palaearctic, South Asia.

1. INTRODUCTION

Notwithstanding their notoriety, as the serious pests of agroecosystems [1-3] aphids remain one of the understudied taxa in Pakistan: predominantly an agriculture economy. Pakistan's aphidofauna comprises over 300 species [4] at present constituting about 6% of world's Aphidoidea, mainly reflects the fragmented and inconsistent exploratory surveys, rather than plantlice paucity in the country. The latter comprehensive checklist has been preceded and succeeded by several parochial moderate checklists viz., [5, 6, 8, 10, 11, 26, 27]. The comprehensive work referred to above has been preceded and succeeded by several, moderate checklists [5-15]. These surveys have mainly concentrated on certain

regions of the Punjab province and few pockets of Khyber Pakhtunkhawa. Azad Jammu and Kashmir (AJ & K), a biodiversity rich region in the northeast of Pakistan, prior to present study, remained as one of the aphidologically uncharted territories in the country. Present study provides preliminary checklist, distribution and host plants of the studied Aphididae from Poonch division, AJ & K, Pakistan.

2. MATERIAL AND METHODS

Checklist is based on our previous published papers [12-15] and directly collected and identified aphid species from the surveyed area during 2015-2016. In field, we randomly collected the adult specimens during 2015-2016 from cultivated and

wild flora of different selected localities of Poonch division. Collected specimens were transferred into transparent plastic vials containing 70% ethanol for further studies. Adult female apterae were evaluated taxonomically using the available source of literatures [16-20]. The diagnostic characters of specimens were observed under a Noif Microscope (XSZ 107BN) at 40-100 magnification. Host plants were identified at National Herbarium, National Agriculture Research Center (NARC), Islamabad, Pakistan. The identified species have been deposited in the Laboratory of Biosystematic, Department of Entomology, University of Poonch Rawalakot, Azad Jammu & Kashmir, Pakistan. This paper also presents an annotated preliminary checklist, distributional information, and the host plant of studied Aphididae. The general map of Pakistan showing the territories of State of Azad Kashmir is presented (Figure 1). The map was prepared with ArcGIS 10.5 software (Esri, Redlands, CA) by using the original base map of Pakistan.

3. RESULTS

Taxonomic analysis of the Aphididae material collected during 2015-2016 from Poonch division resulted in 69 species in 39 genera stretched over seven subfamilies and 10 tribes. These species were found associated with a total of 71 species, 59

genera and 39 families of host plants. Taxonomy, distribution and host plants of the studied Aphididae are presented below:

Family APHIDIDAE Latreille, 1802
Subfamily APHIDINAE Latreille, 1802
Tribe APHIDINI Latreille, 1802
Subtribe APHIDINA Latreille, 1802
Genus *Aphis* Linnaeus, 1758

1. *Aphis affinis* del Guericco, 1911

Previous records in Azad Jammu and Kashmir: District Poonch (Abbaspur, Alisojal, Hajira, Haveli, Rawalakot) [12, 15].

Host plants: *Mentha spicata*, *Mentha longifolia*, *Mentha requienii* [4, 12, 15].

2. *Aphis craccivora* Koch, 1854

Previous records in Azad Jammu and Kashmir: District Bagh (Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Hajira, Haveli, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar, Tolipir), District Sudhanoti (Mang, Palandari, Thrar Khal) [12-15].

Host plants: *Alhagim aurorum*, *Amaranthus viridis*, *Coriandrum sativum*, *Bidens biternate*, *Dalbergia sissoo*, *Dendranthema indicum*, *Cassia fistula*, *Cajanus indicus*, *Cassia surratensis*, *Parthenium*

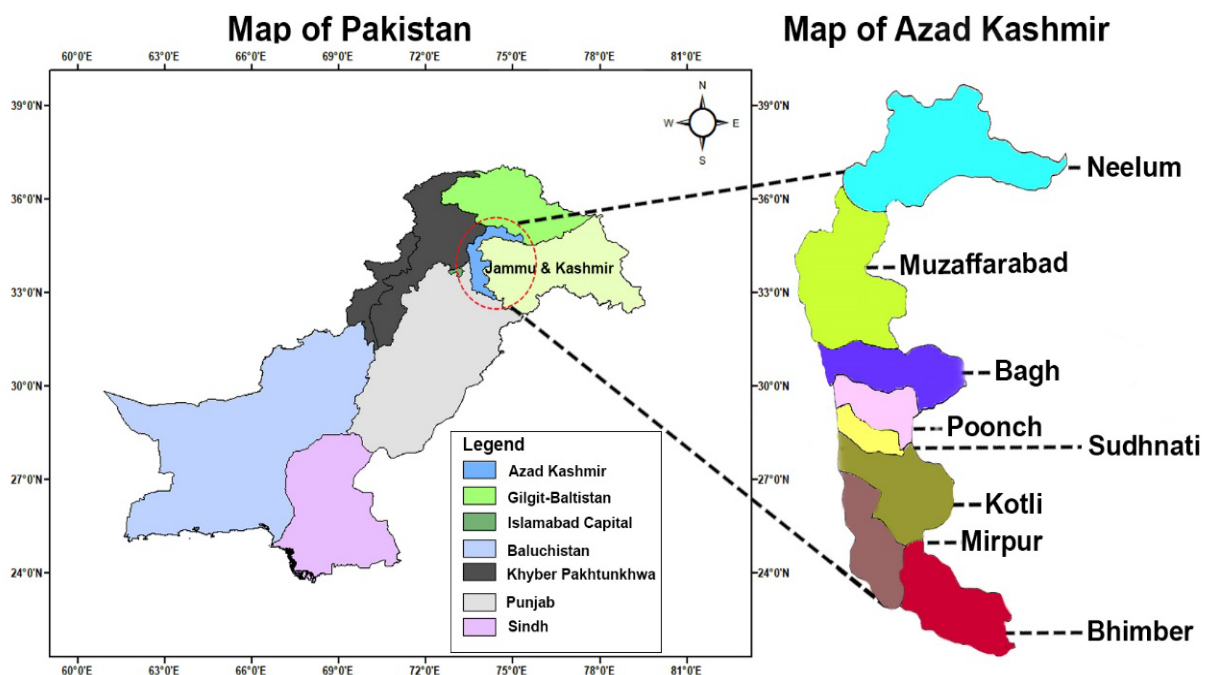


Fig. 1. General map of Pakistan showing the territories of State of Azad Kashmir.

hysterophorus, *Melilotus indica*, *Robiniapseudo acacia*, *Sesbania aegyptiaca*, *Tephrosia purpurea*, *Trigonella foenum-graecum*, *Vicia faba*, *Alcea rosea*, *Hibiscus* sp., *Ficus carica*, *Psidium guajava*, *Bougainvillea* sp., *Punica granatum*, *Eriobotrya japonica*, *Pyrus malus*, *Salix* sp., *Ailanthus altissima*, *Cestrum* sp., *Solanum nigrum*, *Tribulus terrestris* [4, 12-14].

3. *Aphis fabae* Scopoli, 1763

Previous records in Azad Jammu and Kashmir:

District Bagh (Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar, Tolipir), District Sudhanoti (Mang, Palandari, Thrar Khal) [12, 14, 15].

Host plants. *Alcea rosea*, *Amaranthus viridis*, *Coriandrum sativum*, *Daucus carota*, *Conyza canadensis*, *Galinsoga perviflora*, *Parthenium hysterophorus*, *Sonchus asper*, *Tagetes minuta*, *Cyperus rotundus*, *Euphorbia* sp., *Leucaena leucocephala*, *Taxaracum officinale*, *Lonicera quinquelocularis*, *Rumex acetosa*, *R. dentatus*, *Cestrum nocturnum*, *Solanum nigrum*, *Withania somnifera*, *Peganum harmala* [4, 12, 14].

4. *Aphis gossypii* Glover, 1877

Previous records in Azad Jammu and Kashmir:

District Bagh (Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Khaigala, Hajira, Haveli, Hussainkot, Rawalakot, Thorar), District Sudhanoti (Mang, Palandari, Trar Khel) [12, 14, 15].

Host plants: *Althea rosea*, *Amaranthus viridis*, *A. altissima*, *Chenopodium album*, *Conyza canadensis*, *Coriandrum sativum*, *Datura alba*, *Dendrathera indicum*, *Galinosoga parviflora*, *Hibiscus rosa-sinensis*, *Leucas cephalotes*, *Papaver somniferum*, *Parthenium hysterophorus*, *Plantago major*, *Solanum nigrum*, *Sonchus asper*, *Tagetes minuta*, *Taraxacum officinale*, *Vicia sativa* [12-14].

5. *Aphis nasturtii* Kaltenbach, 1843

Previous records in Azad Jammu and Kashmir:

District Bagh, District Poonch (Hajira, Haveli, Hussainkot, Rawalakot) [12, 15].

Host plants: *Chenopodium album*, *Dendranthema indicum*, *Viola biflora*, *Tropaeolum majus* [12].

6. *Aphis nerii* Boyer de Fonscolombe, 1841

Previous records in Azad Jammu and Kashmir:

District Bagh, District Poonch (Abbaspur, Alisojal, Hajira, Rawalakot, Thorar), District Sudhanoti

(Mang, Palandari) [14, 15].

Host plant: *Malus pumila* [14].

7. *Aphis pomi* de Geer, 1773

Previous records in Azad Jammu and Kashmir:

District Bagh (Singola), District Poonch (Abbaspur, Alisoja, Banjosa, Datoot, Hajira, Hussainkot, Khaigala, Paniola, Rawalakot, Taolipir), District Sudhanoti (Mang, Pallandri) [14, 15].

Host plant: *Malus pumila* [4, 14].

8. *Aphis punicae* Passerini, 1863

Previous records in Azad Jammu and Kashmir:

District Bagh, District Poonch (Abbaspur, Banjosa, Hajira, Rawalakot, Thorar), District Sudhanoti (Mang, Pallandri) [14, 15].

Host plant: *Punica granatum* [14].

9. *Aphis spiraecola* Patch, 1914

Previous records in Azad Jammu and Kashmir:

District Bagh, District Poonch (Abbaspur, Banjosa, Haveli, Hajira, Khaigala, Rawalakot, Thorar), District Sudhanoti (Mang, Pallandri, Thrar Khal) [12, 14, 15].

Host plant: *Eriobotrya japonica* [14].

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

Previous records in Azad Jammu and Kashmir:

District Poonch (Abbaspur, Hajira, Thorar) [14, 15].

Host plant: *Citrus* sp. [14].

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

Previous records in Azad Jammu and Kashmir:

District Poonch (Abbaspur, Hajira, Thorar) [15].

Host plant: *Citrus sinensis* [15].

Subtribe RHOPALOSIPHINA Mordvilko, 1924 Genus *Hysteroneura* Koch, 1854

12. *Hysteroneura setariae* (Thomas, 1878)

Previous records in Azad Jammu and Kashmir:

District Poonch (Abbaspur, Haveli, Hajira) [12].

Host plant: *Cynodon dactylon* [12].

Genus *Rhopalosiphum* Koch, 1854

13. *Rhopalosiphum maidis* (Fitch, 1856)

Previous records in Azad Jammu and Kashmir:

District Bagh (Bagh, Singola), District Poonch (Abbaspur, Ali Sojal, Banjosa, Datoot, Hajira,

Hussainkot, Khaigala, Paniola, Rawalakot, Thorar), District Sudhnoti (Mang, Palandari, Trar Khel) [15].

Host plants: *Sorghum bicolor*, *Zea mays*

14. *Rhopalosiphum nymphaeae* (Linnaeus, 1761)

Previous records in Azad Jammu and Kashmir: District Bagh, District Poonch (Alisojal, Banjosa, Hajira, Hussainkot, Khaigala, Rawalakot) [14, 15].

Host plants: *Prunus domestica*, *P. armeniaca*, *Typha* sp. (water lily) [14].

15. *Rhopalosiphum padi* (Linnaeus, 1758)

Previous records in Azad Jammu and Kashmir: District Bagh (Bagh, Singola), District Poonch (Abbaspur, Ali Sojal, Banjosa, Datoot, Hajira, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar), District Sudhnoti (Mang, Palandari, Trar Khel) [15].

Host plant: *Rhopalosiphum padi* was found occurring as pest of corn in all the study area.

Genus *Schizaphis* Börner, 1931

16. *Schizaphis graminum* (Rondani, 1852)

Previous records in Azad Jammu and Kashmir: District Bagh (Bagh, Singola), District Poonch (Abbaspur, Banjosa, Datoot, Hajira, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar), District Sudhnoti (Mang, Palandari, Trar Khel) [15].

Host plants. *Schizaphis graminum* mostly found on *Cynodon dactylon*, *Hordeum vulgare*, *Triticum aestivum*.

Tribe MACROSIPHINI Wilson, 1910

Subtribe MACROSIPHINA Wilson, 1910

Genus *Acyrtosiphon* Mordvilko, 1914

17. *Acyrtosiphon gossypii* Mordvilko, 1914

Previous records in Azad Jammu and Kashmir: District Bagh (Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Khaigala, Hajira, Haveli, Hussainkot, Rawalakot, Thorar), District Sudhanoti (Mang, Palandari, Trar Khel) [12-15].

Host plants. *Phaseolus vulgaris*, *Trigonella* sp. and *Vicia* sp. were recorded from study area.

18. *Acyrtosiphon ghanii* Eastop, 1971

Previous records in Azad Jammu and Kashmir: District Bagh (Bagh city, Singola), District Poonch (Datoot, Rawalakot), District Sudhnoti (Mang, Palandari, Trar Khel) [15].

Host plants. *Scorzonera subaphylla*, *Sonchus oleraceus* [4, 15].

19. *Acyrtosiphon malvae* (Mosley, 1841)

Previous records in Azad Jammu and Kashmir: District Bagh (Bagh, Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar, Tolipir), District Sudhnoti (Palandari) [12, 15].

Host plants: *Althea rosea*, *Tropaeolum majus* [12].

20. *Acyrtosiphon pisum* (Harris, 1776)

Previous records in Azad Jammu and Kashmir: District Bagh (Bagh, Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khaigala, Paniola, Rawalakot, Thorar, Tolipir), District Sudhnoti (Mang, Trar Khel) [12, 15].

Host plants: *Lathyrus odoratus*, *Malva perviflora* [12].

Genus *Aulacorthum* Mordvilko, 1914

21. *Aulacorthum solani* (Kaltenbach, 1843)

Previous records in Azad Jammu and Kashmir: District Bagh (Singola), District Poonch (Hajira, Haveli, Hussainkot, Khaigala, Rawalakot, Thorar) [12].

Host plants: *Chenopodium album*, *Conyza canadensis*, *Galinosoga perviflora*, *Plantago major*, *Silybum marianum*, *Sonchus oleraceus*, *Ricinus communis*, *Coriandrum sativum*, *Tagetes minuta* [12].

Genus *Berberidaphis* Narzikulov, 1960

22. *Berberidaphis lydiae* Narzikulov, 1957

Previous records in Azad Jammu and Kashmir: District Poonch (Rawalakot) [14, 15].

Host plants: *Berberis lyceum* [14]. *Berberidaphis lydiae*, a central Asian species, first reported from Northern areas of Pakistan at elevations ranging from 1700-2600 m ASL [4].

Genus *Brachycaudus* Van der Goot, 1913

23. *Brachycaudus cardui* (Linnaeus, 1758)

Previous records in Azad Jammu and Kashmir: District Poonch (Rawalakot) [15].

Host plants. *Denndrathema indicum*, *Cirsium* sp., *Senecio* sp., *Cnicus wallichii* [4, 15, 21].

24. *Brachycaudus helichrysi* (Kaltenbach, 1843)**Previous records in Azad Jammu and Kashmir:**

District Bagh, District Poonch (Alisoja, Banjosa, Hajira, Haveli, Hussainkot, Khaigala, Rawalakot, Thorar), District Sudhnoti (Mang) [12, 14, 15].

Host plants: *Galinsoga perviflora*, *Plantago major*, *Prunus domestica*, *Prunus armeniaca*, *Silybum marianum*, *Sonchus oleraceus*, *Tagetes minuta*, *Vicia sativa*, *Viola biflora* [12, 14].

Genus *Brevicoryne* Das, 1915**25. *Brevicoryne brassicae* (Linnaeus, 1758)****Previous records in Azad Jammu and Kashmir:**

District Bagh (Singola), District Poonch (Abbaspur, Banjosa, Datoot, Hajira, Khaigala, Paniola, Tolipir), District Palandri, District Sudhnoti (Mang, Trar Khel) [15].

Host plant: *Brassica campestris*.

Genus *Capitophorus* van der Goot, 1913**26. *Capitophorus carduinus* (Walker, 1850)****Previous records in Azad Jammu and Kashmir:**

District Poonch (Khaigala, Rawalakot) [12, 15].

Host plant: *Silybum marianum* [12].

Genus *Chaetosiphon* Mordvilko, 1914**27. *Chaetosiphon (Pentatrachopus) fragaefolii* (Cockerell, 1901)****Previous records in Azad Jammu and Kashmir:**

District Poonch (Alisojal, Banjosa, Khaigala, Rawalakot) [13, 15].

Host plant: *Rosa* sp. [13].

28. *Chaetosiphon (Pentatrachopus) tetraerhodum* (Walker, 1849)**Previous records in Azad Jammu and Kashmir:**

District Bagh, District Poonch (Alisojal, Banjosa, Khaigala, Rawalakot) [13, 15].

Host plant: *Rosa* sp.

29. *Chaetosiphon (Pentatrachopus) thomasi* Hille Ris Lambers, 1953**Previous records in Azad Jammu and Kashmir:**

District Bagh, District Poonch (Khaigala, Rawalakot) [13, 15].

Host plant: *Rosa* sp. [13].

Genus *Dysaphis* Börner, 1931**30. *Dysaphistulipae* (BoyerdeFonscolombe, 1841)****Previous records in Azad Jammu and Kashmir:**

District Poonch (Rawalakot) [4, 15].

Host plants. *Iris* sp. [4]. During present study this species recorded on *Gladiolus grandiflora* Linnaeus from Rawalakot and Bagh.

Genus *Hyadaphis* Kirkaldy, 1904**31. *Hyadaphis coriandri* (Das, 1918)****Previous records in Azad Jammu and Kashmir:**

District Poonch (Rawalakot) [15].

Host plants: *Coriandrum sativum* [12], *Crocus sativus* (present study).

Genus *Hyperomyzus* Börner, 1933**32. *Hyperomyzus carduellinus* (Theobald, 1915)****Previous records in Azad Jammu and Kashmir:**

District Bagh (Bagh), District Poonch (Banjosa, Hajira, Haveli, Rawalakot, Thorar, Tolipir), District Sudhanoti (TrarKhel) [12, 15].

Host plant: *Sonchus oleraceus* [12] present study.

33. *Hyperomyzus lactucae* (Linnaeus, 1758)**Previous records in Azad Jammu and Kashmir:**

District Poonch (Datoot, Hajira, Khaigala, Rawalakot), District Sudhanoti (Trar Khel) [15].

Host plants. *Sonchus* sp. [4]. During present study this species reported from *Sonchus oleraceus*.

34. *Hyperomyzus pallidus* Hille Ris Lambers, 1935**Previous records in Azad Jammu and Kashmir:**

District Bagh (Bagh), District Poonch (Datoot, Khaigala, Hajira, Rawalakot), District Sudhanoti (Trar Khel) [15].

Host plants. *Ribes* sp. (Grossulariaceae), *Sonchus oleraceus* [15].

Genus *Liaphis* Mordvilko, 1928**35. *Liaphis erysimi* (Kaltenbach, 1830)****Previous records in Azad Jammu and Kashmir:**

District Poonch (Rawalakot) [15].

Host plants. *Brassica napus*, *B. oleracea*, *B. nigra*, *B. rapa*, *B. oleracea* and *B. acephala* in recorded as host plant during the present study.

Genus *Macrosiphoniella* Del Guercio, 1911**36. *Macrosiphoniella sanborni* (Gillete, 1908)****Previous records in Azad Jammu and Kashmir:**

District Poonch (Ali Sojal, Rawalakot) [15].

Host plant: *Chrysanthemum* sp. [11, 21].

Genus *Macrosiphum* Passerini, 1860

37. *Macrosiphum euphorbiae* (Thomas, 1878)

Previous records in Azad Jammu and Kashmir:

District Bagh (Bagh, Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Khaigala, Hajira, Haveli, Hussainkot, Paniola, Rawalakot, Thorar, Tolipir), District Sudhanoti (Mang) [12, 13, 15].

Host plants: *Althea rosea*, *Galinosoga perviflora*, *Ricinus communis*, *Rosa indica*, *R. chinensis*, *Rumex acetosa*, *Sonchus asper*, *S. oleraceus*, *Tagetes minuta*, *Viola biflora* [12, 13].

38. *Macrosiphum gei* (Koch, 1855)

Previous records in Azad Jammu and Kashmir:

District Poonch (Rawalakot) [15].

Host plant: *Coriandrum sativum*.

39. *Macrosiphum rosae* Linnaeus, 1757

Previous records in Azad Jammu and Kashmir:

District Bagh (Bagh, Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Haveli, Hussainkot, Khaigala, Rawalakot, Thorar, Tolipir), District Sudhanoti (Mang, Palandari, Trar Khel) [12, 13, 15].

Host plants: *Rosa chinensis*, *R. indica* [12, 13].

Genus *Metopolophium* Mordvilko, 1914

40. *Metopolophium dirhodum* (Walker, 1849)

Previous records in Azad Jammu and Kashmir:

District Bagh (Bagh, Singola), District Poonch (Abbaspur, Alisojal, Banjosa, Khaigala, Paniola, Rawalakot, Tolipir), District Sudhanoti (Mang, Trar Khel) [13, 15].

Host plant: *Rosa* sp. [13].

Remarks: *Metopolophium dirhodum* was already reported for Pakistan by [4]. Hassan et al. [9] reported this species on secondary host, *Triticum* sp. from northern areas of Pakistan. Present study gives secondary host *Rosa chinensis*.

41. *Metopolophium montanum* Hille Ris Lambers, 1966

Previous records in Azad Jammu and Kashmir:

District Poonch (Alisojal, Banjosa, Rawalakot, Khaigala, Paniola, Tolipir), District Sudhanoti (Mang) [13, 15].

Host plant: *Rosa* sp. [13].

Genus *Myzaphis* Van der Goot, 1913

42. *Myzaphis bucktoni* (Jacob 1946)

Previous records in Azad Jammu and Kashmir:

District Poonch (Alisojal, Khaigala, Rawalakot) [13, 15].

Host plant: *Rosa moschata*. [13].

43. *Myzaphis rosarum* (Kaltenbach, 1843)

Previous records in Azad Jammu and Kashmir:

District Poonch (Abbaspur, Ali Sojal, Banjosa, Datoot, Hussainkot, Khaigala, Rawalakot, Thorar, Tolipir), Sudhanoti (Palandari) [13, 15].

Host plant: *Rosa* sp. [13].

44. *Myzaphis turanica* (Nevsky 1929)

Previous records in Azad Jammu and Kashmir:

District Poonch (Khaigala, Rawalakot) [13, 15].

Host plant: *Rosa* sp. [13].

Genus *Myzus* Passerini, 1860

45. *Myzus ascalonicus* (Doncaster 1946)

Previous records in Azad Jammu and Kashmir: District Poonch (Khaigala, Rawalakot) [15].

Host plants: *Brassica pekinensis*, *Solanum tuberosum* [4]. New host plant, *Bidens biternata* and *Brassica oleracea* recorded from Azad Jammu and Kashmir.

46. *Myzus ornatus* (Laing 1932)

Previous records in Azad Jammu and Kashmir:

District Bagh, Poonch (Abbaspur, Hajira, Rawalakot, Thorar), District Sudhanoti (Mang, Trar Khel) [12, 14, 15].

Host plants: *Bidens biternata*, *Sonchus asper*, *Tecoma stans* [12, 14].

47. *Myzus persicae* (Sulzer, 1776)

Previous records in Azad Jammu and Kashmir:

District Bagh, District Poonch (Abbaspur, Alisojal, Banjosa, Datoot, Hajira, Hussainkot, Paniola, Thorar, Rawalakot), District Sudhanoti (Palandari, Mang, Trar Khel) [12, 14, 15].

Host plants: *Althea rosea*, *Amaranthus viridis*, *Chenopodium album*, *Conyza canadensis*, *Galinosoga perviflora*, *Tagetes minuta*, *Dendranthema indicum*, *Bidens biternata*, *Plantago major*, *Prunus persica*, *Ricinus communis*, *Rumex acetosa*, *Solanum nigrum*, *Sonchus asper*, *S.*

oleraceous, *Viola bioflora* [12, 14].

Genus *Nasonovia* Mordvilko, 1914

48. *Nasonovia ribisnigri* (Mosley, 1841)

Previous records in Azad Jammu and Kashmir: District Bagh, District Poonch (Banjosa, Rawalakot) [15].

Host plant: *Sonchus oleraceus* [15].

Genus *Neomyzus* Van der Goot, 1915

49. *Neomyzus circumflexus* (Buckton, 1876)

Previous records in Azad Jammu and Kashmir: District Poonch (Abbaspur, Ali Sojal, Rawalakot) [15].

Host plant: *Sonchus oleraceus*.

Genus *Phorodon* Passerini, 1860

50. *Phorodon cannabis* Passerini, 1860

Previous records in Azad Jammu and Kashmir: District Poonch (Ali Sojal, Hajira, Haveli) [12].

Host plant: *Cannabis sativa* [12].

Genus *Pterocomma* Buckton, 1879

51. *Pterocomma beulahense* (Cockerell, 1904)

Previous records in Azad Jammu and Kashmir: District Poonch (Hajira) [14, 15].

Host plant: *Populus ciliata* [14].

Genus *Rhodobium* Hille Ris Lambers, 1947

52. *Rhodobium porosum* (Sanderson, 1900)

Previous records in Azad Jammu and Kashmir: District Bagh, District Poonch (Hajira, Haveli), District Sudhnoti (Mang) [13, 15].

Host plant: *Rosa* sp. [13].

Genus *Semiaphis* Van Der Goot, 1913

53. *Semiaphis heraclei* (Takahashi, 1921)

Previous records in Azad Jammu and Kashmir: District Poonch (Rawalakot) [15].

Host plant: *Coriandrum sativum* [4, 15].

Genus *Sitobion* Mordvilko, 1914

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

Previous records in Azad Jammu and Kashmir:

District Poonch (Hajira, Thorar) [15].

Host plant: *Sitobion africanum* was collected on wild *Ficus* sp. at Hajira [15].

Genus *Uroleucon* Mordvilko, 1914

55. *Uroleucon ambrosiae* (Thomas, 1878)

Previous records in Azad Jammu and Kashmir: District Poonch (Hajira, Thorar, Rawalakot) [15].

Host plants: *Conyza canadensis*, *Sonchus asper* [15].

56. *Uroleucon compositae* (Theobald, 1915)

Previous records in Azad Jammu and Kashmir: District Bagh (Singola), District Poonch (Ali Sojal, Hajira, Khaigala, Rawalakot, Thorar), District Sudhnoti (Mang) [12, 15].

Host plants: *Cercis canadensis*, *Sonchus asper*, *Tagetes minuta* [12].

Genus *Wahlgreniella* Hille Ris Lambers, 1949

57. *Wahlgreniella nervata* (Gillete, 1966)

Previous records in Azad Jammu and Kashmir: District Poonch (Rawalakot) [12, 13, 15].

Host plant: *Rosa* sp. [13].

Subfamily CALAPHIDINAE Oestlund, 1919

Tribe PANAPHIDINI Oestlund, 1923

Genus *Chromaphis* Walker, 1870

58. *Chromaphis juglandicola* (Kaltenbach, 1843)

Previous records in Azad Jammu and Kashmir: District Poonch (Rawalakot) [14, 15].

Host plant: *Juglans regia* [14].

Genus *Panaphis* Kirkaldy, 1904

59. *Panaphis juglandi* (Goeze, 1778)

Previous records in Azad Jammu and Kashmir: District Poonch (Rawalakot) [14].

Host plant: *Juglans regia* [14].

Subfamily CHAITOPHORINAE Mordvilko, 1908

Tribe CHAITOPHORINI Mordvilko, 1908

Genus *Chaitophorus* Koch, 1854

60. *Chaitophorus pakistanicus* Hille Ris Lambers, 1966

Previous records in Azad Jammu and Kashmir: District Poonch (Hajira, Thorar) [14].

Host plant: *Salix acmophylla* [14].

Tribe SIPHINI Mordvilko, 1928
Genus *Sipha* Passerini, 1860

61. *Sipha (Rungisia) maydis* Passerini, 1860
Previous records in Azad Jammu and Kashmir: District Poonch (Hajira) [15].
Host plants. *Cynodondactylon*, *Hordeum murinum*, *Hordeum vulgare*, *Triticum aestivum*, *Sorghum bicolor*, *Phalaris arundinacea*, *Polypogon fugax*, *Zea mays* [22, 23, 24]. We found dense colonies of this species on upper surface of the leaf-blades of *Arundo donax* in Hajira. Lower surface of leaves were covered with exuded sap and ant attendance was also noted.

Subfamily ERIOSOMATINAE Kirkaldy, 1905
Tribe FORDINI
Subtribe MALAPHIDINA
Genus *Melaphis* Walsh, 1867

62. *Melaphis rhois* (Fitch, 1866)
Previous record in Azad Jammu and Kashmir: Poonch (Hajira).
Host plant: *Rhus javanica*.

Subfamily GREENIDEINAE Baker, 1920
Tribe GREENIDEINI Baker, 1920
Genus *Greenidea* Schouteden, 1905

63. *Greenidea (Trichosiphum) psidiivan* der Goot, 1917
Previous records in Azad Jammu and Kashmir: District Poonch (Abbaspur) [14, 15].
Host plant: *Psidium guajava* [14].

64. *Greenidea (Greenidea) ficicola* Takahashi, 1921
Previous record in Azad Jammu and Kashmir: District Poonch (Hajira) [14, 15].
Host plant: *Ficus religiosa* [14].

Subfamily HORMAPHIDINAE Mordvilko, 1908
Tribe CERATAPHIDINI Baker, 1920
Genus *Astegopteryx* Karsch, 1890

65. *Astegopteryx bambusae* (Buckton, 1893)
Previous record in Azad Jammu and Kashmir: District Poonch (Abbaspur) [14].
Host plant: *Bambusa* sp. [14].

Subfamily LACHNINAE Herrich-Schaeffer, 1854
Tribe EULACHNINI Baker, 1920
Genus *Cinara* Curtis, 1835

66. *Cinara tujafilina* (del Guericcio, 1909)
Previous record in Azad Jammu and Kashmir: District Poonch (Hajira, Rawalakot) [15].
Remarks: *Cinara tujafilina* was first reported on *Thuja* sp. for Pakistan [4] on foot hills from 300-2000 m ASL. We found this species on *T. orientalis* and *T. chinensis* in Rawalakot and Bagh.
Host plant: Recorded this species on *T. orientalis* and *T. chinensis* in Rawalakot and Bagh.

67. *Cinara maculipes* Hille Ris Lambers, 1966
Previous record in Azad Jammu and Kashmir: District Poonch (Rawalakot) [14, 15].
Host plant: *Pinus wallichiana* [14].

Tribe LACHNINI Herrich-Schaeffer, 1854
Subtribe LACHNINA Herrich-Schaeffer, 1854
Genus *Lachnus* Burmeister, 1835

68. *Lachnus tatakaensis* Takahashi, 1937
Previous records in Azad Jammu and Kashmir: District Poonch (Hajira) [15].
Host plant: *Salix* sp.

Genus *Pterochloroides* Mordvilko, 1914

69. *Pterochloroides persicae* (Cholodkovsky 1899)
Previous record in Azad Jammu and Kashmir: District Bagh, District Poonch (Alisojal, Rawalakot), District Sudhnoti (Trar Khel) [14, 15].
Host plant: *Prunus armeniaca* [14].

4. DISCUSSION

The study conducted by Naumann-Etienne and Remaudière [4] marked a pivotal moment in documenting Pakistan's aphididae. Subsequent checklists, such as those by Nasir and Yousaf [8] and Irshad [25], delved into regional surveys, offering insights into the diversity of aphid species across provinces like Punjab. Shahjehan and Tullu [27] focused on Abbottabad, while Bodlah *et al.* [11] explored the rain-fed region of Punjab. Zia *et al.* [10] and Maryam *et al.* [26] targeted the Pothwar and Gujranwala regions, respectively. Maryam *et al.* [26] describe the comprehensive checklist and emphasized the importance of exploring overlooked

regions, shedding light on the potentially rich aphid fauna in Pakistan. The current study's findings are noteworthy, encompassing 69 aphid species across 39 genera spanning seven subfamilies, 10 tribes, and establishing associations with 71 host plant species from 37 genera and 39 families. The emphasis on these areas is crucial for unveiling the hidden diversity of aphids, highlighting the richness that may have been overlooked in prior research efforts.

5. CONCLUSIONS

This paper presents preliminary checklist, distribution and host plants of Aphididae from the Poonch division, Azad Jammu and Kashmir based on published records in recent years data. The study emphasizes the importance of investigating vastly overlooked regions in the country. This checklist would serve as a baseline for the future workers engaged in aphidological pursuits not only in the study area but also elsewhere in Pakistan, particularly regions of Punjab and Khyber Pakhtunkhwa provinces geographically adjacent to the study area. On this account the study also suggests updating of related checklists in these latter regions. Due to the study's limited scope, absence of link roads, frequent land sliding, and lack of funding, it is highly likely that numerous exotic and endemic species remained unexplored in this particular research. More extensive works are needed to fully realize the regional aphid diversity of Azad Jammu and Kashmir.

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7. CONFLICT OF INTEREST

The authors stated that there are no conflicts of interest related to this article's publication.

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