TITLE: EVALUATION OF *Spirulina maxima* IN STIMULATING OVIPOSITION AND ATTRACTIVENESS OF *Aedes aegypti*

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Abstract:

Aedes aegypti is a vector of medical importance responsible for the transmission of arboviruses with a high impact on public health. Ovitrap traps use water and bait to attract females to lay eggs, but they compete with natural and artificial breeding sites found in the environment. Studies show that microorganisms associated with water solutions seem to favor the attraction of mosquitoes. Scientific evidence has indicated that organic compounds present in microalgae of the Spirulina genus could influence the oviposition behavior of *Ae. aegypti*. In this context, the present study sought to evaluate the bioactivity of the biomass of the microalga *Spirulina maxima* as an oviposition and attraction stimulant for *Ae. aegypti*. The activity index for *Ae. aegypti* oviposition was compared using pure *Sp. maxima* biomass at concentrations of 0.01 g/L, 0.02 g/L, 0.04 g/L, 0.08 g/L and 0.16 g/L. The control group was restricted to distilled water. The attractiveness of *Sp. máxima* was also compared to brewer's yeast (*Sccharomyces cerevisiae* - SC), recommended by the Ministry of Health, in three different concentrations: 0.4 g/L (suggested by the Ministry of Health), 0.02 g/L and 0.08 g/L. In all the tests, 30 females and 10 males age between 7 and 10 days were used, placed in cages measuring 30x30x30 cm. Five replicates were carried out for each experimental group. The headspace technique coupled with gas chromatography-mass spectrometry (GC-MS) was then used to identify the volatile and semi-volatile compounds released by the experimental solutions of *Sp. máxima*. The Two Way ANOVA test was used for statistical analysis.

All the *Spirulina maxima* solutions tested at different concentrations showed a significant effect on the oviposition of *Ae. aegypti* when compared to the control groups (distilled water). With regard to the comparison with yeast (SC), the results showed that *Sp. maxima* (0.8 g/L) proved to be the most effective option, outperforming yeast (0.4 g/L), while at the concentration (0.4 g/L), both showed similar performance. Yeast (SC) was superior to *Sp. maxima* when its concentration was 20 times higher than that of Spirulina (0.02 g/L). Chemical analysis revealed the presence of 11 compounds, with D-alanine standing out, representing more than 40% of the total area detected in the chromatographic analysis. These findings suggest that the pure biomass of *Sp. maxima* has the potential to be used as an attractant in ovitrap traps, contributing to vector control strategies. The results show that *Sp. maxima* can be used as an alternative in traps for monitoring and controlling *Ae. aegypti* in the field.

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Keywords: *Aedes aegypti*, *Spirulina máxima*, oviposition stimulation, vector control