JETIR.ORG ISSN: 2349-5162 | ESTD Year : 2014 | Monthly Issue
JOURNAL OF EMERGING TECHNOLOGIES AND INNOVATIVE RESEARCH (JETIR)
An International Scholarly Open Access, Peer-reviewed, Refereed Journal

# RELATIVE EFFECTS OF DIFFERENT CONCENTRATIONS OF EMS ON DIFFERENT CHARACTERS OF Antheraea mylitta D.

**Sanjay Kumar**

(Ex Assistant Professor) Bihar
A.N.S. College, Jehanabad
Deptt. of Zoology

## ABSTRACT

The relative effects of chemical mutagens EMS (ethyl methyl suphonate) under different concentration for 0.01%, 0.1%, 1%, 2% and 3% during seed crop and commercial of E.M.S have shown lethal effect and adverse manifestation on the Economic characters of tasar. No seasonal variation in respect of two different seasons have been noticed. The results obtained may be due to stimulating effect of mutagens on the life cycle of tasar silk worm.

Key words : A. mylitta, E.M.S seed crop commercial crop.

## INTRODUCTION

The eggs and pupal of Antherae mylitta belonging to family. Saturniidae of order Lepidoptera (Imms 1960) Tasar silk. The great demand of tasar within as well as foreign countries has given a very immerse important to sericulture over sate Government has already made sericulture a state subject since 1952 on account of its importance. Therefore rearing of tasar silk insect is increased. More hactares of land is being utilized. The number of private rearers and number of grainage centres

and the entersion centres increased. The tasarculture is practiced during the rainy season by larval rearing on the leaves of primary food plant. The primary food plants include Torminalia tomentosa, Terminalia arjuna and shorea robusta The tasar insects are holometabolous and they pass through egg five larval stages, pupa and moth. The total span of life 40 to 45 days. It is bivoltive in nature and observe long day pupal diapasure during the winter and summer seasons. The insect by and large prefer wild condition.

As a matter of facts a lot of investigations on the sericigenous insect have been carried out in order to know the genetic make up biological manifestations and reeling performances for increasing the productivity and quality of tasar to a desired extant. However our knowledge about the impact of mutation on biological manifestation of silk worms and more particulary the tasar worms is quite fragmentary as such it becomes an important task to evaluate the rate of some mutagens on the biology of tasar silk insect in larger interest of sericulture.

## MATERIAL AND METHODS

The experiments related with eggs and pupal of Antheraea mylitta under laboratory conditions.

All the experiments were carried out in P.G. Departent of biology magadh university, Bodh Gaya During seed crop and commercial crop seasons as well as assistance were also taken from central Tasar and fraining institute Ranchi. The under given specific method for each parameter of the experiments was followed.

Specific methods for Parameter as the project!

Relative effects of Different concentrations of EMS on the Deferent characters of .

Antheraea mylitta.

The eggs and pupal of Antheraea mylitta so collected so collected were subjected to the treatment of EMS ethyl methyl sulphonata under different consentrations of Vir: 0.01%, 0.1%, 2%, and 3% during seed crop and commercial crop seasons. The results obtained in relation the above treatment were presented in the tables ofter their relative comparison with control.

(a) egg level treatment.

A lot of 100 eggs divided into replication (20x5) were subjected to the treatment of 0.01%, 0.1%, 2%, and 3% EMS is distilled water. The eggs within 30 minutes of oviposition were dipped in different concentrations of EMS for 5 min. and there effect they were kept filter papers and was washed throughly with distilled water. The materials were than air derived and kept for in copulations at $30^0$c . The hatching percentage as well as the economic characters were recorded and presented in the table.

(b) treatment at pupal levels:

A lot of pupal divided into five replication (20x5) were considered for the treatment of E.M.S Viz 0.01%, 0.1%, 2%, and 3% were injected to the same age of pupal and results obtained is respect of lethality emergence of moths coupling percentage, egg laying percentage hatching percentage, E.R.R percentage cocoons weight shall weight shall ratio, filament length and Denier were carefully recorded in the tale, The experiments we carried and for both the seasons.

## OBSERVATIONS

The relative effects of different concentrations such as .01, 0.1, 2.0, and 3.0 of E.M.S have been evaluated in respect of various characters of Antheraea mylitta During seed crop (july-Aug) and commercial crop (sep-oct) seasons and the result obtained have been recorded in table 8 and 9.

Table 8 reveals the relative effects of different concentrations of E.M.S at pupal level treatments in respect of various characters of tasar worms during the seed crop season. It reveals that percent of emergence of moths ( 61.0, 45.0, 15.0 ) Coupling percentage (51.0, 40.0, 20.0 ) Egg laying percentage ( 66.0, 45.0, 15.0) Hatching percentage (56.0, 45.0, 18.0) E.R.R percentage ( 29.0, 18.0, 7.0) shall wet. (1.44, 1.28 and 1.10 gm) and filament length (743, 700, 610 m) at 0.01, 0.1 and 1.0 percent EMS concentration at pupal level treatment relatively decreases from 0.01 percent to 0.1 and 1.0 percent treatment and finally cause lethality at higher dosages of 2.0 and 3.0 percent E.M.S treatement. However 0.01 percent EMS treatment has shown its effectiveness as it is superior them the control. The percent of emergence (60.0), coupling (50%) egg laying (65%) Hatching 55% E.R.R (28%) shall wt.

(1.43gm) and filament length (742m) as recorded under control has shown its superiouly over 0.1 and 1.0 percent treatmental lots in respect of various characters.

Table a accounts for the relative effects of different concentrations of EMS at pupal level treatments in respect of various during the commercial crop seasons. It is very clear that the percent of emergence of moths (62.0, 46.0, 16.0) coupling (52.0, 41.0 21.0) Egg laying ( 68.0, 46.0, 16.0 ) , Hatching (57.0, 46.0, 19.0) E.R.R ( 30.0, 19.0, 8.0 ) shall wet. ( 1.45, 1.30, 1.12 gm) and filament length ( 744, 705, 708 m) are superior than the seed crop seasons which accounts for seasonal variation in respect of characters. The pupal level treatments at 2.0 and 3.0 percent level are totally lethal. The percent of emergence of moth (61.0) coupling (50.0), Egg laying (67.0) Hatching (55.0) E.R.R (29.0) shall wet. (1.46gm) and filament length (744m) as ecorded under control have shown its superiority over 0.1 and 1.0 percent pupal treatmental lots in respect of various characters. Table showing relative effects of different concentrations of E.M.S ( pupal level treatment on the economic characters of Antheraea mylitta

(Seed crop season)

| S.N | Different concentration of E.M.S % | No. of pupal treated | Emergence of moths % | Coupling % | Egg laying % | Hatching % | E.R.R % | Shall wt. gm | Filament length m |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.01 | 100 | 61.0 | 51.0 | 66.0 | 56.0 | 29.0 | 1.44 | 743 |
| 2 | 0.1 | 100 | 45.0 | 40.0 | 45.0 | 45.0 | 18.0 | 1.28 | 700 |
| 3 | 1 | 100 | 15.0 | 20.0 | 15.0 | 18.0 | 7.0 | 1.10 | 610 |
| 4 | 2 | 100 | ……. | ……. | ……. | ……. | …… | …….. | …… |
| 5 | 3 | 100 | ……. | ……. | ……. | ……. | …… | ……. | …… |
|  | Control | 100 | 60.0 | 50.0 | 65.0 | 55.0 | 28.0 | 1.43 | 742 |

= significant

=Lethal

Table showing relative effects of different concentrations of E.M.S pupal level treatment on the table showing relative effects of different concentrations of E.M.S (Pupal level treatment on economic characters of Amlthearea mylitta

(Commercial crop season)

| S.N | Different concentration of E.M.S % | No. of pupal treated | Emergence of moths % | Coupling % | Egg laying % | Hatching % | E.R.R % | Shall wt. gm | Filament length m |
|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.01 | 100 | 62.0 | 52.0 | 68.0 | 57.0 | 30.0 | 1.45 | 744 |
| 2 | 0.1 | 100 | 46.0 | 41.0 | 46.0 | 46.0 | 19.0 | 1.30 | 705 |
| 3 | 1 | 100 | 16.0 | 21.0 | 16.0 | 19.0 | 8.0 | 1.12 | 708 |
| 4 | 2 | 100 | …… | …….. | ……. | ……. | …… | ……. | ….. |
| 5 | 3 | 100 | …… | ……. | ……. | …… | …… | ……. | ….. |
| | Control | 100 | 61.0 | 50.0 | 67.0 | 55.0 | 29.0 | 1.46 | 744 |

= Significant

= Lethal

DISCUSSION

The result so obtained become very clear when one takes note of the fact that the optimum level so recorded 0.01% turns the gens for biosynthetic activities in right director by the catalytic enzymes. The sub lethal activities so recovered are probable due to the toric effects of EMS which gradually increases due to increased concentration and at higher dosage it becomes lethal. It really depends on the response of mutator and activator genes with different concentration of E.M.S. It appears the physiological process are controlled by gone enzyme activities and gens has been stimulated variously for changing the metabolic design under the influence of different dosages of E.M.S.

Likwise the lower concentration of 0.01% has proved its efficacy in terminating the papal diapauses to some content within shorter days as compared to control. The 0.1% concentration of EMS has also effective to little extent in terminating the pupal

diapauses. The increased dosages of EMS on diapausing papal has caused leathality. It becomes very clear when we consider the fact a optimum dosage of 0.01% of E.M.S stimulate the gene is selting the hormonal order by liberating the ecodysone for the termination of papal diapauses in Anthearea mylittla. The dosages after 0.1 become toxic and cause lethality. Thus the results obtained are quite conclusive.

## RREFERENCES

Jolly M.S. Ashan, M.M and Khan R.P (1973).

A new technique of rearing tasar silkworm, Antheraea mylitta D. under controlled laboratory conditions proceed of first International seminar on non-mulberry silk oct (3 and 4).

Sengupta, K Kamla Singh and Mushra P.N. 1974

Studies on the effects of mating duration (Copulation) in muga silk moth Antheraea assama, On egg laying and hatching Annual repoal C.M.E.R.S, C.S.B India.

Sidhu N.S and Khan A.A (1969): Egg laying a herediatory character in silkworm fertility difference in there silk worm seeds S.I.B No-2 C.S.R nd T.I mysore, India 1-7.

Choudhari, C.C Dubey O.P: Singha S.S and seen Gupta K (1987), studies on different techniques of silk worm rearing Ann. Rep. CTR and TI Ranchi

Tanima. Y. 1968, silk worms eggs scientific beochure-1 (Publicity serie ) published by Central silk Board Bombay Govt. of India.

Krishnaswamy S. (1976) New Technology of Silk worm rearing Bulletin (3) C.S.R.I and T.I. mysore India.

Shamita G (2007) Total Indoor rearing of tasar silkworm, everyman science Oct. 2007 XL II (4)

Panday J.P T.K. Mishra D. Kumar B.M.K. Singh and B.C Prasad (2010) effect of Haemolytic immure responses of tropical Tasar silk worm Antheraea mylitta D Research J. Immunol: 3. 169. 177.