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## Biodiversity of Aphids (Insecta: Homoptera: Aphididae) Infesting Legumes (Angiospermae: Fabales: Fabaceae) in India

Rajendra Singh<sup>1</sup>, Garima Singh<sup>2</sup>, Kusum Singh<sup>1</sup>, Akhilesh Sharma<sup>3</sup>

<sup>1</sup>Department of Zoology, DDU Gorakhpur University, Gorakhpur, U.P., India

<sup>2</sup>Department of Zoology, Rajasthan University, Jaipur, Rajasthan, India

<sup>3</sup>Department of Zoology, S.P. P.G. College, Shoharatgarh, Sidhharthnagar, U.P

[rsinghpu@gmail.com](mailto:rsinghpu@gmail.com)

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**Abstract:** The angiospermic family Fabaceae or Leguminosae is the second largest family in the world. Out of about 1200 species described, only 122 species were found to be attacked by one or other aphid (Insecta : Homoptera : Aphididae) species. On record, 73 aphid species colonise the legumes in India, among which *Aphis craccivora* is the dominating species and feeds on 83 species of legumes followed by *Aphis gossypii* (39 species) and *Acyrtosiphon pisum* (20 species). The higher number of aphid species (16 species) are found to colonise *Cajanus cajan* followed by *Lablab purpureus* ssp. *purpureus* (12 aphid species) and *Vigna unguiculata* ssp. *cylindrica* (8 aphid species).

**Keywords:** Legume, *Aphis craccivora*, *Cajanus cajan*, host-plant record, aphids.

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### 1. INTRODUCTION

About 4,700 species of aphids (Insecta : Homoptera : Aphididae), popularly known as plant-lice or ant-cows, constitute a group of small sized (0.7 to 7.0 mm in length) insects that suck the phloem fluid of plants [1] and about 1000 species are injurious to crops throughout the world [2]. Thelytokous parthenogenetic viviparity (obligate parthenogenesis where mothers give birth only to daughter young ones), short generation time (about 10 days on average), telescoping of generations (where granddaughters begin developing directly within the daughters which are themselves not yet born) and polymorphism are major traits of aphids that make them highly prolific in reproduction [3]. Many species of aphids display complex life cycles with alternation of sexual and asexual generations and host plant alternation [4]. The aphids excrete characteristic sugary substance, honeydew, which attracts wasps, butterflies, some moths and famously, some species of ants [5]. Aphids are also abused as they transmit viral diseases to several crops that warrant crop management strategies. Although aphids are the pest of crops, they are extremely important hosts for a number of parasitoids, predators and an essential meal for numerous other insects, as well as birds [5].

The legume or bean family Fabaceae or Leguminosae have a remarkable ecological and economical importance. It includes trees, shrubs and perennial or annual herbaceous plants, which are easily recognized by their fruit (legume) and their compound, stipulated leaves. The group is widely distributed and is the third-largest land plant family in terms of number of species (over 24,500 species) [6]. A number of legume crops are important food plants (e.g., *Glycine max* (soybean), *Phaseolus* (beans), *Pisum sativum* (pea), *Cicer arietinum* (chickpeas); forage crops (e.g., *Medicago sativa* (alfalfa), *Arachis hypogaea* (peanut) and *Lathyrus odoratus* (sweet pea); industrial legumes (e.g., *Indigofera* cultivated for indigo, *Acacia* for gum arabic and *Derris* for the insecticide); green manure legumes (e.g., *Leucaena*, *Cyamopsis* and *Sesbania*); timber crops (e.g., *Acacia* species, *Dalbergia* species and *Castanospermum austral*). In addition, a number of species are also weedy pests in different parts of the world. The plants of this group also possess symbiotic rhizobial bacteria in nodules, mainly located in the root cortex of the plant and help in fixing atmospheric nitrogen making soil more fertile [7].

Earlier, the Indian aphids and their host plants were catalogued in 1983 [8] and additions were made in 2001 [9] and later on by several authors but most of the names of aphid species as well as plant species mentioned therein are either invalid or misnomer. Following article deals with the updated checklist of aphids and its host plants belonging to the family Fabaceae based on the records in literatures and surveys

upto July 2015. In the present compilation, attempts have been made to provide the valid scientific name of the plants following update taxonomic informations provided by <http://aphid.speciesfile.org> for aphids and <http://www.ars-grin.gov> and <http://www.theplantlist.org> for plants. At several places, their synonymies were also mentioned. The subgeneric names of the aphids were excluded.

Following is the updated checklist of aphids infesting the plants belonging to the Fabaceae (or Leguminosae).

## 2. PLANT – APHID CHECK LIST

1. *Abrus* sp. : *Aphis craccivora* Koch [10]
2. *Acacia catechu* (L.f.) Willd. : *Aphis acaciae* Sathe and Jadhav [11]
3. *Acacia* sp. : *Aphis gossypii* Glover [12]
4. *Aeschynomene americana* Linn. : *Aphis craccivora* Koch [13]
5. *Aeschynomene* sp. : *Aphis craccivora* Koch [14]
6. *Albizia odoratissima* (Koroi) : *Toxoptera aurantii* (Boyer de Fonsc.) [15,16,17]
7. *Alhagi camelorum* Fisch. : *Acyrtosiphon pisum* (Harris) [16,18], *Aphis craccivora* Koch [16]
8. *Alhagi pseudoalhagi* (M. Bieb) Desv. : *Aphis craccivora* Koch [19]
9. *Alysicarpus glumaceus* (Vahl.) DC.: *Aphis craccivora* Koch [19]
10. *Alysicarpus rugosus* (Wild.) DC. : *Aphis craccivora* Koch [16,20]
11. *Arachis hypogaea* L.: *Aphis craccivora* Koch [16,20-26], *Aphis nasturtii* Kaltentbach [17]
12. *Astragalus* sp. : *Aphis astragali* Ossiannilsson [27]
13. *Bauhinia acuminata* L. : *Aphis spiraecola* Patch [28]
14. *Bauhinia variegata* L. : *Aphis gossypii* Glover [29]
15. *Bauhinia* sp.: *Aphis spiraecola* Patch [30], *Cervaphis apatii* Jadhav and Sathe [31]
16. *Butea minor* Ham. : *Brachycaudus helichrysi* (Kaltentbach) [32]
17. *Butea monosperma* (Lam.) Taub. (= *Butea frondosa* Roxb. ex Willd.) : *Aphis gossypii* Glover [16,19]
18. *Caesalpinia coriaria* (Jacq.) Willd. : *Toxoptera aurantii* (Boyer de Fonsc.) [16]
19. *Caesalpinia decapetala* (Roth) Alston (= *Caesalpinia sepiaria* Roxb.) : *Aphis gossypii* Glover [9], *Sitobion aulacorthoides* (David, Rajasingh and Narayanan) [12]
20. *Caesalpinia* sp. : *Sitobion aulacorthoides* (David et al.) [28]
21. *Cajanus cajan* (L.) Millsp. (= *Cajanus indicus* Spreng.) : *Acyrtosiphon* ? *caraganae* (Cholodk-ovsky) [28,33], *Acyrtosiphon pisum* (Harris) [34], *Aphis craccivora* Koch [16,21,35], *Aphis fabae* Scopoli [36], *Aphis gossypii* Glover [28], *Aphis spiraecola* Patch [32,37], *Brachycaudus cardui* (Linnaeus) [38], *Brachycaudus helichrysi* (Kaltentbach) [38], *Brevicoryne brassicae* (Linnaeus) [38], *Cervaphis rappardi indica* Basu [32,39-41], *Cervaphis schouteniae* van der Goot [16,42,43], *Megoura lespedezae* (Essig and Kuwana) [28,32,40], *Myzus persicae* (Sulzer) [28,44], *Rhopalosiphum kolhapurensis* Sathe and Jadhav [45], *Rhopalosiphum maidis* (Fitch) [46], *Cervaphis rappardi rappardi* Hille Ris Lambers [47]
22. *Cajanus* sp. : *Aphis craccivora* Koch [48]
23. *Calliandra haematocephala* Hassk. : *Aphis gossypii* Glover [28]
24. *Calliandra* sp. : *Aphis gossypii* Glover [49,50]
25. *Canavalia ensiformis* (L.) DC. : *Aphis craccivora* Koch [32]
26. *Cassia fistula* L. : *Aphis craccivora* Koch [36,51], *Aphis fabae* Scopoli [52], *Myzus persicae* (Sulzer) [28], *Toxoptera odinae* (van der Goot) [28,53]

27. *Cassia javanica* L. : *Aphis craccivora* Koch [32,40]
28. *Cassia* sp. : *Aphis craccivora* Koch [21,48], *Aphis gossypii* Glover [28,43], *Greenidea longicornis* Ghosh, Ghosh and Raychaudhuri [47], *Myzus persicae* (Sulzer) [54], *Toxoptera citricida* (Kirkaldy) [53], *Toxoptera odinae* (van der Goot) [28,53]
29. *Castanospermum* sp. : *Mollitrichosiphum tenuicarpus* (Okajima) [16,33,55], *Betacallis querciphaga* Basu, Ghosh and Raychaudhuri [33,55,56]
30. *Chamaecrista absus* (L.) Irwin and Barneby (= *Cassia absus* L.) : *Toxoptera citricida* (Kirkaldy) [53]
31. *Cicer arietinum* L. : *Acyrtosiphon pisum* (Harris) [23,25], *Aphis craccivora* Koch [16,21,23,28, 48], *Aphis gossypii* Glover [35]
32. *Cicer* sp. : *Aphis craccivora* Koch [57]
33. *Clitoria ternatea* L. : *Aphis gossypii* Glover [42,58]
34. *Crotalaria alata* Buch.-Ham. ex Roxb. : *Aphis gossypii* Glover [23]
35. *Crotalaria juncea* L. : *Aphis craccivora* Koch [16,20,32], *Aphis gossypii* Glover [16,43], *Aphis umbrella* (Borner) [16], *Aulacorthum magnoliae* (Essig and Kuwana) [33]
36. *Crotalaria pallida* Aiton (= *Crotalaria brownie* Bertero ex DC., = *Crotalaria mucronata* Desv. : *Aphis craccivora* Koch [13,34], *Aphis gossypii* Glover [13], *Aphis spiraeicola* Patch [28], *Brachycaudus helichrysi* (Kalt.) [28], *Aphis fabae* complex [32], *Schizaphis rotundiventris* (Signoret) [32]
37. *Crotalaria* sp. : *Aphis craccivora* Koch [28,54], *Aphis gossypii* Glover [23,54], *Aphis nasturtii* Kaltenbach [17,28], *Aphis spiraeicola* Patch [54], *Myzus persicae* (Sulzer) [44,50]
38. *Cyamopsis tetragonoloba* (L.) Taub. : *Aphis craccivora* Koch [16,20,24], *Aphis gossypii* Glover [23]
39. *Dalbergia sissoo* Roxb. ex DC. : *Aphis craccivora* Koch [50,59,60], *Cinara similis* (van der Goot) [12], *Greenidea* sp. [16], *Myzus persicae* (Sulzer) [16], *Toxoptera aurantii* (Boyer de Fonsc.) [61]
40. *Dalbergia* sp. : *Aphis craccivora* Koch [28]
41. *Delonix regia* (Bojer ex Hook) Raf. : *Macrosiphoniella sanborni* (Gillette) [36]
42. *Desmodium caudatum* (Thunb.) DC. (= *Desmodium laburnifolium* (Poir.) DC.) : *Aphis gossypii* Glover [9]
43. *Desmodium* sp. : *Acyrtosiphon rubi* (Narzikulov) [62], *Aphis craccivora* Koch [28], *Capitophorus mitegoni* Eastop [28], *Megoura lespedezae* (Essig and Kuwana) [63,64], *Sitobion rosaeiformis* (Das) [28]
44. *Desmodium trifolium* (L.) DC. : *Megoura lespedezae* (Essig and Kuwana) [28,33]
45. *Dolichos* sp. : *Aphis craccivora* Koch [65]
46. *Erythrina indica* Lam. : *Toxoptera odinae* (van der Goot) [28,53]
47. *Flemingia macrophylla* (Willd.) Merr. (= *Moghania macrophylla* (Willd.) Kuntz.) : *Aphis craccivora* Koch [66], *Aphis gossypii* Glover [66]
48. *Gliricidia maculata* (Kunth) Kunth ex Walp. : *Aphis craccivora* Koch [16,20,24], *Indomyzus glaricae* Sathe and Jadhav [45]
49. *Glycine max* (L.) Merrill. (= *Glaxina maxima* auct. nonn.) : *Aphis glycines* Matsumura [19,28,32,33], *Acyrtosiphon pisum* (Harris) [22], *Aphis craccivora* Koch [25,42,50,60], *Aphis gossypii* Glover [28], *Aphis* sp. [42], *Myzocallis* sp. [55], *Myzus dycei* Carver [28,33,55], *Myzus persicae* (Sulzer) [67]
50. *Glycine wightii* (Wight and Arn.) Verdc. : *Aphis glycines* Matsumura [34]

51. *Indigofera dosua* Buch.-Ham. ex D. Don : *Megoura dooarsis* (Ghosh and Raychaudhuri) [33]
52. *Indigofera Dregeana* F. Mey (= *Indigofera gerardiana* Wall. Ex Baker) : *Cavariella himachali* Ghosh [68], *Megoura* sp. [25,69]
53. *Indigofera heterantha* Wall. ex Brandis : *Megoura dooarsis* (Ghosh and Raychaudhuri) [70]
54. *Indigofera linnaei* Ali (= *Indigofera enneaphylla* L.) : *Aphis craccivora* Koch [16,20]
55. *Indigofera nigrescens* Kurz ex King and Prain (= *Indigofera nigra* Kurz) : *Aphis craccivora* Koch [16,20]
56. *Indigofera oblongifolia* Forssk. : *Aphis craccivora* Koch [16,71]
57. *Indigofera purpurea* Steud. : *Aphis craccivora* Koch [19]
58. *Indigofera tinctoria* L. : *Aphis craccivora* Koch [16]
59. *Indigofera trita* L.f. (= *Tephrosia trita* misident.) : *Aphis craccivora* Koch [16,20]
60. *Indigofera zollingeriana* Miq. (= *Indigofera teysmannii* Miq.) : *Megoura dooarsis* (Ghosh and Raychaudhuri) [28,33]
61. *Indigofera* sp. : *Anomalosiphum indigoferae* Ghosh, Ghosh and Raychaudhuri [28, 33,73,72], *Aphis craccivora* Koch [20,28,54,57], *Aphis gossypii* Glover [28], *Aulacorthum circumflexum* (Buckton) [54], *Megoura dooarsis* (Ghosh and Raychaudhuri) [28,39], *Nudisiphon folisacculata* (Kumar and Burkhardt) [74], *Toxoptera aurantii* (Boyer de Fonsc.) [17,28,54]
62. *Lablab purpureus* (L.) Sweet ssp. *purpureus* (= *Dolichos lablab* L.) : *Acyrtosiphon ? caraganae* (Cholodkovsky) [28,73], *Acyrtho-siphon pisum* (Harris) [16,18], *Aphis acaciae* Sathe and Jadhav [45], *Aphis craccivora* Koch [16,20-24,26,28,48,57,59], *Aphis fabae* complex [75,76], *Aphis gossypii* Glover [16,21], *Aphis rumicis* Linnaeus [32,77], *Aulacorthum circum-flexum* (Buckton) [28], *Brachycaudus helichrysi* (Kalt.) [78], *Myzus ornatus* Laing [28], *Myzus persicae* (Sulzer) [28], *Rhopalosiphum rufi-abdominalis* (Sasaki) [28,79]
63. *Lablab speciosa* ? : *Aphis craccivora* Koch [12]
64. *Lathyrus aphaca* L. : *Aphis craccivora* Koch [35]
65. *Lathyrus odoratus* L. : *Acyrtosiphon pisum* (Harris) [16,18,80,81], *Aphis gossypii* Glover [49,50], *Macrosiphum* sp. [16]
66. *Lathyrus sativus* L. : *Acyrtosiphon pisum* (Harris) [23,32], *Aphis craccivora* Koch [16,21, 50,60]
67. *Lens culinaris* Medik. : *Acyrtosiphon pisum* (Harris) [36], *Aphis craccivora* Koch [35,36,50,60]
68. *Lens culinaris* ssp. *culinaris* Medik (= *Lens esculenta* Moench.) : *Acyrtosiphon pisum* (Harris) [32], *Aphis craccivora* Koch [16,82,83], *Aphis gossypii* Glover [82]
69. *Lespedeza* sp. : *Aphis* sp. [84]
70. *Leucaena glauca* (Willd.) Benth. : *Aphis gossypii* Glover [38]
71. *Leucaena leucocephala* (Lam.) de Wit. (= *Leucaena glauca* auct.) : *Aphis craccivora* Koch [45], *Aphis gossypii* Glover [45], *Brachycaudus helichrysi* (Kalt.) [38]
72. *Lupinus* sp. : *Myzus persicae* (Sulzer) [42]
73. *Medicago lupulina* L. : *Acyrtosiphon pisum* (Harris) [16,18,83], *Aphis craccivora* Koch [16,83], *Myzus persicae* (Sulzer) [42], *Therioaphis ononidis* (Kalt.) [83], *Therioaphis trifolii* (Monell) [16]
74. *Medicago polymorpha* var. *vulgaris* (Benth.) Shinnars (= *Medicago denticulata* Willd.) : *Acyrtosiphon pisum* (Harris) [16,18,83], *Aphis craccivora* Koch [16,83]
75. *Medicago sativa* L. : *Acyrtosiphon kondoi* Shinji [85], *Acyrtosiphon pisum* (Harris) [16,18,23,83], *Acyrtosiphon* sp. [84], *Aphis craccivora* Koch [16,20,24,57,82,83], *Aphis gossypii* Glover [16, 20,49,50], *Therioaphis ononidis* (Kaltenbach) [83,86,87], *Therioaphis trifolii* (Monell) [16,20, 25,38]

76. *Medicago sativa* ssp. *falcate* (L.) Arcang. (= *Medicago falcata* L.) : *Acyrtosiphon pisum* (Harris) [16]
77. *Melilotus albus* Medik : *Acyrtosiphon pisum* (Harris) [16,18], *Aphis craccivora* Koch [35]
78. *Melilotus indicus* (L.) All. : *Aphis craccivora* Koch [23], *Aphis gossypii* Glover [82]
79. *Melilotus indicus* (L.) var. *indicus* (= *Melilotus parviflorus* Dest.) : *Aphis craccivora* Koch [16]
80. *Mimosa pudica* L. : *Aphis craccivora* Koch [28,33,50,60], *Aphis gossypii* Glover [28], *Sitobion mimosae* (Ghosh et al.) [20,33], *Sitobion takahashii* (Eastop) [33,88,89]
81. *Mimosa* sp. : *Anomalosiphum indigoferae* Ghosh et al. [38], *Aphis craccivora* Koch [30]
82. *Mucuna* sp. : *Aphis craccivora* Koch [90]
83. *Parkia timoriana* (DC.) Merr. (= *Parkia roxberghii* G. Don) : *Toxoptera odinae* (van der Goot) [32]
84. *Peltophorum pterocarpum* (DC.) Backer ex K. Heyne : *Aphis gossypii* Glover [19], *Aphis gossypii* Glover [28], *Tinocallis himalayensis* Ghosh et al. [33,91]
85. *Phaseolus sinensis* Hort. ex Schur : *Aphis craccivora* Koch [35,36]
86. *Phaseolus* sp. : *Acyrtosiphon phaseoli* Chakrabarti et al. [25,69,92], *Aphis craccivora* Koch [69], *Aphis* sp. [93]
87. *Phaseolus vulgaris* Linn. : *Aphis gossypii* Glover [94], *Aphis craccivora* Koch [32], *Hyalopterus pruni* (Geoffroy) [16,43], *Myzus persicae* (Sulzer) [16,43], *Smynthuodes betae* Westwood [42]
88. *Pisum sativum* Linn. : *Acyrtosiphon pisum* (Harris) [16,18,21-23,25,32,33,71,87], *Aphis craccivora* Koch [24,26,28,32,35,42,48,59], *Aphis spiraecola* Patch [28,40], *Macrosiphum centranthi* Theobald [88], *Myzus persicae* (Sulzer) [16,28,44], *Sitobion rosaeiformis* (Das) [28], *Tetraneura nigriabdominalis* (Sasaki) [55], *Acyrtosiphon vatanii* Sathe and Jadhav [45]
89. *Pisum* sp. : *Acyrtosiphon pisum* (Harris) [28,33]
90. *Prosopis juliflora* (Sw.) DC. : *Aphis gossypii* Glover [16,71]
91. *Psophocarpus tetragonolobus* (L.) DC. : *Aphis craccivora* Koch [42]
92. *Robinia pseudoacacia* L. : *Aphis craccivora* Koch [84,95,96]
93. *Samanea saman* (Jacq.) Merr. (= *Pithecellobium saman* Jacq.) : *Toxoptera citricida* (Kirkaldy) [30]
94. *Senna alata* (L.) Roxb. (= *Cassia alata* L.) : *Aphis craccivora* Koch [96]
95. *Senna auriculata* (L.) Roxb. (= *Cassia auriculata* L.) : *Aphis craccivora* Koch [16,24]
96. *Senna hirsuta* (L.) H. S. Irwin and Barneby var. *hirsuta* (= *Cassia hirsuta* L.) : *Aphis craccivora* Koch [32], *Aphis gossypii* Glover [32]
97. *Senna siamea* (Lam.) H.S. Irwin and Barneby (= *Cassia siamea* Lam.) : *Toxoptera odinae* (van der Goot) [40,41]
98. *Senna sophera* (L.) Roxb. (= *Cassia sophera* L.) : *Aphis craccivora* Koch [23,28,32,96], *Aphis gossypii* Glover [28,38], *Myzus persicae* (Sulzer) [28]
99. *Senna tora* (L.) Roxb. (= *Cassia tora* L.) : *Aphis craccivora* Koch [24,97,98]
100. *Sesbania bispinosa* (Jacq.) W. Wight : *Aphis craccivora* Koch [16,98]
101. *Sesbania cannabina* (Retz.) Pers. : *Aphis craccivora* Koch [16]
102. *Sesbania grandiflora* (L.) Pers. : *Acyrtosiphon gossypii* Mordvilko [16,99], *Acyrtosiphon pisum* (Harris) [16,100], *Aphis craccivora* Koch [16,20,57,100], *Aphis gossypii* Glover [28]
103. *Sesbania speciosa* Taub. : *Aphis craccivora* Koch [16,20,98]

104. *Smithia sensitiva* Aiton : *Aphis craccivora* Koch [32]
105. *Sophora tomentosa* L. : *Acyrtosiphon gossypii* Mordvilko [101]
106. *Tamarindus indica* L. : *Aphis gossypii* Glover [80], *Myzus persicae* (Sulzer) [45], *Toxoptera aurantii* (Boyer de Fonsc.) [16,71]
107. *Tamarindus* sp. : *Toxoptera aurantii* (Boyer de Fonsc.) [30]
108. *Tephrosia candida* DC. : *Aphis craccivora* Koch [28,38]
109. *Tephrosia purpurea* (L.) Pers. : *Aphis craccivora* Koch [16,20], *Megoura dooarsis* (Ghosh and Raychaudhuri) [22,102,103]
110. *Tephrosia* sp. : *Brachycaudus helichrysi* (Kaltenbach) [9], *Longicaudus himalayensis* Hille Ris Lambers [9,103]
111. *Trifolium alexandrinum* Linn. (= *Trifolium alexandrum* auct. nonn.) : *Acyrtosiphon pisum* (Harris) [23], *Aphis craccivora* Koch [16,20,83], *Hyadaphis coriandri* (Das) [36], *Therioaphis trifolii* (Monell) [36], *Lipaphis erysimi* (Kaltenbach) [104]
112. *Trifolium praetutianum* Guss. (= *Trifolium prutentianum* auct. nonn.) : *Aphis craccivora* Koch [22], *Myzus persicae* (Sulzer) [22]
113. *Trifolium repens* L. : *Aphis craccivora* Koch [42,105]
114. *Trifolium* sp. : *Myzus persicae* (Sulzer) [23], *Therioaphis trifolii* (Monell) [106]
115. *Trigonella foenum-graecum* L. : *Acyrtosiphon pisum* (Harris) [16,23], *Aphis craccivora* Koch [16,35,82], *Aphis gossypii* Glover [49,50,82], *Myzus persicae* (Sulzer) [82]
116. *Trigonella polycerata* L. : *Aphis craccivora* Koch [107]
117. *Uraria* sp. : *Greenideoida bhalukpongensis* Ghosh et al. [33,73]
118. *Vicia faba* L. : *Acyrtosiphon pisum* (Harris) [23,28,33,108], *Aphis craccivora* Koch [16,28,32, 35,40], *Aphis fabae* complex [19,28,32,33,76], *Aphis gossypii* Glover [28,49,50], *Aphis spiraecola* Patch [28,32,50], *Chaetogeioica graminiphaga* Raychaudhuri et al. [55], *Myzus ornatus* Laing [28], *Myzus persicae* (Sulzer) [28,44]
119. *Vicia sativa* L. : *Aphis craccivora* Koch [104], *Aphis gossypii* Glover [104], *Myzus persicae* (Sulzer) [29]
120. *Vigna mungo* (L.) Hepper (= *Phaseolus roxburghii* Wight and Arn.) : *Aphis craccivora* Koch [32,38]
121. *Vigna mungo* (L.) Hepper var. *mungo* (= *Phaseolus mungo* L.) : *Aphis craccivora* Koch [16,20,21,23,28,32,32,50,83,98]
122. *Vigna radiata* (L.) R. Wiczek var. *radiata* (= *Phaseolus radiatus* L.; *Phaseolus aureus* Roxb.) : *Aphis craccivora* Koch [16,20,35,82,98], *Smynthuodes betae* Westwood [79]
123. *Vigna sativa* (Fabr.) : *Aphis craccivora* Koch [35]
124. *Vigna* sp. : *Anomalosiphum indigoferae* Ghosh et al. [32], *Aphis craccivora* Koch [35]
125. *Vigna trilobata* (L.) Verdc. (= *Phaseolus trilobus* sensu auct.) : *Aphis craccivora* Koch [16,20]
126. *Vigna unguiculata* (L.) Walp. ssp. *cylindrica* (L.) Verdc. (= *Vigna catjang* (Burm.f.) Walp.; = *Dolichos biflorus* L.) : *Aphis acaciae* Sathe and Jadhav [45], *Aphis craccivora* Koch [16,20,21, 23-26,28,38,59,83,86,98], *Aphis fabae* complex [16,28], *Aphis gossypii* Glover [16], *Aphis rumicis* Linnaeus [38], *Aphis spiraecola* Patch [28], *Brachycaudus helichrysi* (Kaltenbach) [28], *Myzus ornatus* Laing [28]
127. *Vigna unguiculata* ssp. *sensquipedalis* (L.) Walp. (= *Vigna sensquipedalis* (L.) Fruwirth) : *Aphis craccivora* Koch [23]
128. *Vigna unguiculata* ssp. *unguiculata* (L.) Walp. (= *Vigna sinensis* (L.) Savi ex Hassk.) : *Aphis craccivora* Koch [12,50,60], *Sinomegoura citricola* (van der Goot) [109]

129. Unidentified plants : *Anomalosiphum indigoferae* Ghosh, Ghosh and Raychaudhuri [33,72], *Aphis craccivora* Koch [14,110,111,112], *Aphis gossypii* Glover [113], *Acyrtosiphon malvae* (Mosley) [112], *Greenidea decaspermi* Takahashi [33], *Lipaphis erysimi* (Kaltenbach) [25], *Macrosiphum* sp. [16], *Megoura dooarsis* (Ghosh and Raychaudhuri) [25,33,69], *Megoura lespedezae* (Essig and Kuwana) [69,112], *Megoura? lespedezae* (Essig and Kuwana) [112], *Pentalonia nigronervosa* Coquerel [42,113], *Rhopalosiphum nymphaeae* (Linnaeus) [16,42,113], *Tinocallis distinctus* Ghosh et al. [114,115], *Tinocallis himalayensis* Ghosh et al. [71,116]

### **3. APHID-PLANT CHECK LIST**

1. *Acyrtosiphon ? caraganae* : *C. cajan*, *L. purpureus*
2. *Acyrtosiphon gossypii* : *L. purpureus*, *S. grandiflora*,
3. *Acyrtosiphon kondoi* : *M. sativa*
4. *Acyrtosiphon phaseoli* : *Phaseolus* sp.
5. *Acyrtosiphon pisum* : *A. camelorum*, *C. arietinum*, *C. cajan*, *G. max*, *L. culinaris*, *L. culinaris* ssp. *culinaris*, *L. odoratus*, *L. purpureus*, *L. sativus*, *M. albus*, *M. lupulina*, *M. polymorpha* var. *vulgaris*, *M. sativa*, *M. sativa* ssp. *falcata*, *P. sativum*, *Pisum* sp., *S. grandiflora*, *T. alexandrinum*, *T. foenum-graecum*, *V. faba*
6. *Acyrtosiphon rubi* : *Desmodium* sp.
7. *Acyrtosiphon* sp. : *M. sativa*
8. *Acyrtosiphon vatarii* : *P. sativum*
9. *Anomalosiphum indigoferae* : *Vigna* sp., *Mimosa* sp., *Indigofera* sp.
10. *Aphis acaciae* : *A. catechu*, *V. unguiculata*, *L. purpureus*
11. *Aphis astragali* : *Astragalus* sp.
12. *Aphis craccivora* : *A. Americana*, *A. camelorum*, *A. glumaceus*, *A. hypogaea*, *A. pseudoalhagi*, *A. rugosus*, *Abrus* sp., *Aeschynomene* sp., *C. arietinum*, *C. cajan*, *C. ensiformis*, *C. fistula*, *C. javanica*, *C. juncea*, *C. pallida*, *C. tetragonoloba*, *Cajanus* sp., *Cassia* sp., *Cicer* sp., *Crotalaria* sp., *D. sissoo*, *Dalbergia* sp., *Desmodium* sp., *Dolichos* sp., *F. macrophylla*, *G. maculata*, *G. max*, *I. linnaei*, *I. nigrescens*, *I. oblongifolia*, *I. purpurea*, *I. tinctoria*, *I. trita*, *Indigofera* sp., *L. aphaca*, *L. culinaris*, *L. culinaris* ssp. *culinaris*, *L. leucocephala*, *L. purpureus*, *L. sativus*, *L. speciosa* ?, *M. albus*, *M. indicus*, *M. indicus*, *M. lupulina*, *M. polymorpha* var. *vulgaris*, *M. pudica*, *M. sativa*, *Mimosa* sp., *Mucuna* sp., *P. sativum*, *P. sinensis*, *P. tetragonolobus*, *P. vulgaris*, *Phaseolus* sp., *R. pseudoacacia*, *S. alata*, *S. auriculata*, *S. bispinosa*, *S. cannabina*, *S. grandiflora*, *S. hirsuta*, *S. sensitiva*, *S. sophera*, *S. speciosa*, *S. tora*, *T. alexandrinum*, *T. candida*, *T. foenum-graecum*, *T. polycerata*, *T. praetutianum*, *T. purpurea*, *T. repens*, *V. faba*, *V. mungo*, *V. mungo* var. *mungo*, *V. radiata* var. *radiata*, *V. sativa*, *V. sativa*, *V. trilobata*, *V. unguiculata*, *V. unguiculata* ssp. *sensquipedalis*, *V. unguiculata* ssp. *unguiculata*, *Vigna* sp.
13. *Aphis fabae* : *C. cajan*, *C. fistula*, *C. pallida*, *L. purpureus*, *V. faba*, *V. unguiculata*
14. *Aphis glycines* : *G. max*
15. *Aphis glycines* : *G. wightii*
16. *Aphis gossypii* : *Acacia* sp., *B. monosperma*, *B. variegata*, *C. alata*, *C. arietinum*, *C. cajan*, *C. decapetala*, *C. haematocephala*, *C. juncea*, *C. pallida*, *C. ternatea*, *C. tetragonoloba*, *Calliandra* sp., *Cassia* sp., *Crotalaria* sp., *D. caudatum*, *F. macrophylla*, *G. max*, *Indigofera* sp., *L. culinaris* ssp. *culinaris*, *L. glauca*, *L. leucocephala*, *L. odoratus*, *L. purpureus*, *M. indicus*, *M. pudica*, *M. sativa*, *P. juliflora*, *P. pterocarpum*, *P. pterocarpum*, *P. vulgaris*, *S. grandiflora*, *S. hirsute*, *S. sophera*, *T. foenum-graecum*, *T. indica*, *V. faba*, *V. sativa*, *V. unguiculata*
17. *Aphis nasturtii* : *A. hypogaea*, *Crotalaria* sp.
18. *Aphis rumicis* : *L. purpureus*, *V. unguiculata*

19. *Aphis spiraecola* : *B. acuminata*, *Bauhinia* sp., *C. cajan*, *C. pallida*, *Crotalaria* sp., *P. sativum*, *V. faba*, *V. unguiculata*
20. *Aphis umbrella* : *C. juncea*
21. *Aphis* sp. : *G. max*, *Lespedeza* sp., *Phaseolus* sp.
22. *Aulacorthum circumflexum* : *Indigofera* sp., *L. purpureus*
23. *Aulacorthum magnolia* : *C. juncea*
24. *Betacallis querciphaga* : *Castanospermum* sp.
25. *Brachycaudus cardui* : *C. cajan*
26. *Brachycaudus helichrysi* : *B. minor*, *C. cajan*, *C. pallida*, *L. leucocephala*, *L. purpureus*, *Tephrosia* sp., *V. unguiculata*,
27. *Brevicoryne brassicae* : *C. cajan*
28. *Capitophorus mitegoni* : *Desmodium* sp.
29. *Cavariella himachali* : *I. dregeana*
30. *Cervaphis apatii* : *Bauhinia* sp.
31. *Cervaphis rappardi indica* : *C. cajan*
32. *Cervaphis rappardi rappardi* : *C. cajan*
33. *Cervaphis schouteniae* : *C. cajan*
34. *Chaetogeioica graminiphaga* : *V. faba*
35. *Cinara similis* : *D. sissoo*
36. *Greenidea longicornis* : *Cassia* sp.
37. *Greenidea* sp. : *D. sissoo*
38. *Greenideoida bhalukpongensis* : *Uraria* sp.
39. *Hyadaphis coriandri* : *T. alexandrinum*
40. *Hyalopterus pruni* : *P. vulgaris*
41. *Indomyzus glaricae* : *G. maculata*
42. *Lipaphis erysimi* : *T. alexandrinum*
43. *Longicaudus himalayensis* : *Tephrosia* sp.
44. *Macrosiphoniella sanborni* : *D. regia*
45. *Macrosiphum centranthi* : *P. sativum*
46. *Macrosiphum* sp. : *L. odoratus*
47. *Megoura dooarsis* : *I. dosua*, *I. heterantha*, *I. zollingeriana*, *Indigofera* sp., *T. purpurea*
48. *Megoura lespedezae* : *Desmodium* sp., *D. trifolium*, *C. cajan*
49. *Megoura* sp. : *I. dregeana*
50. *Mollitrichosiphum tenuicorpus* : *Castanospermum* sp.
51. *Myzocallis* sp. : *G. max*
52. *Myzus dycei* : *G. max*
53. *Myzus ornatus* : *L. purpureus*, *V. faba*, *V. unguiculata*
54. *Myzus persicae* : *C. cajan*, *C. fistula*, *Cassia* sp., *Crotalaria* sp., *D. sissoo*, *G. max*, *L. purpureus*, *Lupinus* sp., *M. lupulina*, *P. sativum*, *P. vulgaris*, *S. sophera*, *T. foenum-graecum*, *T. indica*, *T. praetutianum*, *Trifolium* sp., *V. faba*, *V. sativa*
55. *Nudisiphon folisacculata* : *Indigofera* sp.



56. *Rhopalosiphum kolhapurensis* : *C. cajan*
57. *Rhopalosiphum maidis* : *C. cajan*
58. *Rhopalosiphum rufiabdominalis* : *L. purpureus*
59. *Schizaphis rotundiventris* : *C. pallida*
60. *Sinomegoura citricola* : *V. unguiculata* ssp. *unguiculata*
61. *Sitobion aulacorthoides* : *C. decapetala*, *Caesalpinia* sp.
62. *Sitobion mimosa* : *M. pudica*
63. *Sitobion rosaeiformis* : *Desmodium* sp., *P. sativum*
64. *Sitobion takahashii* : *M. pudica*
65. *Smynthuroides betae* : *P. vulgaris*, *V. radiata* var. *radiata*
66. *Tetraneura nigriabdominalis* : *P. sativum*
67. *Therioaphis ononidis* : *M. lupulina*, *M. sativa*
68. *Therioaphis trifolii* : *M. lupulina*, *M. sativa*, *T. alexandrinum*, *Trifolium* sp.
69. *Tinocallis himalayensis* : *P. pterocarpum*
70. *Toxoptera aurantii* : *A. odoratissima*, *C. coriaria*, *D. sissoo*, *Indigofera* sp., *T. indica*, *Tamarindus* sp.
71. *Toxoptera citricida* : *C. absus*, *Cassia* sp., *S. saman*
72. *Toxoptera odinae* : *C. fistula*, *Cassia* sp., *E. indica*, *P. timoriana*, *S siamea*

#### **4. CONCLUSION**

The above information revealed that out of estimated Indian aphid fauna of about 653 species [117] only 73 species infest 122 species of legumes out of over 1150 species described [118] in India. *Aphis craccivora* is the dominating species and feeds on 83 species of legumes followed by *Aphis gossypii* (39 species) and *Acyrtosiphon pisum* (20 species). The higher number of aphid species (16 species) are found to colonise *Cajanus cajan* followed by *Lablab purpureus* ssp. *purpureus* (12 aphid species) and *Vigna unguiculata* ssp. *cylindrica* (8 aphid species).

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### **AUTHORS' BIOGRAPHY**



**Dr. Rajendra Singh**, is Professor and Head of the Department of Zoology and Department of Biotechnology, Deen Dayal Upadhyaya University of Gorakhpur and has 38 years of experience in the fields of bioecology and biosystematics of aphids and their parasitoids and predators, published about 200 research articles of international repute, authored 6 text/reference books, supervised one D.Sc. and 25 Ph. D. students and completed 12 research projects. He is fellow/life member of several scientific organizations/societies, Chief Editor of *J. Aphidol.* and is on the editorial/reviewer panel of several International Journals. Prof. Singh also served in the university as Pro-Vice Chancellor.



**Ms. Garima Singh**, is a Ph.D. Student in the Department of Zoology, Rajasthan University, Jaipur and doing research work on the factors affecting progeny sex ratio of an aphid parasitoid, *Lipolexis oregmae* (Gahan) (Hymenoptera: Braconidae, Aphidiinae). She has published three review articles. She has compiled the food plants of cotton aphid, *Aphis gossypii* Glover and green peach aphid, *Myzus persicae* (Sulzer) recorded in India.



**Dr. Kusum Singh**, has completed her Ph.D. on biosystematics and bioecology of *Aphis gossypii* Glover in eastern Uttar Pradesh. During her Ph.D. Course she worked on the taxonomy of aphids in and around Gorakhpur and studied the pattern of diversity and effect of food plants on the life-table of *A. gossypii*. She has skill in statistical analysis, diversity analysis etc. During her research period she had presented papers in several national and international seminars and symposia.



**Mr. Akhilesh Sharma**, is Assistant Professor, Department of Zoology, Sheopati P.G. College, Shoharatgarh, Siddharthanagar, U.P. and doing Ph.D. course in the Department of Zoology, D.D.U. Gorakhpur University, Gorakhpur on the biodiversity of spiders in the area. He was co-author of the review article on the food plants of green peach aphid, *Myzus persicae* (Sulzer) recorded in India.