

In vitro Control of *Aedes aegypti* Larvae Using *Beauveria bassiana*

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Abstract : *Aedes aegypti* larval survival rate was assessed after exposure to blastospores or conidia (mineral oil-in-water formulation or aqueous suspension) of *Beauveria bassiana* CG 479 propagules (blastospores or conidia). Here, mineral oil was used in the fungal formulation to control *Aedes aegypti* larvae. 1%, 0.5% or 0.1% mineral oil-in-water solutions were used to evaluate mineral oil toxicity for mosquito larvae. In the oil toxicity test, 0.1% mineral oil solution reduced only 4.5% larval survival; accordingly, this concentration was chosen for fungal oil-in-water formulations. Aqueous suspensions were prepared using 0.01% Tween 80 in sterile dechlorinated water. *A. aegypti* larvae (L₂) were exposed in aqueous suspensions or mineral oil-in-water fungal formulations at 1×10⁷ propagules mL⁻¹; the survival rate (assessed daily, for 7 days) and the median survival time (S₅₀) were calculated. Seven days after the treatment, mosquito larvae survival rates were 8.56%, 16.22%, 58%, and 42.56% after exposure to oil-in-water blastospores, oil-in-water conidia, blastospores aqueous suspension and conidia aqueous suspension (respectively). Larvae exposed to 0.01% Tween 80 had 100% survival rate and the ones treated with 0.1% mineral oil-in-water had 95.11% survival rate. Larvae treated with conidia (regardless the presence of oil) or treated with blastospores formulation had survival median time (S₅₀) ranging from one to two days. S₅₀ was not determined (ND) when larvae were exposed to blastospores aqueous suspension, 0.01% Tween 80 (aqueous control) or 0.1% mineral oil-in-water formulation (oil control). *B. bassiana* conidia and blastospores (mineral oil-in-water formulated or suspended in water) had potential to control *A. aegypti* mosquito larvae, despite mineral oil-in-water formulation yielded better results in comparison to aqueous suspensions. Here, *B. bassiana* CG 479 isolate is suggested as a potential biocontrol agent of *A. aegypti* mosquito larvae.

Keywords : blastospores, formulation, mosquitoes, conidia

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