

Survey of Light-Attracted Assassin Bug (Hemiptera: Heteroptera: Reduviidae) from Dodamarg Tehsil of Sindhudurg District of Maharashtra

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Abstract: *The objective of the current study was to investigate the presence of assassin bugs attracted to various light sources during a field survey conducted in the Western Ghats of Dodamarg Tehsil between January 1, 2022, and December 31, 2025. The light sources surveyed included street lights, household lights (indoor and outdoor residential light bulbs. A total of 19 species of Reduviids belonging to 18 genera under the nine subfamilies of Reduviidae from Dodamarg were collected. The subfamily Harpactorinae was dominant with five species, followed by the subfamily Peiratinae with four. The subfamily Stenopodainae was represented by three species, the subfamily Ectrichodiinae by two species, and the subfamilies Tribelocephalinae, Saicinae, Reduviinae, Salyavatinae, and Triatominae by one species each, collected from areas associated with different light sources. Only three of these 19 species, Polididus armatissimus Stal 1859, Sycanus collaris Fabricius 1785, Polytoxus fuscovittatus Stal 1860 and Ectomocoris cordiger Stal 1866, were frequently observed near the different light sources in various locations in the study area. In addition, the relative attractiveness of the reduviids to each light source was partially determined.*

Keywords: Survey, light, Sycanus, Polididus, Polytoxus, Dodamarg

I. INTRODUCTION

When energy is transferred via various trophic levels in the animal kingdom, predators play an important role in attacking, killing, and consuming their prey. This behavior may be referred to as a component of the food web of secondary consumers in an ecosystem, and these behaviors are occurrences of predatory Hemipteran insects, which are found in the family Reduviidae. The family Reduviidae is the second largest family in Heteroptera, with 6250 species and subspecies distributed within 913 genera and 25 families globally (Maldonado, 1990). Reduviids, commonly known as assassin bugs, are entomophagous and prey on various insects of suitable size (Ambrose, 2006). According to Ambrose et al. (2007), many insect species of the orders Odonata, Orthoptera, Dermaptera, Blattaria, Hemiptera, Coleoptera, Neuroptera, Diptera, Lepidoptera, and Hymenoptera were collected around light sources. Hemiptera families, such as Pentatomidae, Reduviidae, Coreidae, Delphacidae, Corixidae, Miridae, Hydrometridae, Aleyrodidae, Anthocoridae, and Lygaeidae, were collected using various light traps. (Ambrose et al., 2007 and Razaq et al., 2015). Due to the presence of light sources, assassin bugs are commonly attracted to light at night, and they inhabit a range of habitats depending on the presence of their prey; thus, many methods were used to collect bugs from various light sources. Generally, nightlight collections were also formed, usually around the various light sources



where some reduviids bugs were drawn to the light. As previously indicated, the current study included a survey of the species attracted to light at night, and this is the first survey of light-attracted reduviids from Maharashtra, and this type of study has not previously been studied.

Material and Methods: The observed bugs were collected between January 1, 2022 to December 31, 2025 from different light sources in the villages of Dodamarg Tehsil using sweep nets for some flying reduviids under the street lights and hand-picking methods. The specimens were photographed, and the bugs were identified using the literature on the British fauna of India (Distant, 1904 and 1910). The single species *Neostaccia plebeja* was identified using a published article (Sarode et al., 2018). Photographs of the reduviids were forwarded to Dr. Hemant Ghate at Modern College, Pune, for confirmation and further examination.

Study Region: In the Western Ghats of Maharashtra state, adjacent to the borders of Goa and Karnataka states, the survey of light-attracted assassin bugs was conducted in the various villages of Dodamarg Tehsil, District of Sindhudurg, situated between (latitudes 15° 37' N and 15° 60' north and longitudes 73° 19' E and 73° 40' east). The study area has a diverse range of ecological diversity and a distinctive biogeographical location, which contributes to its high biological diversity. Favorable environmental circumstances, a variety of ecosystems, and high rainfall are caused by favorable environmental factors and variations in insect diversity. This study region also receives abundant rainfall from the North-East (October to December) and South-West (June to August) monsoons. It experiences sweltering summers and not chilly winters, with low humidity in April and May, moderate humidity from June to August, and high humidity from October to December. However, some locations, such as the Kolhapur district and Karnataka state borders, exhibit cool winters. The weather is normally moderate and peaceful, except for the ferocious monsoon winds from April to June. Water sources are always available in all seasons for various crops.

Result: The current survey of assassin bugs from the Western Ghats of Dodamarg Tehsil, Sindhudurg, Maharashtra, collected 19 species from 18 genera belonging to nine subfamilies of Reduviidae from different light sources. Among the nine subfamilies, Harpactorinae dominated with five species, followed by the subfamily Peiratinae with four species. The subfamily Stenopodainae was represented by three species, and subfamily Ectrichiinae by two species. Followed by remaining five families were each represented by one species. A list of Reduviidae species that have been observed near various light sources at night is provided below.

Checklist of reduviids from villages of Dodamarg Tehsil

Systematic account

Order: Hemiptera

Suborder: Heteroptera

Family: Reduviidae

Subfamily I. Harpactorinae Reuter, 1887

1. *Sycanus collaris* Fabricius, 1785
2. *Polididus armatissimus* Stal, 1859
3. *Euagorus plagiatus* Burmeister, 1834
4. *Oncocephalus* sp.
5. *Vesbius* sp.

Subfamily II. Peiratinae Stal, 1859

6. *Sirthena flavipes* Stal, 1955



7. *Ectomocoris cordiger* Stal, 1866
8. *Ectomocoris atrox* Stal, 1855
9. *Cleptocoris atromaculatus* Stal, 1870
- Subfamily III. Stenopodainae Amyot and Serville, 1843
10. *Thodelmus falleni* Stal, 1859
11. *Neostaccia plebeja* Stal, 1866
12. *Canthesancus gulo* Stal, 1863
- Subfamily IV. Ectrichodiinae Amyot and Serville, 1843
13. *Ectrychotes dispar* Reuter, 1881
14. *Scadra fuscicrus* Stal, 1859
- Subfamily V. Tribelocephalinae Villiers, 1943
15. *Tribelocephala indica* Walker, 1873
- Subfamily VI. Saicinae Villiers, 1943
16. *Polytoxus fuscovittatus* Stal, 1860
- Subfamily VII. Triatominae Jeannel, 1919
17. *Triatoma rubrofasciata* De Geer, 1773
- Subfamily XIII. Salyavatinae Amyot and Serville, 1843
18. *Lisarda* sp.
- Subfamily IX. Reduviinae (Acanthaspidinae) Distant, 1902
19. *Acanthaspis* sp.

Table 1: Taxonomic diversity of light-attracted assassin bugs from Dodamarg Tehsil

Sr. No	Subfamily	Species	Genus
1	Harpactorinae	05	05
2	Peiratinae	04	03
3	Stenopodainae	03	03
4	Ectrichodiinae	02	02
5	Tribelocephalinae	01	01
6	Saicinae	01	01
7	Triatominae	01	01
8	Salyavatin	01	01
9	Reduviinae	01	01
	Total	19	18

Discussion: Artificial night light can affect the survival and behavior of arthropods attracted to it (Justice and Justice, 2021), and there are various ways in which light pollution affects insects. Most entomologists employed light traps to collect data on species of Hemipteran insects that were drawn to light during the night; this was based on previous literature and online sources that were available (Ambrose et al., 2007; Razzaq et al., 2015; Larsson et al., 2019; Chandra et al., 2020). A survey of light-attracting species of Reduviidae has not been conducted in Maharashtra state. Hence, we obtained our first chance to study the light-attractive species of assassin bugs at night light in the state of Maharashtra. As part of the survey, we focused on various light sources during the study period including street lights and household lights (indoor and outdoor residential lights) from different localities of Dodamarg Tehsil were frequently visited and collected reduviids. A total of 19 species of reduviids from 18 genera and 9 subfamilies of Reduviidae were identified from various light sources during the study period. **Street lights:** Since 2015, particularly



in rural areas, traditional tungsten light bulbs have been gradually replaced by modern light sources like LED lights. During a survey of reduviids species attracted to street lights in Dodamarg Tehsil, only seven species were collected: *Sycanus collaris* Fabricius, *Polididus armatissimus* Stal, *Sirthena flavipes* Stal, *Ectomocoris cordiger* Stal, *Thodelmus falleni* Stal, *Polytoxus fuscovittatus* Stal, and *Neostaccia plebeja* Stal. Among these, *Sycanus collaris*, *Polididus armatissimus*, *Ectomocoris cordiger*, and *Polytoxus fuscovittatus* were commonly observed under both traditional tungsten bulbs and modern LED lights. Of the seven species, the majority were collected under LED lights, with *Neostaccia plebeja* being the only rare species during the study period.

Household lights: During the survey of light-attractive species of reduviids from household lights, twelve species of reduviids were collected under both traditional tungsten and modern Led Light sources viz., *Euagorus plagiatus* Burmeister, *Oncocephalus sp.*, *Vesbius sp.*, *Cleptocoris atromaculatus* Stal, *Ectomocoris atrox*, *Canthesancus gulo* Stal, *Ectrychotes dispar* Reuter, *Scadra fuscicrus* Stal, *Tribelocephala indica* Walker, *Triatoma rubrofasciata* De Geer, *Lisarda sp.*, and *Acanthaspis sp.* Among these, *Sycanus collaris*, *Polididus armatissimus*, *Ectomocoris cordiger*, and *Polytoxus fuscovittatus* were commonly observed under both traditional tungsten and modern LED lights. Of the 12 species, *Triatoma rubrofasciata*, *Ectrychotes dispar*, *Canthesancus gulo*, and *Euagorus plagiatus* were rarely observed during the study period, whereas the remaining species were frequently observed under both the light sources. This study differentiated between outdoor and indoor light sources, with the maximum species diversity collected at outdoor residential light sources. Furthermore, a greater number of species were collected under modern LED lights compared to traditional tungsten lights.

II. CONCLUSION

The survey conducted on assassin bugs (family: Reduviidae) from the Western Ghats of Dodamarg Tehsil, Sindhudurg, Maharashtra, identified 19 species belonging to 18 genera across nine subfamilies, which were collected from different light sources. Among these species, *Sycanus collaris*, *Polididus armatissimus*, *Ectomocoris cordiger*, and *Polytoxus fuscovittatus* were the most commonly observed under both traditional tungsten and modern LED light sources. In contrast, *Triatoma rubrofasciata*, *Ectrychotes dispar*, *Canthesancus gulo*, and *Euagorus plagiatus* were rarely encountered during the study period. Notably, *Neostaccia plebeja* was the only species classified as rare during the study period. This study provides valuable insights into species-specific responses to different light sources, contributing to the understanding of the ecology and conservation of these predatory insects in the Western Ghats.

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