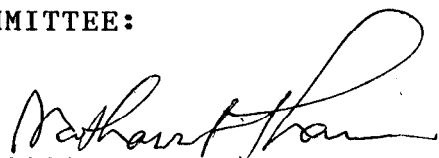



THESIS TITLE : GROWTH, LARVAL FEEDING PREFERENCE AND
TOXICITY OF BACILLUS THURINGIENSIS
KURSTAKI HD-1 ON LARVAE OF ERI SILKWORM
(PHILOSAMIA RICINI)* (LEPIDOPTERA :
SATURNIDAE)

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ABSTRACT

The aims of this research were (1) to study the growth of Eri silkworm (Philosamia ricini) reared on 8 different food plants (2) to investigate larval feeding preference on the best two plants (3) to study the induction of feeding preference and (4) to find the toxic effect of Bacillus thuringiensis strain kurstaki HD-1 towards larvae under laboratory conditions.

Rearing on 8 different food plants, i.e., the leaves of castor, casava, umbrella tree, shoe flower, cassod

tree, Chinese white cabbage, water hyacinth and the pods of string bean. It was found that Eri silkworm completed life cycle only on castor and casava leaves.

The comparison studies of larval growth between castor-reared and casava-reared larvae were conducted using total amount of leaves consumed (by dry weight); then expressed these values by average larval length, average larval weight, percent survival and overall efficiency. The results for castor-reared larvae consumed were 631.99 grammes, 2.86 centimetres, 1.15 grammes, 83 percent and 62.09 percent while for casava-reared larvae consumed were 565.76 grammes, 3.16 centimetres, 1.39 grammes, 81 percent and 49.74 percent respectively. There were significant differences between these paired parameters except percent survival ($P < 0.05$). This could be suggested that casava leaves were recommended for rearing the larvae.

The investigation of feeding preference between castor and casava leaves was made by recording the first leaf-disc consumed. It was found that the fourth instar castor-reared larvae preferred castor leaves 90 percent and the fourth instar casava-reared larvae preferred casava leaves 93.33 percent. Giving time limitation within 1 and 2 hours, the fourth instar larvae raised on specific castor and casava leaves were used to investigate induction of feeding preferences. The

results showed that within 1 hour larvae preferred to feed on the same food ($P < 0.05$) as previously reared and within 2 hour larvae highly preferred the same food which had previously been encountered* for the first three generations of rearing ($P < 0.01$).

It could be concluded that there were no induction of feeding preferences among castor and casava leaves on larvae.

The first and the third instar casava-reared larvae were used to study the toxic effects of Bacillus thuringiensis strain kurstaki HD-1.

It was found that 50 percent lethal concentration (LC_{50}) for the first instar larvae was 3.29×10^3 cells per millilitres and for the third instar larvae was 5.53×10^3 cells per millilitres.