The AJAS THE ASIAN JOURNAL OF ANIMAL SCIENCE
December, 2011 | Vol. 6 | Issue 2 | 168-171

RESEARCH ARTICLE

Comparative account of the effect of chitin biosynthesis inhibitor on food consumption and growth of third and fifth instar larvae of *Pericallia ricini* Fabr.

■L.S.NATHAN AND R.J.NATHAN

Author for Correspondence -:
L.S.NATHAN
Department of Zoology,
Ewing Christian College,
ALLAHABAD (U.P.) INDIA
Email : rishajas.nathan@gmail.com

See end of the paper for
Coopted authors

ABSTRACT : The third and fifth instar larvae of *Pericallia ricini* Fabr. (Lepidoptera, Arctiidae) were fed on the leaves of castor (*Ricinus communis* L.) plant treated with different concentrations of diflubenzuron.In present finding, third instar larvae were more susceptible to toxic action of chitin biosynthesis inhibitor diflubenzuron than fifth instar larvae in larval feeding treatment.The food consumption, growth and approximate digestibility in comparision to control were also reduced due to the effect of chitin biosynthesis inhibitor diflubenzuron.

Key words : *Pericallia ricini, Ricinus communis*, Diflubenzuron-chitin biosynthesis inhibitor

How to cite this article - Nathan, L.S. and Nathan, R.J. (2011). Comparative account of the effect of chitin biosynthesis inhibitor on food consumption and growth of third and fifth instar larvae of *Pericallia ricini* Fabr. *Asian J. Animal Sci.,* **6**(2): 168-171.

Article chronicle - **Received :** 11.8.2011; **Sent for revision:** 30.8.2011; **Accepted :** 15.10.2011

INTRODUCTION

Pericallia ricini is found all over India and is commonly known as castor hairy caterpillar. It is a serious pest of oilseed plant, castor and Cucurbitaceous crops. The female moths lay eggs in large number on the lower surface of leaf. The larvae feed on young and full grown plant leaves and fruits. In heavy infestation, only stem and branches are left behind.

In past, many research workers attempted to study the effect of chitin biosynthesis inhibitors on agro-ecosystem insect pests and reported almost complete lethal action by these chemical (Baringbing and Karmawati, 1992; Karnawat, 2004 and Singh, 2008) but the adequate literature is still lacking on the loss of crop by these pests, which survive after exposure with these chemicals. Hence, the objective of the present research was to find out, the extent of crop damage done by the insect pest which avoids lethal dose of chitin biosynthesis inhibitor.

RESEARCH METHODS

The eggs of *P. ricini* were collected from castor leaves and reared in the laboratory on castor leaves. Eggs were kept between two leaves in the wooden cages (60×60×45cm) and fresh clean fleshy leaves were provided daily. After hatching, larvae started feeding on fresh leaves, the excreta and other waste were removed daily from cages. For the protection of larvae from ants, the rearing cages were placed on water filled pots (earthen cups). Larvae were reared till the pupal formation. Freshly emerged adults were transferred to separate jars for ovipositor. Honey mixed sugar solution (10%) soaked in a cotton ball, was provided in the plastic cavity (2×2×1cm) for feeding the adults. Fresh castor leaves were placed in the glass chimney for egg laying. The females laid eggs on leaf surface and such leaves along with eggs were transferred into another glass jar. The eggs were kept between fresh succulent castor leaves to provide food for hatching larvae easily and also to prevent leaves from rapid evaporation.Larvae of *P.ricini* were separated from the cages and were starved at least for six hours as the least variation in results is exhibited. Starvation also assures that all experimental insects feed on treated food. The larvae fed on castor leaves were dipped in volatile solution of chemical at different concentrations.The weight loss of leaves due to evaporation of water during experimental period was adjusted with control by formula of Evans(1939a,b) The approximate digestibility was calculated by the following formula: