Preliminary study of mosquito larvicidal activity of Sri Lankan isolate of *Hirsutella thompsonii*

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Public health pest control is a major priority to minimize the infections and transmission of vector-borne diseases in the tropical region including Sri Lanka. Increased public concern regarding the potential adverse environmental effects of chemical insecticides has prompted the search of alternative methods for mosquito control. Biological control have been considered as an alternative to conventional chemical control methods as a means of mosquito control. The objective of the present study is to identify the mosquito larvicidal properties of *Hirsutella thompsonii* isolate against vector mosquitoes in Sri Lanka.

Infected coconut mites were collected from the coconut fields at Coconut Research Institute. A suspension of infected mites were prepared and pour plated and incubated to obtain the discrete colonies. Fungal colonies were identified by phase contrast microscope by examining the mycelia and conidiophores. *H. thompsonii* was grown on water agar and fungal spores were collected on sterile filter paper and spore concentration range of 1×10^7 to 1×10^2 spores/mL was prepared. A concentration range of *H. thompsonii* was tested against 4th instar larvae of *Culex quinquefasciatus, Aedes aegypti* and *Anopheles tessellatus* following the WHO protocol using 30 larvae for each concentration. The LD_{50} values were obtained and data were analysed using probit software analysis package.

Acaricidal properties of *H. thompsonii* have been previously reported against coconut mite *Aceria guerreronis* and considered as a promising candidate for biological control of coconut mites. However, mosquito larvicidal activity of *H. thompsonii* has not been reported previously. A local strain of *Hirsutella* was isolated from the infected coconut mites and is the first report of mosquito larvicidal activity of Sri Lankan isolate of *Hirsutella.* This strain showed the highest larvicidal activity ($LD_{50} = 4.07 \times 10^3$ spore/mL) against *Cx. quinquefasciatus. Hirsutella* isolate also showed good larvicidal activity against *Ae. aegypti* ($LD_{50} = 2.19 \times 10^4$ spore/mL) and *An. tessellatus* ($LD_{50} = 1.59 \times 10^5$ spore/mL).

The results of this study indicated that the spores of isolated *H. thompsonii* strain could be used as a useful biocontrol agent against the larvae of vector mosquitoes.

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