ISSN: 0975-833X

Available online at http://www.journalcra.com

International Journal of Current Research
Vol. 12, Issue, 01, pp.9214-9216, January, 2020

DOI: https://doi.org/10.24941/ijcr.37716.01.2020

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

RESEARCH ARTICLE

AGE DEPENDED HOST *MARUCA VITRATA* FABRICIUS (LEPIDOPTERA: CRAMBIDAE) SELECTION BY PARASITOID *APENETELES TARAGAME* VIERECK (HYMENOPTERA: BRACONIDAE)

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ARTICLE INFO

Article History:
Received 04th October, 2019
Received in revised form
28th November, 2019
Accepted 19th December, 2019
Published online 30th January, 2020

Key Words:

Apanteles Taragamae,
Maruca Vitrata,
Parasitoid,
Biological Control.

ABSTRACT

Apanteles taragamae Viereck (Hymenoptera: Braconidae) is a gregarious(Peter and Davide 1092) larval parasitoid of a Cowpea pod borer *Maruca vitrata* Fabircius (Lepidoptera: Cranmbidae),which is serious pest of flower and pods of cowpea *Vigna unguiculata* Walp(Lieguminosae: Fabaceae). However, some reports about *A. taragamae* specified that it parasitized five other Pyraloidea species (Peter and Divide 1992; Mohan and Sathiamma 2007) in India. The larvae of most pyraloidea species feed on living plants both internally or externally as leaf rollers, leaf webbers, leaf miners, borers, root feeders, and seed feeders *A. taragamae* show non distractive host feeding habits, means that host used for feeding by adult *A. taragame* is different than host used for oviposition. It utilizes two different kind of host for completion of life cycle, Infestation at rate of one *M.vitrata* larva in cowpea plants can cause 10%yield loss. Leberton, Labarussuas, C. Chevrier and Darrouzet) *A. taragame* has been identified as promising agent for biological control of *M. vitrata.* Reproductive potential of *A.taragamae* was studied with respect to age of it's host. Age group 3-12 day old were susceptible for progeny production, 8 day old host larvae subjected to victimized at maximum, 70-50% parasitization. While, 1 to 2 day old and 13 to 18 day old hosts remained un-parasitized. The study conducted at laboratory conditions [24 +/-1"C, 55-60% R.H., 12 hr. photoperiod], by above experiment we conclude that *A. taragame* will be helpful for biological control of *M. vitrata*

Citation: ***Bhoje P. M., Bhusnar A. R. and Charapale K. M.*** **2019.** "Age depended host maruca vitrata fabricius (lipidoptera: crambidae) selection by parasitoid apeneteles taragame viereck(hymenoptera: braconidae)", *International Journal of Current Research*, 12, (01), 9214-9216.

INTRODUCTION

Apanteles taragamae Viereck (Hymenoptera :Braconidae) is a gregarious (Peter and Davide 1092) larval parasitoid of a Cowpea pod borer *Maruca vitrata* Fabircius (Lepidoptera: Cranmbidae)Which is serious pest of flower and pods of cowpea *Vigna unguiculata* Walp (Lieguminosae: Fabaceae).In bio-controla of pest, parasitods has pivotal importance, high rate of parasitism is a enviable feature of an ideal parasitoid. Host age, shape, size, movement, sound, nutritional and immunological suitability play an important role in parasitism. [Vinson 1976; Sathe, 1993; Sathe and Ingawale, 1993; Bhoje and Sathe 2001]. J. Laing 1937 divided the host selection process in to environmental and host factors and believed that the parasitoid is guided to a host habitat by chemical and physical parameter. Once female has located a host habitat then she search systematically. The process of successful parasitism is divided into four steps a) host habitat location b) host acceptance c) host suitability d) host regulation.

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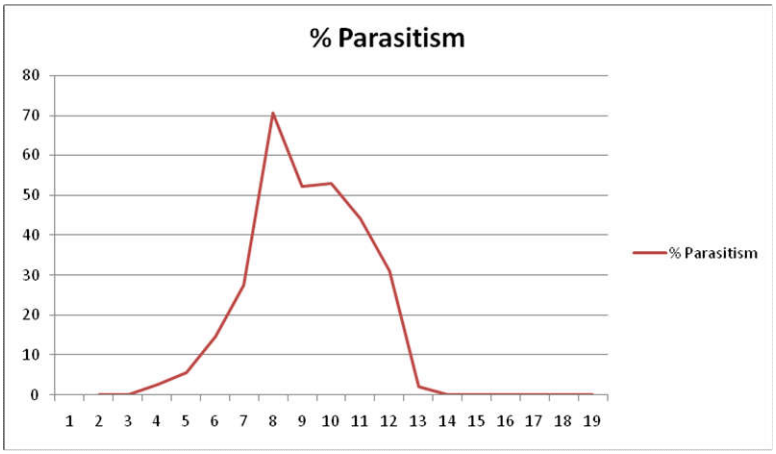
Preference of a particular parasitoid to the age of the host is related to hormones or alteration in the factors (Vinson,1976). Review of literature indicates that Cardona and Oatman (1971), Thurston and Postley (1978), Nikam and Sathe (1983), Bhoje and Sathe (2000),etc. studied reproductive potential with respect to age of the host . The present work will add great relevance in assessment of this parasitoid for biological control of *Maruca vitrata*. Keeping in view the above facts, the work was carried out

MATERIALS AND METHODS

Laboratory reared cultures of parasitoid and host were used in the experiments. Reproductive potential was tested by exposing 50 host of known age (ranging from 1 day to 18 day old) to a single mated female parasitoid for further observations. A colony of *M. vitrata* was maintained in the laboratory by using samples collected in cowpea fields, their pupae were incubated in the sleeve cage. To obtain host larvae mated female were kept in paper cups (3 cm diameter and 3.5. height) Egg were transferred to glass trough, hatched larvae were feed by artificial diet prepared by soybean and cowpea seed powder. To obtain parasitoid, infested larvae with emerged cocoon were collected and then kept in large test tubes (25X150mm).

Table. Reproductive potential of *A. taragamae* in relation to age of *Maruca vitrata*

Host age (in days)	Total no of hosts tried	Total number of parasitoids emerged			% Parasitism
		Male	Female	Total	
1	150	-	-	-	0.00
2	150	-	-	-	0.00
3	150	9	10	19	2.50
4	150	25	28	53	5.50
5	150	43	58	101	12.50
6	150	105	119	224	27.50
7	150	277	406	683	39.50
8	150	240	328	568	71.00
9	150	244	369	613	53.00
10	150	310	241	551	44.00
11	150	232	190	422	31.00
12	150	19	28	64	30.00
13	150	0	0	0	1.00
14	150	-	-	-	-
15	150	-	-	-	-
16	150	-	-	-	-
17	150	-	-	-	-
18	150	-	-	-	-



Graph showing % parasitism (X axis age of host larvae and on Y axis number of host parasitized)

Slave cage

Glass trough

Parasitoid *A. taragamae*

Host larvae: *Maruca vitrata*

Emerged parasitoid was provided with cotton socked in 10% glucose and 50% honey as food. Each experiment was replicated for three times Reproductive potential were tested by exposing 50 larval host of known age (ranging from 1 day to 18 days) to single mated female parasitoid for further observation.

RESULTS

The results recorded in table showed that the most suitable host larvae found for high reproductive potential were 8 day to 12 day old hosts. No parasitoids were obtained from 1to2day and 13 to18 day old hosts. High per cent of progeny production was noted with the host age 7 day old to 10 day old hosts. The results were mentioned in the table. According to reading we found most susceptible or high reproductive potential of parasitoid were found in 7 to 10 days old larvae of *M. vitrata*.

DISCUSSION

Development of parasitoid Cotesia congregates in 1st and 2nd instar larvae of a the host Manduca sexeta commonly called as tobacco hawk moth was slower Thurston and Postley (1978) In gregarious parasitoid Cotesia flavipes (Cameron) Sateh and Nikam (1983) observed that 7 -8 day old host larvae were most suitable and yielding maximum 42% parasitism Butnair 1988 reported that some parsitoid prefer to parasitize diaposing larvae of sorghum stem borer Chilo partellus (Swinhoe, 1858)
In the present study 8 day old host larvae were most suitable for highest progeny production .the present work will be helpful for understanding proper age of host for mass rearing of parasitoids in bio-control programme.

Acknowledgement

Authors are thankful to Y. C. Warana Mahavidyalaya , Waranangar

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