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EFFICACY OF *CASSIA OCCIDENTALIS* SEEDS ON LARVAL MORTALITY AND EMERGENCE OF *TRIBOLIUM CASTANEUM* HERBST

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ABSTRACT

In 1gm the first experiment was noticed on the 5th day which was 14% and 48% on the 10th day. The larvae emerged on the 30th day and 35th day i.e. 12% and 21% respectively. The next dose, 2.5 gms treatment caused 38% mortality on the 5th day and 62% on the 10th day, 28% larvae emerged on the 30th day. No mortality on control. In 3.5 gm concentration, absolute mortality was brought on the 5th day of observation.

KEYWORDS: Larvae, Emerged, Treatment, Mortality, Tribolium castaneum.

INTRODUCTION

Uttar Pradesh is a Barley growing region, having 9 lac hectares of area with 11.23 lac metric tonnes production. Out of the total of the grains, 7% is stored traditionally by the farmers for their consumption, seed, and wages, and the rest above 20% surplus food grains are handed over to traders and Government agencies in our country. Through, Barley crop is relatively safe from insect pests in the field but suffers considerably more during storage. It is highly prone to ravages by an array of stored grain pests under different climatic conditions of our country. Barley grain losses are known to the extent of 10 to 19% during storage by the pests not only in terms of quantity but also in the quality of the good grains. The qualitative losses are attributed to changes in the chemical components of grains. Barley grains are known to be damaged by the number of insect pests viz. Tribolium Castaneum Herbst, sitophilus oryzae L, Rhizopertha dominicafab, Trogoderma granarium. Everts, Sitotroga cerealella, and Corcyra cephalonica st. in storage (Mathur and Upadhyay (2000) of the Tribolium Castaneum Herbst has been found as a major dominant pest, which causes severe damage to Barley grain in storage. It also feeds on maize, sorghum, rice, barley, dry fruits, coconut, etc, in different parts of India. In India, Barley is essentially a poor men's crop and used primarily as human food in the form of chapati Sattu, etc, and as a concentrate for many animals. In addition, certain other by-products are also prepared from barley grain. Several insect pests have been reported to be associated with Barley in the storage.

MATERIALS & METHODS

The test insect *Tribolium Castaneum* Herbst is a serious pest, causing enormous quantitative and qualitative losses to various stored cereals. The collection of adults for mass rearing was made from local granaries of Naubasta Mandi, Kanpur. The insect, thus collected were carefully examined for their taxonomic characters.

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Further, the mass rearing for breeding of individuals was carried out on the barley grains in plain glass jars of 2 kg capacity and the mouth of glass jars was covered with muslin cloth and tied with the help of rubber bands. The glass jars were kept at room temperature in the Entomological laboratory till the emergence of fresh adults. The Newly emerged 1st to 5 days old adults were taken as parental population thought the course of the study. The pest was undertaken department of Zoology (Entomology) AU, Allahabad, Newly emerged 1-5 days old adults were separated. In the case of males, the rostrum is distinctly shorter and wider than that of females in which it is distinctly longer and narrower. Six differences were observed with the help of a hand lens in the laboratory throughout investigations. The following varieties were obtained from Rabi Cereal Research Station, C.S.A. University of Agriculture and Technology, Kanpur. The representative samples of each variety were taken as test material. K-898, K-551, K-603, K-851, Jyoti, Jagrati, K-139, K-889, Manjula, K-329, K-508, K-822, K-927, K-890 and K-713. The various experiments were carried out under controlled conditions at 75% relative humidity and 27oC temperature. Mating, Pre-oviposition, and oviposition 5 pairs of newly emerged male and female beetles isolated from the stock culture were introduced in tubes of 10x4 cm size, containing 30g conditioned grains of each variety, selected at random. The mouth of each tube was covered with perforated polythene paper and tied with a rubber band to prevent the escape of beetles.

All the tubes were kept in desiccators at 75% relative humidity and 27oC temperature. The experiment was replication thrice. Observation of mating, preoviposition, and oviposition period was recorded from each variety.

RESULTS & DISCUSSIONS

In 1gm the first experiment was noticed on the 5th day which was 14% and 48% on the 10th day. The larvae emerged on the 30th day and 35th day i.e. 12% and 21% respectively. The next dose, 2.5 gms treatment caused 38% mortality on the 5th day and 62% on the 10th day, 28% larvae emerged on the 30th day. No mortality on control. In 3.5 gm concentration absolute mortality was brought on the 5th day of observation. (Table 1). Similar results are also found by Bhatnagar, A. (1998), Broadley, R.H. (1984). Seasonal incidence and Parasitism of *Heliothis* Sp. (Lepidoptera: Pyralidae) larvae in South Queensland Sunflower, Diraviam, J. *et. al.* (1993), Lal, S.S. (1981),

Table 1.Efficacy of *Cussia occidentalis* seed on larval mortality and emergence of *Tribolium castaneum* Herbst

Doses		Durations						
		5th Day	10thDay	15thDay	20thDay	25thDay	30thDay	35thDay
1 gm	M	14%	48%	57%	-	-	-	-
	E	-	-	-	-	-	12%	21%
2.5gm	M	38%	62%	72%	-	-	-	-
	E	-	-	-	-	-	28%	-
3.5 gm	M	89%	98%	-	-	-	-	-
	E	-	-	-	-	-	-	-
Control	M	-	-	-	-	-	-	-
	E	-	-	-	-	-	-	-

Figures in parentheses are transformed value.

M = Mortality

E = Emergence

* Based on 5 observations

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