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Efficacy and potential use of VectoBac WG® for the control of Culex quinquifaciatus mosquitoes in three different localities of Gampaha district, Sri Lanka

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Some methods of mosquito population control, especially the application of pesticides for adult mosquitoes, can have an impact on the environment and individuals with a heightened sensitivity to pesticides. Of the available control tools, biological controls are considered to be generally host-specific and environmental friendly. Although biological controls are not feasible on a large scale, they are often very effective in localized areas. Therefore, efficacy and potential use of water dispersible granular (WDG) formulations of bacterial larvicide, Vectobac- WG® (*Bacillus thuringiensis israelensis* [Bti]) (Valent BioSciences Cooperation in USA) was tested against *Culex quinquefasciatus* in three selected localities in the district of Gampaha. Pre-treatment, treatment and post-treatment adult C. *quinquefasciatus* mosquito densities were recorded for 20 consecutive days within the study period between May to December 2008. The study period covered both rainy and dry seasons. The larvicide was applied to three selected treatment sites and three control sites with a backpack sprayer to test the efficacy of Bti treatment. The six Pre-treatment surveillances in the three treatment and three control sites were done once a week in the first month and once in two weeks for the second month. Adult mosquitoes collected were identified in the laboratory to the species level and the numbers were recorded. For each site, 30 households were selected, with a total of 180 households. During the first month, treatment and surveillance cycles were carried out at weekly intervals, and once in two weeks during the next two months. Six post-treatment surveillances were carried out in the same way as the pre-treatment surveillances. According to the results obtained in this study, out of three treatment sites, two sites were shown to have *Culex* mosquito density reduction of 19% and 4%, while an increase in mosquito density was observed in the third site. Further, the three control sites, showed an average of 17% mosquito density reduction even without the application of Vectobac-WG® treatment. These results suggest that the product Vectobac-WG® is not effective on *Culex quinquefasciatus* as a larvicide to control filariasis in Sri Lanka.

Acknowledgement: Financial assistance and chemicals received from Valent BioSciences Cooperation in USA are acknowledged.