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# Chrysanthemum extract and extract prepared silver nanoparticles as biocides to control *Aedes aegypti* (L.), the vector of dengue fever

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## Abstract

Mosquitoes play a key role in the transmission of some important diseases. The need for controlling these insects is critical to reduce their risks to human and domesticated animals. Recently the trend to explore effective chemical compounds from local plants has begun as a safe means of control. The present study aimed to evaluate the anti-larval activity of Chrysanthemum extract and the prepared silver nanoparticle (AgNPs) against the *Aedes aegypti* mosquito, the dengue vector in Saudi Arabia. A series of different concentrations of ethanol extract and extract prepared AgNPs against the fourth-life larvae was tested. The effective concentrations of crude extract and AgNPs ranged from 50 to 250 and 10 to 30 ppm respectively, and the death percentages corresponding to these concentrations ranged from 18 to 92 and 36 to 96% respectively. According to the LC50 values of treated larvae, AgNPs (12.754 ppm) is more effective against *A. aegypti* mosquito larvae than the crude extract (228.345 ppm) at about 17.9 times. The mixing of the plant extract with the silver nitrate has led to potentiation. This is due to the synergy that occurs between the extract

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