

Influence on the overall performance of the mulberry silkworm, *Bombyx mori* L. CSR-18 cocoon reared with V₁ mulberry leaves irrigated by distillery spentwash

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CSR-18 silkworm reared with V₁ variety of mulberry plants irrigated by raw water, 50 per cent PTSW and 33 per cent PTSW. The different parameters such as raw silk (%), filament length(m), reelability (%), denier and shell ratio were determined at the maturity of cocoons. It was found that the parameters were better in cocoon irrigated with 33 per cent PTSW compared to 50 per cent PTSW and raw water irrigations. This concludes that the mulberry plants irrigated with 33 per cent PTSW is enriched with more nutrients for the potential growth of mulberry plants which results in the potential cocoons.

Key words : Silk worm, Growth, Mulberry plant, Irrigation, Cocoon parameters

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INTRODUCTION

The silkworm, *Bombyx mori* L. is a typical monophagous insect and mulberry (*Morus* spp.) leaf is its sole food. Man has immensely benefited from the silk produced by silkworms and subsequently researchers have always been trying to unveil the factors that can be manipulated to the benefit of the silkworm rearers. Sericulture is an age-old land-based practice in India with high employment potential and economic benefits to agrarian families. No doubt, India is the second largest producer of mulberry silk next only to China. Plants are the richest source of organic chemicals on earth and phytochemicals have been reported to influence the life and behaviour of different insects. Various extracts of medicinal plants have been tested by supplementation in the silkworm *Bombyx mori* L. were seen to influence the body weight, silk gland weight and the silk thread length in *Bombyx mori* L. (Murugan *et al.*, 1998). Dietary supplementation of the leaf, flower and pod extracts of *Moringa oleifera* and chitosan solution (Li *et al.*, 2010) elicited varied responses in the final

instar larvae of *Bombyx mori*. Nutrition plays an important role in improving the growth and development of *Bombyx mori* L. (Kanafi *et al.*, 2007). Alagumalai *et al.* (1991) observed fortification of mulberry leaves with the flour of black gram and red gram to improve the larval growth and cocoon characteristics in *Bombyx mori* L. Similarly, the growth of silkworm larvae improved significantly upon feeding them with mulberry leaves supplemented with different nutrients (Sarker, 1993). The quantity and the quality of dietary protein has long been considered to be important in the growth of the silkworm. Higher growth rate as well as weight gain can be observed in higher protein utilized group and the relative growth rate varied among the different breeds of the silkworm (Magadum *et al.*, 1996) and were influenced by the season (Isaiarasu and Suriabraman, 1999). The difference in the relative growth rate of *Aloe vera* tonic supplemented larvae from the control observed in the present study indicates that the *Aloe vera* supplementation results in higher protein utilization. Murugan *et al.* (1998) noticed a strong correlation between