



Research Paper

METABOLIC RESPONSE OF TASAR SILKWORM, *ANTHRAEA MYLITTA* DRURY TO INCREASED TANNIN CONTENT

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ABSTRACT

The present study aimed to investigate net photosynthesis, transpiration rate and stomatal conductance of *Terminalia tomentosa* leaves fortified with tannins besides oxidative stress, antioxidant defenses and commercial characters of the tasar silkworm fed on it. Supplementation of higher concentration of tannins negatively influenced the transpiration rate and relative humidity of host plant leaf while there was no effect on net carbon dioxide, stomatal conductance and photosynthesis. In the silkworm gut, α -amylase activity was found significantly reduced in tannin treated groups as compared to control. Further, modulation of oxidative stress (lipid peroxidation and total hydroperoxides) as well as presence of antioxidants (catalase, glutathione-s-transferase and ascorbic acid) were detected in tannin fed larvae. Interestingly, deterioration of commercial characters of male and female larvae was observed under tannin fed condition. Results suggest that tannins regulate the metabolism of tasar silkworm to a great extent, which may adversely affect the larval fitness and commercial characters of tasar silk. The findings could be helpful in framing strategies for effective utilization of widely available host plant *Shorea robusta* which is known to have more tannin content.

Key words: *Antheraea mylitta*, antioxidants, cocoon traits, phenols, photosynthesis, tannins.