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Larvicidal effect of extracellular extracts of *Trichoderma longibrachiatum* and *Trichoderma viride* against *Aedes aegypti*

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Aedes aegypti is a potential vector for transmitting dreadful diseases such as yellow fever, ZIKA, dengue and chikungunya, leading to global health problems. However, there is no warranted controlling method for these diseases other than controlling the vector. Apart from destroying breeding sites, use of larvicides is also important in larval control of the vector. Synthetic chemical insecticides, which dominate mosquito control programmes, are hazardous and exert unwarranted toxicity on non-targeted organisms, and lead to develop physiological resistance in target insects. Therefore, environmentally friendly, fungal mediated insecticides have been a priority at present. In current study, larvicidal effect of extra cellular fungal extracts of *Trichoderma longibrachiatum* and *Trichoderma viride* against 3rd instar larvae of *Ae. aegypti* was investigated. The fungi were grown in Richard's broth medium containing glucose, agar, potassium nitrate, potassium dihydrogen phosphate, magnesium sulphate and ferric chloride. Eighteen different test concentrations of extracellular fungal filtrates, in a range from 0.625gL⁻¹ to 175gL⁻¹, were prepared and batches of 25 number of laboratory reared 3rd instar larvae of *Ae. aegypti* were exposed to each test concentration separately with three replicates. Control bioassays were conducted with distilled water and larval mortality was recorded after 24 and 48 hour exposure periods. Results revealed that extracellular extracts of *T. viride* exhibited high larvicidal activity against *Ae. aegypti* larvae compared to the larvicidal activity of *T. longibrachiatum*. LC₅₀ values for 3rd instar larvae of *Ae. aegypti* at 24 hours to the extracellular extracts of *T. viride* and *T. longibrachiatum* were 99.92 gL⁻¹ and 114.98 gL⁻¹ respectively whereas LC₅₀ values at 48 hours of exposure to the extracellular extracts of *T. viride* and *T. longibrachiatum* were 92.46 gL⁻¹ and 108.71 gL⁻¹ respectively. This study concludes that extracellular fungal extracts of *T. longibrachiatum* and *T. viride* can act as potential larvicides against *Ae. aegypti* and they can be used as alternatives for hazardous synthetic insecticides.

Keywords: *Aedes aegypti*, extracellular fungal extracts, mosquito larvicides, *Trichoderma longibrachiatum*, *Trichoderma viride*

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