



A STUDY ON POPULATION AND DEVELOPMENTAL PATTERNS OF *Mylabris phalerata* (Pallas) IN FIELD AND LABORATORY CONDITIONS

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ABSTRACT

Meloidae is an important family of Coleoptera of arid and semiarid area. The insects of this family exhibit complex developmental pattern, which is a typical example of Hyper- metamorphosis. *Mylabris phalerata* (Pallas) is an endemic blister beetle of Indian subcontinent. An attempt has been made to study the population pattern in the field condition as well as observation on the developmental stages in laboratory conditions in the present communication. The study revealed that insects were available in huge number during monsoon, which was their breeding season as well as the availability of their preferred food. The first instar larva hatched out in laboratory and a comment was made on it.

KEY WORDS: *Mylabris phalerata* , population, triungulin.

INTRODUCTION

Blister beetles have many important biological parameters for fundamental and applied research. They are considered as an unique group due to their remarkable life history (Richards and Davies, 1977). Blister beetles possess a pharmaceutical product Cantharidin in its blood which causes blisters on human skin also used in medicine and cosmetics. Many species are harmful pests of agriculture but some are beneficial during larval stage as they destroy egg masses of locusts (Crowson, 1955). Wang (1989) has been reported that *Mylabris* whose constituent is cantharidin a traditional medicine in China for more than 2000 years, and is still used as a folk medicine today. Moreover, *Mylabris* possesses antitumor properties, and also increases the number of leucocytes count, and has irritant effects on the urinary organs. Cheng *et al.* (1990) reported a fatal case due to use of extract of *Mylabris phalerata* for abortion. Ma and Ruan (2008) were able to extract the active ingredients of *Mylabris phalerata* with the help of egg white. Saha (1979) reported various morphological aspects and its distribution in India. In India very little work has been done on this group due to lack of proper knowledge and ignorance about the importance of this insect. An attempt has been made to study the population pattern of *Mylabris phalerata* (Pallas) at field conditions as well as part of the life cycle in the laboratory.

MATERIALS AND METHODS

The field was selected at the out skirt of Jhargram town under Dist. West Midnapore about 155 km. from Kolkata, West Bengal India. The study was conducted for one year. Collections were done every fortnight in the morning (7 am to 8 am) from the field (50 m. x 50 m. quadrat) which was marshy and the soil was alluvial to sandy in nature. Insect net (diameter 30 cm.) was used to collect the adult *Mylabris* sp. from the tree during their feeding time

for laboratory study. Plastic rearing tray of 30.5x 20.5x 15.5 cm³ covered with cotton cloth was used to rear the insects. The tray was smeared with soil taken from the field and made a bed of 6 cm thick. Fresh flower of *Ipomoea carnea* was considered as food. Water was sprinkled time to time to keep the soil moist.

RESULTS & DISCUSSIONS

The study revealed that maximum number of *Mylabris phalerata* were found during the end of June gradually increased and reached the highest peak at August. Then the population decreased gradually and at the middle of December they slowly disappeared from the field. Though the maximum number of insects were found in August but a very few individual in the month of November, December and at the end of June might be found in a restricted manner at their bed site. Between the month of July and October their distribution is wide in the field as well as in other locality. From January to the middle of June the adults are not seen at all. The study revealed that in the month of July 57 individuals were observed in the field which increased to 112 during August (Fig. 1). Then the population was decreased and came down to 33 on October. The study also revealed that this insect was available in huge number during monsoon, as this period was the breeding season of this fascinating insect. Moreover, during this period the appearance of *Ipomoea carnea*, the floral parts of which these insects were preferred to eat due to easy availability of this plant, reproductive period was another cause of increase in number of this insect at that particular time. Study was conducted in the laboratory conditions to observe various developmental stages of this insect. These insect laid eggs in the cavities excavated by the female in the soil and were covered by excavated particles and then pressed with the abdomen to close the hole (Duttagupta and Nath, 2010). After 10 to 20 days of incubations, first instar larva came

out in the laboratory. The primary larva termed as triungulin (2-3 mm in length) for its three clawed conditions. The posterior part of the larva showed a median and two lateral setae. The larva possessed well developed sharp mandibles. The head with prominent eyes broader than its length. Balduf (1935) had reported that the primary larva had subquadrate head. The tail part of the

body remains upward in projection while the larva moved within the soil for search of food. Larva was very active during its first stage and moved very fast within the soil. Chicken egg white was delivered as food. Though they took the food and lived for 5 to 7 days but further stages of development did not take place.

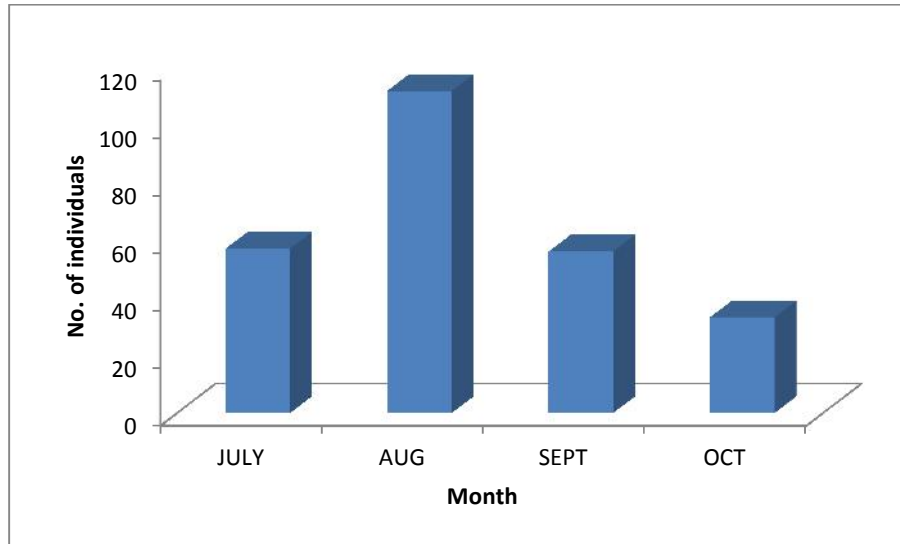


FIGURE 1. Population of *Mylabris phalerata* in field conditions

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