INSECT DISEASE VECTORS BIO CONTROL

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Probiotic cultures: a new alternative for biological control of *Aedes aegypti, Anopheles albimanus* and *Culex quinquefasciatus* (Diptera: Culicidae)

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Introduction.

The high cost and residual effects of chemicals insecticide and larvicides today make it essential to find effective new ways to control mosquito vectors with low or no impact on the environment. According to the World Health Organization definition of probiotics is " Live microorganisms which when supplied in adequate quantities promote the health benefits of the host organism. " Probiotic cultures are living microorganisms, wild, without genetic modification, which work efficiently in a liquid consortium**.** Its production is inexpensive and its release into the environment is not harmful effects. Probiotics have been widely used in the management of wastewater and as complementary inputs to agricultural land with very positive results. The objective was to evaluate the efficacy of probiotic cultures as a means of biological control immature stages of *Aedes aegypti, Anopheles albimanus* and *Culex quinquefasciatus* under laboratory conditions.

Materials and methods.

Bioassays were conducted with late third instar larvae of Culicidae mosquito species *Aedes aegypti* (Rockefeller strain), *Anopheles albimanus* (Cartagena strain) and *Culex quinquefasciatus.* We evaluated four concentrations of the probiotics and a control group without probiotic, following the WHO methodology. Additionally, physicochemical parameters were recorded (pH,% dissolved O_2 and conductivity) before and after application of the probiotics.

Results.

The species studied were susceptible to probiotics (mortality> 90%) showing a greater effect on 120 hours post-application for *A. aegypti* , *A. albimanus*, and *C. quinquefasciatus.* The pH,% O_2 dissolved and conductivity of the treated groups showed statistically significant variations with respect to control in the absence of probiotic.

Conclusions.

It shows the use and efficacy of probiotic cultures as larvicide, proposing an alternative control mosquitoes of medical importance because of its effectiveness, low cost production and a rapid return to the environment given its **natural** components. Future studies are needed with this new line of products, by-catch and field trials.