

## ABSTRACT

Nutrition plays an important role in improving the growth and development of silkworms. The present study was designed to evaluate the effect of the probiotic fortification of mulberry leaves on biological and economic parameters as well as the digestive enzymatic activity of silkworms. Fresh mulberry leaves coated with *Saccharomyces cerevisiae* and *Lactobacillus rhamnosus* solutions (0.5%, 1%, and 2%) separately and in combinations were fed to the 5<sup>th</sup> instar of silkworm larvae. The increase in larval weight was measured for 7 days. After that few larvae were dissected, and their silk gland and gut were separated. The gut homogenate was centrifuged and the supernatant was used for analysis of enzymatic activity. The remaining larvae were allowed to complete the cocoon formation, which was used for the estimation of the economic and biological parameters of silkworms. The result of the following study showed that the average weight of silkworm larvae on the 7<sup>th</sup> day was significantly higher ( $P < 0.001$ ) in 1% *L. rhamnosus* + *S. cerevisiae* in comparison to the control group. The silkworm larvae fed with 0.5% L+Y showed the highest cocoon weight, cocoon length, cocoon width, % shell ratio, and % fibroin content as compared to the control group. The enzymatic activity was significantly higher in the 0.5% L+Y followed by 1% L+Y. It is concluded by this study that 0.5% L+Y promotes enzymatic activity which has a positive effect on the economic and biological parameters of silkworm (*Bombyx mori* L.) as the enzymes (amylase and invertase) help in enhancing the digestion process.

**Keywords:** *Bombyx mori*, Probiotics, Mulberry leaves, Fortification, *Saccharomyces cerevisiae*, *Lactobacillus rhamnosus*