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RESEARCH PAPER

Effect of tulsi (*Ocimum gratissimum*) leaf extract on oviposition action against uji fly (*Exorista bombycis* Louis.) and their hatchability on silkworm

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Abstract : The ovipositional deterrent and ovicidal activities of uji fly by spraying with tulasi (*Ocimum gratissimum*) leaf extract solution on oviposition against uji fly (*E. bombycis*) on silkworm was studied by spraying different concentrations, *viz.*, 0.10, 0.50, 0.75, 1.00, 1.50 and 2.00 on second day fifth instar larvae on which eggs were laid. Significant differences were noticed and lowest number of eggs laid was at the concentration 2 per cent (3.00) as against the control (37.00). The percentage of eggs laid over the total eggs laid was also lowest at 2 per cent (2.22) as against the control (27.41). As the concentration increased, the number of eggs laid decreased. The rate of eggs hatchability was nil at 2 per cent concentration as against the control (89.19%). The egg hatchability reduction over control was maximum (-91.90%) at 2 per cent and it was minimum (-26.16%) at 0.10 per cent. Hence, the use of tulasi leaf extract could be an eco-friendly and low cost method for managing uji fly.

Key Words : Silkworm, Tulasi leaf extract, Uji fly

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INTRODUCTION

Mulberry silkworm, Bombyx mori.L are not exception to the attack of parasitoids, predators and pathogens. Since the silkworm is a domesticated species, it is particularly vulnerable to the attack of all the three groups of natural enemies. The tachinid flies that infest and breed on silkworms are called uji flies. The term uji appears to have originated after the name of a place in Japan where a tachinid parasitoid of the silkworm was first reported (Maxwell Lefroy, 1917). In India, earlier to 1980, it was confined to North-Eastern sericulture regions of the country, especially Bengal and Assam (Jameson, 1992). Since its accidental introduction to Karnataka could be traced back to the purchase and transportation of infested live Nistari cocoons from West-Bengal by the interested quarters of Karnataka obviously for preparation of cross breed layings. The fly was noticed for the first time in Bailanarasapur village of Hosakote taluk, Bangalore district during May 1980 and spread to the entire sericulture belt of Karnataka and today all the sericulture states of south India are affected with this pest (Anonymous, 1980). Silkworms are attacked by uji fly, only when they have passed third moult (Anonymous, 1922). Young silkworms (first to third instar) practically escape from infestation. Ordinarily the uji fly prefers fourth and fifth instar silkworm. If the infestation takes place during fourth and early fifth instar silkworm die invariably before they reach spinning stage and farmers are in loss of 20-30 per cent cocoon production (Anonymous, 2008). Though recommended preventive and control measures are being followed by farmers, but the uji fly menace is still persisting. In this context, a new approach of uji fly management by employing effect of tulasi leaf extract on oviposition and ovicidal action against uji fly and their hatchability on silkworm have been tried in the present study. Because plant products are one of the most promising weapons available for insect control. Some plant compounds are highly effective and they discrupt metamorphosis, reproduction or cause death when it applied.