J Infect Dis Prev Med 2020, Volume 08

Control and prevention of dengue (*aedes aegypti*) and malarial (*anopheles stephensi*) vectors

Imran Ahmed[1], Shabab Nasir[1], Farhat Jabeen[1] and **Faisal Hafeez[2]**
[1]Government College University, Pakistan
[2]Ayub Agriculture Research Institute, Pakistan

Mosquitoes act as life threatening disease vectors. Due to non-availability of vaccine and treatment for most of these diseases, the only solution is to control the mosquitoes. The continuous application of synthetic insecticides causes development of resistance (in vector species), biological magnification (of toxic substances through the food chain) and adverse effects (on environmental quality and non-target organisms including human health). So, under the Integrated Mosquito Management (IMM), emphasis is given on the application of alternative strategies in mosquito control such as use of selective insecticides, plant extracts and *bacillus thuringiensis israelensis*. During the current study, plant samples were collected from Faisalabad for oil and aqueous extraction. Mosquito larvae were collected from different habitats such as industrial, non-industrial area, sewage, pond, fields and land water and brought to Government College University, Faisalabad for rearing and identification. After identification, aedes mosquitoes were reared and treated with different plant extracts, growth regulators and *bacillus thuringiensis israelensis*. Six concentrations of each treatment were applied against 2nd and 3rd instars larvae. The data was collected to check knock down affect after 2, 4, 8, 16, 32, 64 and 128 hours respectively. The data was analyzed through ANOVA to find significant factors (plant extracts, synthetic insecticides and *bacillus thuringiensis israelensis*) contributing for mortality. After screening experiments, different significant oil and water extracts, insecticides and *bacillus thuringiensis israelensis* were tested in combination to test their efficacy against aedes larvae. Again mortality data was collected and subjected to prohibit analysis to calculate LC_{50}. In the mixing trials, the highest (100%) mortality was observed with those solution having insecticides and *bacillus thuringiensis israelensis*. The least value of LC_{50} (1.3-40ppm) and LT_{50} (0.35-0.83hrs) was observed with solution of ether extracts, *bacillus thuringiensis israelensis* and insecticides for aedes larvae. We need to adopt advanced techniques for dengue vector control such as application of significant plant extracts, significant insecticides and *bacillus thuringiensis israelensis* for excellent and sustainable control. By adopting these techniques we should able to manage the populations of aedes in the environment.