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Three new records of butterfly from university of Chittagong and Shahjalal University of science and technology in Bangladesh

Md Kawsar Khan**Abstract**

Butterflies are considered one of the most studied orders of class Insecta. However, the butterfly fauna of Bangladesh are not well documented. The current research was carried out from March 2014 to July 2014 with an aim to document new species to contribute and update the butterfly checklist of Bangladesh. From the butterfly survey in different regions of Bangladesh, three new butterflies were recorded as distribution. *Arhopala agaba agaba* Hewitson, 1862 (Purple-Glazed Oakblue) and *Deudorix epijarbas amatus* Fruhstorfer, 1912 (Cornelian) were documented from University of Chittagong (CU) campus whereas *Delias acalis* Godart, 1819 (Red Breasted Jezebel) was recorded from Shahjalal University of Science and Technology (SUST) campus.

Keywords: Butterfly, New record, Bangladesh, Purple-Glazed Oakblue, Cornelian, Red Breasted Jezebel

1. Introduction

Bangladesh (20°34" N to 26° 38" N and 88° 1' E to 92° 41") is a land of 147,570 square kilometers, a country of Southeast Asia surrounded by the Indian states West Bengal, Meghalaya, Assam, Mizoram and Tripura [1]. The eastern region of the country is bordered by Myanmar and the Bay of Bengal determines the southern territory of the country. The geographic location of the country engenders climatic variation. These enormous climatic variation and diverse floral and faunal communities have created an apposite milieu for butterfly (Lepidoptera).

Butterflies are important element of ecosystem mainly because of their pollination activities [2]. Moreover, they are considered as good ecological indicators because of their sensitivity towards the environmental and climatic changes [3]. Hence, it is indispensable to know the exact number of butterflies, their diversity and distribution throughout the country to monitor ecological status. However, in Bangladesh, the butterfly fauna are not well documented compared to the other fauna like birds and mammals [4]. The most distinguished studies have been carried out by Larsen T.B, (2004). According to Larsen only 311 butterfly species have been recorded from Bangladesh [5]. Neogi AK *et al.* added 5 more new species to the checklist which take the total number of butterflies to 316 [6]. Nevertheless, this is not the comprehensive documentation of the butterflies of Bangladesh. Considering the floral diversity and habitat variation it is predicted that 500-550 butterfly species should be present in Bangladesh [5]. The current research was carried out with the aim to document the diversity and distribution of butterfly as well as to record new species in Bangladesh.

2. Methods and Materials**2.1 Study area**

University of Chittagong (CU) campus (22°46'94.40" N and 91°79'02.54" E) (Fig 1 A) is located southeast region of Bangladesh spread over 1754 acre. The area had mixed vegetation comprising ornamental, fruit plants, shrubs and grasslands. The major floral species of the area include *Artocarpus heterophyllus*, *Tectona grandis*, *Swietenia macrophylla*, *Terminalia arjuna*, *Shorea robusta*, *Polianthes tuberosa*, *Lantana camara*, *Hibiscus rosa sinensis*, *Bougainvillea glabra* etc.

Shahjalal University of Science and Technology (SUST) campus (24°55'09.06" N and 91°49'54.24" E) (Fig 1 B) is situated northeast region of Bangladesh. The campus is spread Over an area of 320 acre surrounded by agricultural field with rural habitation.

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The core area of the campus is decorated with wide range of floral community. The major plant species includes *Swietenia macrophylla*, *Acacia auriculiformis*, *Delonix regia*, *Terminalia arjuna*, *Lagerstroemia speciosa* and *Anthocephalus indicus*. In addition there are many herbs and

shrubs such as *Leucas aspera*, *Persicaria viscosa*, *Turkey berry*, *Cuphea hyssopifolia*, *Sida acuta* and *Clerodendrum viscosum* which are good attractants for various butterflies, especially for nectar collections and egg laying.

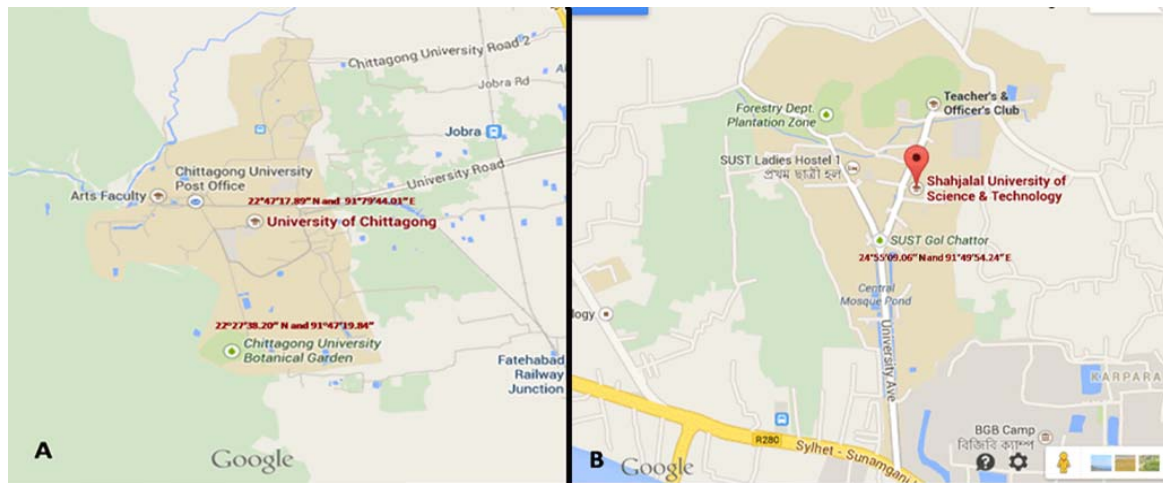


Fig 1: Map of the study area A) University of Chittagong and B) Shahjalal University of Science and Technology. Coordination of the recorded spot is shown in red text.

2.2 Specimen Identification

The butterflies were recorded from the study area during the butterfly survey from March 2014 to July 2014. The specimens were photographed using Canon 600D camera with 55-250 mm lens. Collection and killing of the specimen were avoided. The specimens were identified by the keys developed by Marshall and de Nicéville (1883), Bingham (1905, 1907), Evans (1932), Wynter-Blyth (1957) and Talbot (1978a, b) [7, 8, 9, 10, 11, 12, 13]

3. Results and Discussion

The recorded new species are *Arhopala agaba agaba* Hewitson, 1862 (Purple-Glazed Oakblue), *Deudorix epijarbas amatius* Fruhstorfer, 1912 (Cornelian) and *Delias acalis* Godart, 1819 (Red Breasted Jezebel).

The specimens are reported below-

3.1 Purple-Glazed Oakblue (*Arhopala agaba agaba* Hewitson, 1862) (image 1)

Family: Lycaenidae

Subfamily: Theclinae Swainson, 1830

The *Arhopala agaba agaba* Hewitson, 1862 (Purple-Glazed Oakblue) was recorded previously from Northern Arakan which is located in close proximity to Chittagong. So the species were predicted to exist in Chittagong [5]. The *Arhopala agaba agaba* Hewitson, 1862 (Fig 2) was recorded for the first time from Bangladesh on April 25, 2014 from the campus of Chittagong University in coordinate 22°47'17.89" N and 91°79'44.01" E (Fig 1A).

Arhopala is one of the richest genera in Bangladesh and till now 14 different species of the genera have been recorded from this region [5]. With the addition of *Arhopala agaba agaba* Hewitson, 1862 (Purple-Glazed Oakblue) the total

number reaches to fifteen. Two more *Arhopala* species, *Arhopala singla* de Nicéville, 1885 (Yellow-Disk Oakblue) and *Arhopala bazalus teesta* de Nicéville, 1886 (Powdered Oakblue) is also assumed to present in the northeast region of Bangladesh which are yet to be recorded. Further exploration should be continued to identify those species.

3.2 Cornelian (*Deudorix epijarbas amatius* Fruhstorfer, 1912)

Family: Lycaenidae

Subfamily: Theclinae Swainson, 1830

The *Deudorix epijarbas amatius* Fruhstorfer, 1912 (Cornelian) (Fig 3) was observed from the botanical garden of University of Chittagong in the coordinate of 22°27'38.20" N and 91°47'19.84" E (Fig 1A). It was 10.30 am in the morning of April 25, 2014. The butterfly was perched on a leaf when it was photographed. The butterfly is present in India (Calcutta, Cachar and the Arakan) which is close to Bangladesh. So the species were supposed to present sporadically in Bangladesh [5].

Although *Deudorix epijarbas amatius* Fruhstorfer, 1912 (Cornelian) have been recorded from Chittagong, it may be present in other regions of Bangladesh especially in the northeast region. So survey should be continued to document its regional distribution. *Deudorix epijarbas amatius* Fruhstorfer, 1912 (Cornelian) is the second recorded species of *Deudorix* genera in Bangladesh. The previous recorded species of the genera were *Deudorix isocrates* Fabricius, 1793 (Common Guava Blue). According to Larsen, 2004 *Deudorix gaetulia* de Nicéville, 1892 (Assam Cornelian) should also present in Bangladesh. Future investigation is required to record the species.



Fig 2: *Arhopala agaba agaba* Hewitson, 1862 (Purple-Glazed Oakblue)



Fig 3: *Deudorix epijarbas amatius* Fruhstorfer, 1912 (Cornelian)

3.3 Red Breasted Jezebel (*Delias acalis* Godart, 1819)

Family: Pieridae

Subfamily: Pierinae

The *Delias acalis* Godart, 1819 (Red Breasted Jezebel) (Fig 4) was recorded on July 30, 2014 from the Shahjalal University of Science and Technology (SUST) campus in coordinate of 24°55'09.06" N and 91°49'54.24" E (Fig 1B). It was 5.30 PM in the afternoon and the butterfly was photographed perched on *Lagerstroemia speciosa*.

Till now 4 species of from *Delias* genera have been recorded

in Bangladesh. These are *Delias eucharis* Drury, 1773 (Common Jezebel), *Delias hyparete indica* Wallace, 1867 (Painted Jezebel), *Delias pasithoe pasithoe* Linné, 1767 (Red Base Jezebel) and *Delias descombesi descombesi* Boisduval, 1836 (Red Spot Jezebel). The present documented specimen is the fifth reported *Delias* species in Bangladesh. *Delias acalis* Godart, 1819 (Red Breasted Jezebel) was hitherto known from Assam, Sikkim, Nepal, Bhutan to Java and Malaysian Peninsular. The present record extends its distribution to Bangladesh also.



Fig 4: *Delias acalis* Godart, 1819 (Red Breasted Jezebel)

4. Conclusion

Inclusion of these three new species expands the diversity of butterfly fauna in Bangladesh. With the addition of these three new species, the total number of species recorded in Bangladesh reaches to 319. However, the checklist is not comprehensive and many new species are yet to be recorded. So, future exploration should be continued to update the status and distribution of the butterfly fauna of Bangladesh.

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