**ABSTRACT**

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| **Title of the Thesis** | **:** | Screening of silkworm(*Bombyx mori* L.) germplasm for disease and thermotolerance |
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| **Registration No.** | **:** | J-18-D-352-A |
| **Major subject** | **:** | Sericulture |
| **Name and Designation of**  **Major Advisor** | **:** | Dr. Kamlesh Bali  Professor |
| **Degree to be awarded** | **:** | Ph. D. in Sericulture |
| **Year of award of Degree** | **:** | 2023 |
| **Name of University** | **:** | Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu |

# ABSTRACT

The present study entitled as “Screening of silkworm(*Bombyx mori* L.) germplasm for disease and thermotolerance” was carried out at Division of Sericulture, Sher-e-Kashmir University of Agricultural Sciences and Technology of Jammu, Chatha, during the year 2021 and 2022. Twelve silkworm breeds *viz.,* WM, ND5, NB4D2, U-4, PO1, ND3, U-6, CSR2, SH6, SPO, U-3 and NSP were reared at different temperatures treatments at 30±1⁰C, 32±1⁰C, 34±1˚C, 36±1˚C, 30±1˚C and 35±1˚C along with the control at ambient temperature.The first four temperatures were provided at each instar for two hours and remaining two were provided at fifth instar only. Among the various breeds tested, U-3, U-4, ND5 and U-6 exhibited thermotolerance as these breeds recorded significantly highestcocoon yield at ambient as well as highest temperature i.e., 16.13, 15.91, 15.78 and 15.51 Kg at ambient temperature25±1⁰Cand 9.68, 9.27, 9.10 and 8.88 Kg at 36±1⁰C temperature, respectively.Besides, these silkworm breeds were also screened for grasserie tolerance by exposing them at 5⁰C, 25⁰C and 30⁰C temperature for six hours followed by *Bm*NPV inoculum at first day of third, fourth and fifth instar. Silkworm breed U-3 recorded the least mortality against temperature variations and *Bm*NPV inoculum. Evaluation index of the silkworm breeds screened for thermotolerance revealed that the breeds U-3, U-4, ND5 and U-6 recorded highest average evaluation index values of 60.01, 58.38, 56.48 and 55.28 at 30±1⁰C temperature and 57.18, 55.45, 53.58 and 52.47 at 35±1⁰C temperature, respectively. Thus, silkworm breed U-3 may have the ability to tolerate high temperature as well as grasserie incidence, thus can be exploited for evolving disease and thermo-tolerant silkworm hybrids and the breeds U-4, ND5and U-6 can be use for developing thermotolerant hybrids.

**Keywords:** silkworm breeds, temperature, *Bm*NPV, evaluation index