**ABSTRACT**

Title of the Thesis : Cross Infectivity of Nucleopolyhedrosis virus (*So*NPV) in silkworm, *Bombyx mori* L.

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**ABSTRACT**

Nucleopolyhedrosis viruses (NPVs) are well-thought-out lethal bio-pesticides to manage the *Spilosoma obliqua* and are found naturally in *Spilosoma obliqua* (*So*NPV). They are often claimed to be species-specific and are expected to show less or no cross infectivity to other insect species of the same order, thus making them ideal candidates as biopesticides against certain insect pests of economically important crops. Based on this perception, a study entitled “Cross Infectivity of Nucleopolyhedrosis virus (*So*NPV) in silkworm, *Bombyx mori* L.” was carried out in the Division of Sericulture, SKUAST-J during 2021. The naturally *So*NPV exhibiting larvae of *Spilosoma obliqua* were collected from the field to extract *So*NPV and the latter were inoculated to laboratory reared, disease free *Spilosoma obliqua* larvae so as to obtain pure culture of *So*NPV. After second moult, healthy *B. mori* larvae were transferred to clean containers for the cross-infectivity evaluation of *So*NPV. The results of our investigation showed that 3rd, 4th and 5th instar larvae of *B. mori* did not developed any symptoms of mortality due to *So*NPV even at the concentration of 1.0×107 OBs/ml. The effect of *So*NPV on larval weight from 3rd instar till the end 5th instar showed that there occurred a significant decrease in weight at concentration 1.0×107 OBs/mlcompared to lower concentrations and control. The lower cocoon and shell weight (0.63±0.01 and 0.08±0.00)g were found at1.0×107 OBs/ml while as highest shell ratio (21.34%) was found at 1.0×102 OBs/ml compared to 1.0×107 OBs/ml (12.69%). No significant differences in the sex ratio were found from treatment 1.0×102 to 1.0×105 OBs/ml, however, post 1.0×105 OBs/ ml, sex ratio start fluctuating showing significant decrease in number of males (16.00±0.00) compared to females (22.00±0.00). Significant differences were observed in fecundity due to effect of *So*NPV on *B. mori*. Our results suggested that *So*NPV can be effectively employed for management of *Spilosoma obliqua* in mulberry fields at lower concentrations.

**Keywords:** Cross infectivity, *Spilosoma obliqua* NPV, *B. mori*, metric traits.

**Signature of Advisor Signature of Student**