**ABSTRACT**

Title of Thesis : Biology and natural control of mulberry leaf roller, *Diaphania pulverulentalis* (Hampson)

Name of the student : Sumiya Afreen

Registration No. : J-19-M-679

Major Subject : Sericulture

Name and Designation of : Dr. Kamlesh Bali

Major Advisor Professor

Degree to be awarded : Master of Science in Sericulture

Year of Award of Degree : 2022

Name of University : Sher-e-Kashmir University of Agricultural Sciences and

Technology, Jammu

**ABTRACT**

The incidence of various insect pests affects both quality as well as the quantity of mulberry leaves which in turn has a direct bearing on the quality of silk produced by the mulberry silkworm. In the plethora of different insect pests affecting mulberry leaves, mulberry leaf roller, *Diaphania pulverulentalis* (Hampson) is a serious one. In line with this, the present investigation entitled “Biology and natural control of mulberry leaf roller, *Diaphania pulverulentalis* (Hampson)” was conducted in the laboratory of Division of Sericulture as well as in mulberry field, Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, Chatha during year 2021-2022, for evaluating both lifecycle and natural enemies of this pest. Larvae were collected from mulberry field and were reared under laboratory conditions at 24±2°C temperature RH: 70-80% and 14:10 (L:D) h photoperiod. The results showed that pest undergoes complete metamorphosis with total development period of 28.65 days. The duration of different stages viz., egg, larva, pre-pupa, pupa, adult male and female was found 4.2, 10.06, 2.48, 9.06, 6.02 and 8.08 days, respectively. Average fecundity was found 367.33±9.71 with sex ratio of 1:1.2. A total of ten predators and four parasitoids were found to attack *D.pulverulentalis*. Six species of predators were from order Araneae (*Cheiracanthium* sp*., Neoscona* sp*., Telamonia* sp*., Philodromus* sp*., Oxyopes* sp*.* and *Tetragnatha* sp.), two speciesfrom Coleoptera(*Illeis* sp. and *Cheilomenes* *sexmaculata*), one *Calosoma* sp. from order Carabidae and one *Mantis* sp. Four hymenopteran parasitoids including three braconids (*Schoenlandella* *diaphaniae* Marsh, *Habrobracon hebetor* Say and *Phanerotoma* sp.) and one *Elasmus* sp. belong to family Eulophidae were also found parasitizing the larvae. The results of present investigation gave an insight into the biology and natural enemies of *D. pulverulentalis*, which could prove beneficial in formulation of integrated management practices.

**Keywords:** *Diaphania pulverulentalis*, biology, natural enemies.