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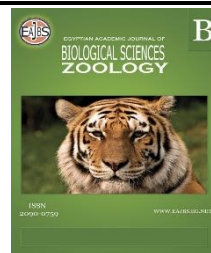


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## A Checklist of Stink Bugs (Hemiptera: Pentatomidae) of Maharashtra, India

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### ABSTRACT

The current study presents a comprehensive taxonomic list of the family Pentatomidae from the state of Maharashtra. The research involved an extensive literature review, resulting in the hierarchical classification of 2 out of 4 subfamilies that are found in India. According to the literature surveyed the present data comprises seventy-one species of forty-nine genera belonging to twelve tribes of two subfamilies namely Asopinae and Pentatominae. The enumeration of species by subfamily recorded is as follows: (Asopine 8 species, Pentatominae 68 species). Two subfamilies namely Asopinae and Pentatominae have been recorded from Maharashtra till date, contributing to the cumulative understanding of the broader Indian context, which encompasses four subfamilies in total. This checklist will be poised to function as a pivotal reference point for forthcoming investigations into Pentatomidae biodiversity and ecological research in Maharashtra. Exploring this area more extensively will likely reveal many more species than we currently know.

### INTRODUCTION

Insecta is the largest class of phylum Arthropoda in the animal kingdom with nearly one million described species constituting about 70-75% of all the recorded animal species. (Fauvel, G, 1999). Pentatomidae is the fourth largest family within Heteroptera. Heteroptera represents an important part of insect fauna, commonly called 'true bugs. They appear as a rather diverse suborder of the Hemiptera (Fauvel, G, 1999). The name Pentatomidae is from Greek 'pente' meaning five and 'tomos' meaning section which refers to the five segmented antennae. Pentatomidae is commonly called stink bugs as these insects eject foul-smelling substances secreted from pores of the thorax when they are agitated or shield bugs as they have broad shield-shaped bodies. (Jadhav and Hegde, 2018). Stink bugs are moderate-sized insects, rather quadrangular shaped, with overlapping wings. Pentatomids have a wing called Hemelytron (the apical portion of each front wing is membranous and the basal portion is thickened (Bhat, 2007).

The members of Pentatomidae are represented in all zoogeographical regions although the tropical and sub-tropical faunas are more diverse (Grazia et al., 2015). Ten subfamilies have been recognized by Rider *et al.*, 2018. Of these only four subfamilies,

Asopinae, Pentatominae, Phyllocephalinae and Podopinae are known to occur in India. (Salini and Viraktamath, 2015). The earliest comprehensive work on the Family Pentatomidae in India was carried out by Atkinson in the years 1884, 1887, and 1888 and later by Distant in 1902, 1908, and 1918. He even placed a few new genera presently recognized as Acanthosomatidae under Pentatomidae. As far as Maharashtra is concerned, 58 species belonging to 42 genera under two subfamilies of the family Pentatomidae has been reported (Girish Pathak *et.al.*, 2012). From Pune, 18 species of 16 genera of stink bugs belonging to 12 tribes under the single subfamily Pentatominae was recorded by Jadhav and Hegde in 2018. Two Pentatomidae bugs were recorded in the year 2012 and two bugs were recorded in 2017 by Ghate *et.al* and S.M. Gaikwad respectively from Kolhapur for the first time. Ghate recorded 2 endemic species in 2015 after a span of 100 years since its redescription by Distant (1908). Apart from this, several regional studies based on one or several taxa of Pentatomidae in Maharashtra were undertaken by various workers.

Though Pentatomidae is one of the most diverse families of heteroptera the knowledge of Pentatomidae from Maharashtra is scattered. In the present study, an effort has been made to bring together comprehensive data on stink bugs from Maharashtra.

## MATERIALS AND METHODS

Maharashtra state with three biogeographic zones (West Cost, Western Ghat and Deccan Plateau) is located between 19° 45' 5.4" N and 75° 42' 50.04" E with a total area of 308,000 km<sup>2</sup> and a coastline of 720 km in the west. The fauna of the family Pentatomidae in Maharashtra has not been studied thoroughly and available information is scattered, work on this group was done by Ghate (2012, 2015,) Jadhav and Hegde (2018), Gaikwad, (2017). This study involved conducting a comprehensive literature review and systematically gathering data from published articles. Every entry in the checklist was verified for its consistency with the correct taxonomic literature and website bug guide

## RESULTS AND DISCUSSION

According to the literature surveyed the present data comprises seventy-one species, forty-nine genera belonging to twelve tribes of two subfamilies. Four subfamilies have been reported from India, out of which only two subfamilies namely Asopinae and Pentatominae have been recorded from Maharashtra to date. Members of the subfamily Asopinae are predaceous in nature and feed on other insects whereas the members of the subfamily Pentatominae are phytophagous and recorded abundantly as compared to subfamily asopinae.

### Detailed Checklist Family Pentatomidae Subfamily Asopinae

1. *Andrallus spinidens* (Fabricius, 1787)
2. *Aeschrocoris ceylonicus* (Distant, 1899)
3. *Amyotea malabarica* (Fabricius, 1775)
4. *Cazira verrucosa* (Westwood, 1835)
5. *Eocanthecona concinna* (Walker, 1867)
6. *Eocanthecona furcellata* (Wolff, 1811 )
7. *Podisus spp.* (Herrich- Schaeffer, 1851)
8. *Sabaeus humeralis* (Dallas, 1851)
- 9.

**Subfamily Pentatominae****Tribe Agonoscelidini**

10. *Agonoscelis nubilis* (Fabricius, 1775)

**Tribe Antestiini**

11. *Antestia cruciata* (Fabricius, 1775)

12. *Plautia affinis* (Dallas, 1851)

13. *Plautia crossota* (Dallas, 1851)

14. *Plautia picturata* (Distant, 1918)

**Tribe Bathycoeliini**

15. *Bathycoelia indica* (Dallas, 1851)

**Tribe Cappaeini**

16. *Cappaea taprobanensis* (Dallas, 1851)

17. *Halyomorpha halys* (Stal, 1855)

18. *Halyomorpha picus* (Fabricius, 1794)

19. *Halyomorpha scutellata* (Distant, 1879)

**Tribe Carpocorini**

20. *Aeliomorpha lineatocollis* (Westwood, 1837)

21. *Bonacialis dixonii* (Distant, 1901)

22. *Codophila maculicollis* (Dallas, 1851)

23. *Dolycoris indicus* (Stal, 1876)

24. *Gulielmus laterarius* (Distant, 1901)

25. *Gulielmus mormoratus* (Distant, 1901)

26. *Catacanthus incarnatus* (Drury, 1773)

**Tribe Caystrini**

27. *Hippotiscus dorsalis* (Stal, 1870)

**Tribe Degonetini**

28. *Degonetus serratus* (Distant, 1887)

**Tribe Degonetini**

29. *Eurysaspis flavescence* (Distant, 1911)

**Tribe Degonetini**

30. *Adria parvula* (Dallas, 1851)

31. *Carbula biguttata* (Fabricius, 1794)

32. *Carbula insocia* (Walker, 1868)

33. *Carbula scutellata* (Distant, 1887)

34. *Carbula socia* (Walker, 1867)

35. *Eysarcoris guttiger* (Thunberg, 1834)

36. *Eysarcoris inconspicus* (Herrich-Schaffer, 1844)

37. *Eysarcoris montivagus* (Distant, 1902)

38. *Eysarcoris major* (Distant, 1902)

39. *Eysarcoris ventralis* (Westwood)

40. *Hermolaus typicus* (Distant, 1902)

**Tribe Halyini**

41. *Dalpada neoclavata* (Rider, 2002)

42. *Dalpada nigricollis* (Westwood, 1837)

43. *Dalpada versicolor* (Herrich Schaeffer)

44. *Erthesina acuminata* (Dallas, 1851)

45. *Erthesina fullo* (Thunberg, 1783)

46. *Eupaleopada concinna* (Westwood, 1837)

47. *Halys dentatus* (Fabricius, 1775)

48. *Halys nilgiriensis* (Distant, 1902)

**Tribe Halyini**

49. *Alcimocoris coronatus* (Stal, 1876)

**Tribe Lestonocorini**

50. *Gynenica affinis* (Distant, 1880)

**Tribe Mecideini**

51. *Mecidia indica* (Dallas 1851)

**Tribe Menidini**

52. *Apines concinna* (Dallas 1851)

53. *Cresphontes monsoni* (Westwood, 1837)

54. *Menida flavovaria* (Dallas 1851)

55. *Menida formosa* (Westwood, 1837)

56. *Phavorinus indicus* (Roa)

**Tribe Myrocheini**

57. *Laprius varicornis* (Dallas, 1851)

**Tribe Nezarini**

58. *Acrostemum graminea* (Fabricius, 1787)

59. *Nezara viridula* (Linn, 1758)

60. *Glaucias albomaculatus* (Distant 1902)

**Tribe Pentatomini**

61. *Placosternum alces* (Stal, 1876)

62. *Placosternum taurus* (Fabricius, 1781)

63. *Sabaeus humeralis* (Dallas 1851)

**Tribe Piezodorini**

64. *Piezodorus rubrofasciatus* (Fabricius 1787)

65. *Menedemus hieroglyphicus* (Distant, 1908)

**Tribe Sciocorini**

66. *Menedemus vittatus* (Dallas 1899)

67. *Sciocoris indicus* (Dallas, 1851)

**Tribe Sephelini**

68. *Niphe subferruginea* (Westwood, 1837)

69. *Niphe vittativentris* (Stal, 1870)

**Tribe Strachiini**

70. *Bagrada hilaris* (Fabricius, 1775)

71. *Bagrada pieta* (Fabricius, 1775)

72. *Stenozygum speiosllm* (Dallas, 1851)

**Conclusion:**

The study's results indicate that the family Pentatomidae is well-represented in Maharashtra, with a total of 71 species belonging to 49 genera and 12 tribes, distributed across two subfamilies, Asopinae and Pentatominae. The subfamilies contribute the following number of species, (Asopinae 8 species, and Pentatominae 68 species). The subfamily Pentatominae is more abundant in the region compared to Asopinae, and its members are predominantly phytophagous, feeding on plants. In contrast, the Asopinae subfamily consists of predaceous insects that feed on other insects. This checklist is based

on past studies and surveys made in various parts of Maharashtra by many authors. There is still a need for a detailed study of the fauna of Pentatomidae from Maharashtra. A further extensive survey of this area will undoubtedly reveal the existence of many more species than what is known today.

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