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The efficacy of Novaluron as an active ingredient in Autocidal Gravid Ovitraps (AGOs) to control *Aedes albopictus* (Skuse)

M.D. Hapugoda,[1] G.P.W.K. Withanage,[1]and W. Abeywickrama[2]

[1]*Molecular medicine Unit, Faculty of Medicine, University of Kelaniya*
[2]*Department of Parasitology, Faculty of Medicine, Kothalawala Defence University*

Dengue is an important mosquito-borne viral infection in Sri Lanka and dengue virus is transmitted to humans primarily by *Aedes aegypti* (Linnaeus) mosquitoes. *Aedesalbopictus* (Skuse) is considered as the secondary vector which has a wide distribution in Sri Lanka. Vector control is the best strategy to control the disease. Therefore, novel tools to control dengue vector mosquitoes have become the need of the hour. Autocidal Gravid Ovitrap (AGO) facilitates an oviposition site for female mosquitoes but results in Emerging Inhibition (IE) of adultsdue to the presence of an insecticide or InsectGrowthRegulator (IGR) at lethal dosages. Novaluron is an IGR developed recently and it acts as a chitin synthesis inhibitor. Our objective was to identify the efficacy of Novaluron as an AGO to control *Ae. albopictus* under laboratory conditions. Insectary-reared third instar *Ae. albopictus* larvae were exposed to concentrations ranging from 5 ppm to 0.5 ppb Novaluronin in 40 black colour 200 ml ovitraps following World Health Organization (WHO) guidelines to determine adult Emerging Inhibition (IE%). A batch of third instar larvae (n=30) introduced to each ovitrap were exposed for 24 hours. A similar number of untreated ovitraps were used as controls. Once all mosquito larvae were demised, another batch of 30 larvae was added to each of the treated and control ovitraps to identify the residual effect without re-filling with water. Calculated LD_{50}, LD_{90} and LD_{99} values were 0.00029 ppm, 0.00038 ppm and 0.00048 ppm respectively at the 5% significance level. During the laboratory studies, the effective minimum concentration giving 100% mortality (IE 100%) was 0.00048 ppm (0.5 ppb) and all the mosquito larvae were demised after 14 days from the initial introduction. All the mosquito larvae in the next batch were demised by day 28. The test cups were dried completely by day 30. Therefore, the residual effect of Novaluron at this concentration could be seen up to 28 days. Results reveal the potential of using Novaluron treated ovitraps to control dengue vectors at household level.

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menakaha@yahoo.com 7144586606