



Diflubenzuron stimulating the growth of Cybisterconfusus

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Introduction: -Cybisterconfusus is a species of Dytiscidae family of classinsect commonly called dividing beetle found mostly in India (Bihar). It is an herbivorous egg laying insect that has a complete life cycle found.

This beetle is largely found in fresh water ponds in Madhepura district of Bihar during rainy season.

The animal is regularly being influenced by certain hormones that is increasing its growth and destroying the crop field. Though there are no of work has been done in this topic even some are even today unearthing. When analytical analysis of hormonal regulation was observed on carbohydrate protein and alkaline phosphate and lactate dehydrogenase activities it was observing that some pesticides like diflubenzuron a chemical pesticides in which some growth hormones are used was become a potent effect on the hormonal activities of insects specially on Cybister confuses on the hormonal activities and found deposition of protein in the yolk cells that is giving clear evidence of increasing its growth in their herd size.

This beetle is largely found in fresh water ponds in Bihar during rainy season. The animal Classification is under following: -

Kingdom	Animalia
Phylum	Arthropoda
Class	Insecta
Order	Coleoptera
Family	Dytiscidae
Genus	Cybister
Species	C. confusus

The use of organophosphate and Pyrethroid pesticides are increasingly day by day in agriculture field. Organophosphate like **diflubenzuron** which is used in insecticides a group of benzoylphenyl urea is become cause of attention when the growth of *Cybisterconfusus* increasing in their heard size. The alimentary canal of this species highly coiled and long about 4 inches, though this insect is a kind of pest even then it has a role in maintain ecosystem, but increase level of its growth from its normal level become a cause of concern towards this pest.

Objectives: -To observe hormonal regulation of Juvenile hormones in the metabolism of insect and its maturation as well as how insect hormone regulate its reproductive pattern nearabout 200 to 300 insects were collected from local areas and kept in control medium and disinfected. Observation of such chemical on the regulation of carbohydrate, protein, alkaline phosphate and lactate dehydrogenase activities on growth hormone was designed.

Material method: -

Test animal: -*Cybisterconfusus* which is taken from the different areas of ponds of Madhepura, Muzaffarpur district.

The insects were disinfected and kept in control surrounding where necessary nutritional vegetation were supplied for further growth and reproduction according to molar mass $310.68 \text{ gram.mol}^{-1}$ and solubility in water is 0.08 mg/L .

Test Chemical: - $\text{C}_{14}\text{H}_9\text{ClF}_2\text{N}_2\text{O}_2$ is the chemical formula of Diflubenzuron with a brand name super 9000 diflubenzuron 25% an insecticide used in agriculture pesticide approved by WHO and used in America and India in restricted way.

Juvenile hormone of insects released by the neurosecretory cells of the brain from corpora allata directly influenced this hormone in reproduction cycle of insect in respect of yolk development while the test chemical has also contained juvenile hormone

The mode of action of test chemical is that it inhibits the production of chitin due to presence of regulatory hormone that triggers insect larvae to molt early without forming exoskeleton resulting death of larvae.

The product is easily water soluble and enter into the waterbodies through rain water and cause impact on the reproduction of *Cybisterconfusus*.

Process: - Juvenile hormone (JHs) a group of sesquiterpenoids that regulate insect physiology (first discovered by Wigglesworth) this hormone regulates the development and reproduction growth of insect.

Juvenile hormones are secreted by corpora allata and also responsible for production of eggs and yolk formation in the insects.

As we have discussed earlier that test chemical contains regulatory hormone therefore increase level of this hormone present in water cause consumption of more hormones by the insect that trigger the neurosecretory cells of the brain.

The rearing of insect divided into two groups of 100 insects and control feed has been supplied.

When LC50 of chemical is exposed to the animal more than 50% of the insects died. When dose dependent excrement was proceeding slowly and gradually the tendency of insects changed due to adaptation and reproduction of the test insect started.

within few hours hatching started and pupa was transferred into solo cup by means of paint brush eggs were obtained from *Heliothis virescens* culture reared on corn soy-milk that was based on Burton (1970) and experimental design of food of control carbohydrate and protein was given and covered the lid for observation.

Now some insects were injected 0.025ml acetone and with distilled water in ratio of 1:4 while other group was injected by brain extracted growth hormone with 0.025 acetone, after treatment quantitative estimation of carbohydrate protein lactase dehydrogenase and alkaline phosphate was observed by obtaining its haemolymphs.

Result 1. Carbohydrate metabolism: -Amylase, trehalase and other enzymes activities was reduced after 3 days treatment, glucose metabolism also affected.

2. protein metabolism: -The sub lethal dose of diflubenzuron significantly increases protein metabolism.

3. Alkaline phosphate: -increase alkaline phosphate.

4 lactase dehydrogenases: - degenerate.

larval survival was totally different in treatment it was highest in p175:c245 and fastest on p245: c175. The mating pairs also affected p/c ratio of diet (ANOVA) F530,408, p=0.006

Discussion: -Cybister confuses was regulating by carbohydrate and protein diet high p/c ratio ingested high protein due to regulatory hormone present in their haemolymph that cause high protein consumption and thereby presence of protein in egg yolk that absorbs through gut lumen and then into the haemolymphs and into amino acids. presence of increase protein cause deposition of protein in yolk therefore become the reason of reproductive growth and herd increase thus the over use of such pesticides should be minimized.

Method used: -Quantitative data collection on haem78atological and biochemical parameters etc.

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