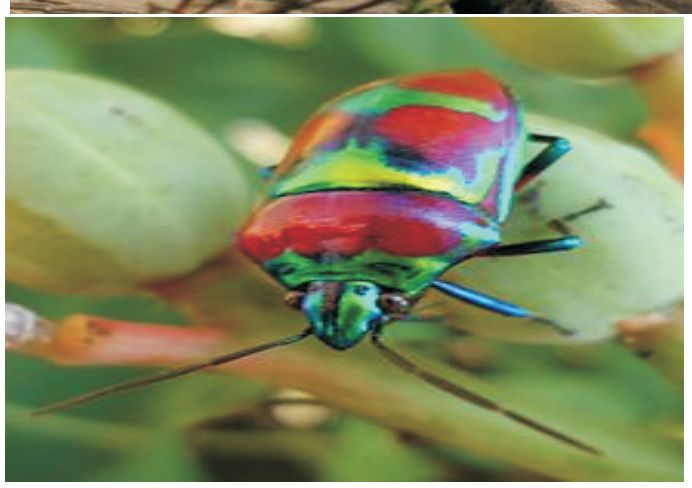
STUDIES ON HABITAT SELECTION, BEHAVIOR AND BREEDING OF CHRYSOCORIS PURPUREUS (INSECTA: HEMIPTERA: PENATATOMIDAE)



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Abstract:-

Heteroptera is a group of about 40,000 species of insects in the Hemiptera. Sometimes called "true bugs", that name more commonly refers to Hemiptera as a whole. Field survey was made for the study of habitat selection of the bug. Chrysocoris is one of the shining colored bug. The adult males and females were maintained in the laboratory. The female laid eggs found attached in the wall of container. Different stages of development observed during various molts especially in IV and V instars and the adult males and females behavior and assessment was made.

Keywords:

Chrysocoris, behavior, habitat, breeding, development.

INTRODUCTION :-

The members of Scutelleridae family are generally known as true bugs. They are also known as jewel bugs or metallic shield bugs due to shining colored tergal body shield. They are also known as shield-backed bugs due to the enlargement of the last section of their thorax as continuous shield over the dorsal body with wings. This latter characteristic distinguishes them from most other families within Heteroptera, and may lead to misidentification as a beetle rather than a bug. These insects feed on plant juices from a variety of different species, including some commercial crops. Closely related to stink bugs, they may also produce an offensive odor when disturbed. There are around 450 species worldwide. (John L. Capoeira, 2008).

Though most jewel bugs do little harm to crop plants John L. Capinera (2008). Few members of Scutelleridae are considered as major agricultural pests as they were found on some commercial crops also. Pentatomid bugs such as *Chrysocoris purpureus* are generally injurious to cereal food crops.

The field experiments were carried out on *Jatrophacurcas* L. plantation already made at Rajiv Gandhi South Campus, Barkachha, and Mirzapur to evaluate damage potential and efficacy of some IPM components against scutellerid bug infesting Jatropha during 2009 and 2010. (Sharma and Srivastava, 2010). Globally more than 40 species of insects affecting Jatropha have been reported. A global list of phytophagous insects consisting of 60 species in 21 families and four orders has been compiled in Australia, where it is considered as a weed. Particularly noteworthy is the insect order Heteroptera that has at least 15 species in Nicaragua, which can extract nutrients from physic nut (Manoharan et al., 2006).

Scutellarid bug, *Chrysocorispurpureus* was recorded in North Western provinces, Sikkim, Calcutta, Assam and several parts of South India including Pondicherry (Kershaw and Kirkaldy, 1908). Several different species of true bugs have been found to feed on *Jatrophacurcas* (Grimm and Maes, 1997). In India, the production is also hampered by a few hemipteran insect pests, of which scutellerid bugs, *Scutelleranobilis* (Fabricius) and *Chrysocorispurpureus* (Westw.)

The present study was undertaken with aim to provide different habitat preference of *Chrysocoris purpureus*, their different behavioral patterns and life stages along with their survival and longevity.

MATERIALS AND METHODS

Commencing September 2011 for a period of one year, *Chrysocoris purpureus* population and their habitat selection is observed. The present investigation was carried out on about 500 ha plantation area around Taloda city covering, our college, riverside area of Khardi river, ITI college, Agricultural land, Mission School area, and roadside area of Highway. The data on average number of Chrysocoris purpureus were observed carefully on different plants as they prefer as their habitat for food as well as for breeding purpose.

Simultaneously, a considerable number of individuals of *Chrysocoris* purpureus were maintained inour laboratory in a container containing soil at the bottom with leaves of Jatropha, tomato, ipomea, etc. A favorable range of soil moisture is maintained (40-45 %) in container by spraying water at regular interval. The feeding, breeding and general behavior is recorded.

The mating pairs and egg clutches of *Chrysocoris* purpureus during breeding months from July to December is recorded.

RESULTS & DISCUSSION

The scutellarid bug is a major pests of Jatropha. They were studied for their different habitat selection, behavior and breeding activities. In the areas surveyed about 500 ha. area, the habitat of Chrysocoris purpureus of males and females during 2011-2012 were recorded. (Table-1). Average data on frequency of mating pairs is found to be recorded in laboratory experimentation. (Fig. 1.) They prefer late monsoon for breeding. Female lays eggs in cluster in a container in which they are maintained. After five days nymphs comes out. The longevity of nymphs is about 32 days within which they moult and shows about five instars up to adult. The adults survives about 42-45 days and with a fecundity of 22.00 eggs/female.

Nymphs and adults often exhibit clustering behavior, being found in large numbers close to each other. This behavior is thought to have an evolutionary advantage. The more individuals present in an area, the stronger the odor of the chemicals released when the bugs are threatened. The adults of Pentatomid bugs, Chrysocoris *purpureus* are generally about 13 mm to 15 mm in length. Molts at 4^{th} and 5^{th} instar showed striking changes in body coloration and well developed mouth parts. Body colors become dark and

shining in 4th and 5th instar.

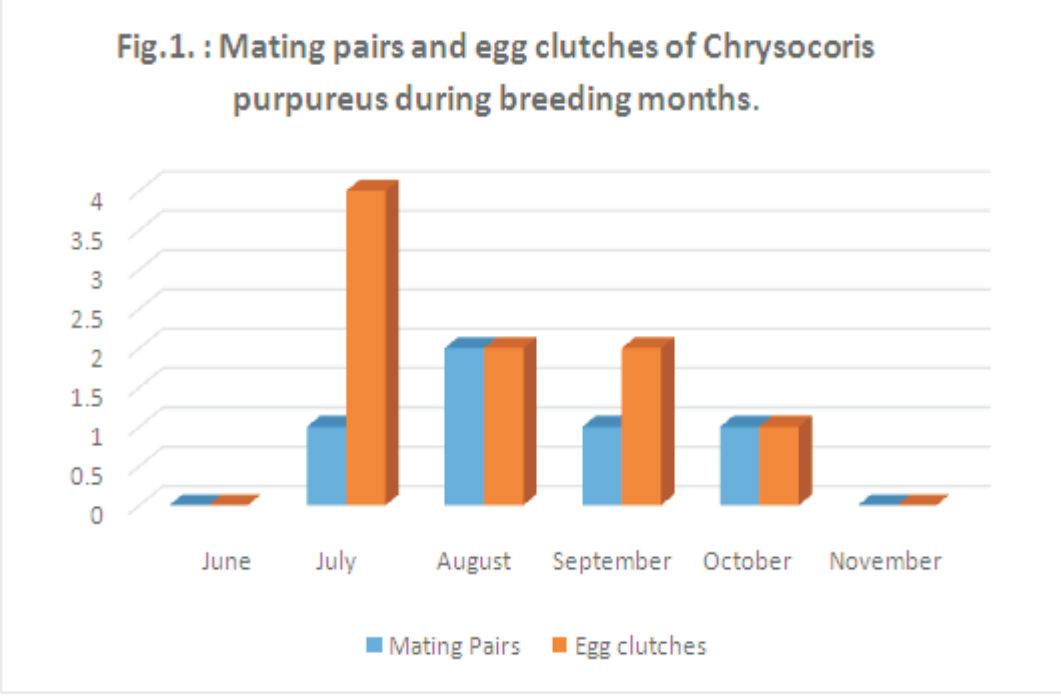
Like all hemipterans, jewel bugs undergo incomplete metamorphosis (hemimetaboly) and do not possess larval and pupal stages. Instead the adults develop from several stages (instars) of nymphs (usually five) through successive molting's (ecdysis). Nymphs resemble the adults except for size and the absence of wings. They can be of different coloration or patterns from adults. (Maurice Burton & Robert Burton, 1970).

Some species are known to exhibit parental care of eggs and nymphs. Notable examples of which are *Cantaoparentum,Pachycorisklugii,* (James T. Costa, 2006). *Pachycorisstalii,Pachycoristorridus,* and *Tectocorisdiophthalmus*. (Luis Cervantes Peredo, 2002).

The reproductive behavior of this insect pest is of paramount significance. Its breeding period lasts from June to October. The copulatary behavior of Pentatomid bugs, Chrysocoris purpureus bug is divided into excitory, preparatory phase, copulation and egg laying. The male excited by perceiving the sex pheromone secreted by the female. The male shows fluttering of wings near around the female moving on the plant with jerking flights. Male touches the female gonapophyses by his antenna and excites the female. As the female gets ready for copulation. The excited male mounts end to end with female and holds it and fertilizes the female. After a gap of few minutes they resume feeding.

Table.1: Average numbers of *Chrysocorispurpureus* preferred different habitat during breeding months.

Habitat	Sex	June	July	August	September	October	November
Jatropha	Male	02	03	02	01	00	00
	Female	08	16	21	22	18	06
Ipomea	Male	00	01	03	01	00	00
	Female	02	08	19	08	04	01
Tomato	Male	01	01	032	00	01	00
	Female	03	06	16	04	02	01



ACKNOWLEDGEMENT

Authors are grateful to Principal, A.S.Mandal's, C.H.C.Arts, S.G.P.Comm. &B.B.J.P.Sci. College, Taloda for providing laboratory facilities and encouragement. Author is also thankful to Dr. V.R.Borane, Jijamata College, Nandurbar for helping in field work.

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