The Asian Journal of Animal Science (June & December, 2007), Vol.2 No.1 & 2 : (80-83)

BIOEFFICACY OF *Curcuma longa* AS BED DISINFECTANT ON BIOLOGICAL PARAMETERS IN SILKWORM *Bombyx mori* L. (Lepidoptera : Bombycidae)

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Accepted : *July, 2007*

ABSTRACT

Efficacy of turmeric rhizome powder as bed disinfectant on nutritional parameters such as larval weight, larval duration, amount of ingesta, digesta and cocoon parameters such as cocoon weight, pupal weight, shell weight and percentage and filament length has been studied in silkworm. The bed was dusted with powder after each moult, half an hour before feeding, also on trays and chandrikas. The dust at low dose level resulted in disease reduction and enhancement of economical characters.

Key words : Efficacy, Turmeric, Nutritional and Cocoon parameters, Disease reduction.

Sericulture is an agrobased labour intensive industry. Among the life cycle, larval stage is most important for the fact that the end product (cocoon) is dependent on the quantity and quality of leaves ingested.

Disease is one of the most harmful effects in silkworm rearing. The average annual loss due to disease in India was around 30%. In *B.mori*, the four types of disease found are protozoan, bacterial, viral and fungal (Ganga and Sulochana Chetty, 1995). While many chemical bed disinfectants are used for control of diseases but some cause concern due to their ecological incompatibility, non biodegrable nature, maximum residual toxicity, prolongation of incubation period of micro organisms and adverse effects on human health and non target organism. It is also found that the bacteria has also presently developed resistance against antibacterial drugs. Hence, an attempt had been made to known the effect of exogenous dust of *C. longa* on disease control and economic traits.

MATERIALS AND METHODS

Fresh mature (4-8 weeks old) rhizome of *C. longa* were harvested randomly from plants growing on the outskirts of Warangal and shade dried for a month, afterwards grounded to a fine powder and stored properly. The Kolar Gold eggs from Vijayawada grainage were used for the experiment with four replications of hundred larvae each and the experiment was repeated for two successive years. The technology followed was as recommended by Krishnaswami, (1978). In II stage, larvae were fed with a fixed load of polyhedral which were extracted from the infected larvae (0.25 ml of polyhedral suspension containing 10,000 polyhedral / ml) and the suspension was uniformly smeared on mulberry leaves, given as a first feed. The number of polyhedra in the obtained virus suspension were counted using a haemocytometer in a phase contrast microscope.

Turmeric powder was dusted using muslin cloth after 1st ,2nd , 3rd and 4th moults before resuming the feed, while during 5th instar dusting was done daily once after bed cleaning. Even rearing trays and chandrika's were dusted with powder as precautionary measures. The estimated quantity of disinfectant dusted during the different instars were as follows :

I - Batch (Low dose)

100 mg / 100 larvae – after 1st moult / 0.035 sq. ft.
187.5 mg / 100 larvae – after IInd moult / 0.1055 sq.ft.
687.5 mg / 100 larvae – after IIIrd moult / 0.263 sq.ft.
1875 mg / 100 larvae – after IVth moult / 0.525 sq.ft.
1875 mg / 100 larvae – after Vth instar daily / 0.525 – 1 sq.ft.

II - Batch (High dose)

200 mg / 100 larvae – after Ist moult / 0.035 sq.ft.
375 mg / 100 larvae – after IInd moult / 0.1055 sq.ft.
1375 mg / 100 larvae – after IIIrd moult / 0.263 sq.ft.
3750 mg / 100 larvae – after IVth moult / 0.525 sq.ft.
3750 mg / 100 larvae – after Vth instar daily / 0.525-1 sq.ft.