

Article title

Assessment of two natural toxins (microcystin and nodularin) for the control of *Anopheles multicolor*(Diptera: Anophelidae)

Abstract

Laboratory experiments were conducted to determine the efficacy of two cyanobacterial toxins (microcystin and nodularin) against the different larval instars, pupal and adult stages of *Anopheles multicolor*. Experiments were carried out in plastic cups, and the two toxins were tested at four concentrations, where the LC₉₀, LC₅₀, LC₂₅ and LC₁₀ for the first instar larvae under laboratory conditions were 2.95, 3.80, 4.95 and 7.45 µg/ml for microcystin and 4.37, 6.40, 8.85 and 14.39 µg/ml for nodularin, respectively.

While the LC₅₀ for the second, third and fourth larval instars were 6.70, 8.92, and 9.70 µg/ml for microcystin toxin and 12.25, 15.95 and 18.20 µg/ml for nodularin, respectively. The most sensitive instar was recorded is the first and the most resistant instar was the fourth larval instar. The delayed effects of different concentrations (LC₁₀, LC₂₅ and LC₅₀) of the two tested toxins on some biological activities also studied when treating the fourth larval instar.