SUMMARY

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- The Suborder Heteroptera consist of a diverse group of bug species, which are adapted to various habitats such as terrestrial, fully aquatic, and semi-aquatic.
- Aquatic and semi-aquatic heteropteran bugs plays a major ecological role in aquatic ecosystems.
- A total of 109 localities were covered from the 14 Districts of Kerala.
- The specimens were collected from 12 different types of selected aquatic habitats of Kerala.
- The methodology of field study followed Subramanian & Sivaramakrishnan (2007).
- The photographs and measurements were taken in stereo-zoom microscopes such as LEICA S8AP0 and LEICA EZ4E.
- All the collected samples were identified till species level with the help of available standard published literature, monographs, identification manuals and taxonomic keys.
- The male genital segment was dissected to confirm the species based on the method of Padwal *et.al.* (2018).
- Three Infraorders such as Nepomorpha, Gerromorpha and Leptopodomorpha were observed.
- A total of 65 species belongs to 34 genera and 14 families were recorded during the study.
- This study revealed that 30 species belonging to 18 genera and 12 families were recorded for the first time in Kerala. In which, 13 species belonging to 18 genera and 12 families were reported for the first time in South India.
- The previous status of water bugs from Kerala are 85 species under 46 genera and 14 families. Thus, a total of 115 species of water bugs were recorded including my study from Kerala till this date.
- The map of study area of Kerala was generated by using 'QGIS' software.
- The distribution map of 30 new recorded species and their location details were given in the study.

- The diagnostic characters, locations and habitat of 65 reported species were provided.
- Taxonomic keys for the recorded 65 species of water bugs were prepared for the easy identification.
- The predatory efficacy of three selected water bugs such as *Laccotrephes ruber* Linnaeus, 1764, *Ranatra filiformis* Fabricius, 1790, and *Diplonychus rusticus* Fabricius, 1781 on mosquito larvae, *Culex quinquefasciatus* Say, 1823 were studied.
- The experimental data was statistically analysed with the help of "SPSS 22".
- These water bugs were voracious predatory carnivores and can be considered as biological control agents of *C. quinquefasciatus* based on the results obtained in the biocontrol experiments.
- The estimated marginal means of death of prey was more by the predator *L. ruber*, followed by *D. rusticus*, and *R. filiformis* with respect to the time (hours) and the density (numbers) of prey.
- The present study assumed that the predation efficiency was more at highest prey density, and this may be due to the number of availabilities of the prey and the vibrations in water made by the wriggling movement of the same.