



ABSTRACT

The sericulture industry in Pakistan is still flourishing and under development. It is necessary to improve the living standard of workers and make collaborations of various Government sectors, agencies and NGO's with sericulture department for uplifting the silk production in Pakistan. In this experimental study, glucose coated silver nanoparticles have been used to improve the economical and biological traits of silk fiber and to get more yield. On the first day of 5th instar stage, the silkworm larvae were isolated into four groups contained twenty larvae each. Untreated fresh mulberry leaves were offered to the control group while experimental groups were fed on the mulberry leaves dipped in three different concentrations (2%, 0.2% and 0.02%) of glucose coated silver nanoparticles. Results exhibit that the percent increment in larval weight was 145.09% higher in group 4 (0.02% AgNP-G) as compared to control group (106.67%). Similar trend was recorded in group 4 (0.02% AgNP-G) for average cocoon weight (1.24 ± 0.03292 g) and cocoon length (3.13 ± 0.02393 g). Furthermore, the shell weight (5.68 g), pupal weight (0.88 ± 0.03557 g) and shell ratio ($24.92 \pm 0.55194\%$) were higher in group 3 (0.2% AgNP-G) larvae as against the control (G1). Similarly, denier (2.32 ± 0.01667 dn), filament length (953 ± 20.27588 m) and fibroin content ($84.49 \pm 0.97800\%$) were noted higher in group 4 (0.02% AgNP-G) as compared to the control. It is concluded by this study that the medium and low concentrations of glucose coated silver nanoparticles have positive effect on the economic and biological traits of *Bombyx mori*.