

ABSTRACT

Dengue, a vector borne disease is caused by four antigenically diverse serotypes of dengue viruses (DENV1, DENV2, DENV3, and DENV4). It is the most common arthropod- borne viral disease transmitted by biting of female *Aedes* mosquito particularly *Ae.aegypti*. However, there is no proper drug or vaccine developed against this disease. The only strategy available is to control the vector. The vector control involves chemical and biological methods. The intensive use of insecticides for the control of insects has developed resistance in mosquitoes. Due to the development of resistance among the vectors the trend is therefore switched from the routine practice of chemical measures to biological control. The use of microorganisms to control the insects is not new but limited in developing countries. There is no commercial product of *Bti* to date available in Pakistan. The aim of the current study was to find the local isolates of *Bacillus thuringiensis* strains and to evaluate the toxicity of the strains against dengue vectors. *Bti* strain were isolated from the soil of different areas of Lahore and evaluated for the toxicity against dengue vectors. The isolates were confirmed by amplification of 16S rDNA. The efficacy of locally isolated *Bti* strain and its integration with *Bti* VectoBac (WDG) was observed against 3rd instars of *Ae. aegypti*. Locally isolated *Bti* NJ 1 indicated LC₅₀ and LC₉₅ ranged from 0.050-0.116 ppm post 48 h exposure. However, locally isolated *Bti* NJ 1 when integrated with commercial product *Bti* VectoBac (WDG) 1:1 indicated LC₅₀ and LC₉₅ ranged from 0.044-0.141 ppm post 48 h exposure. Similarly three other strains *Bti* NJ 2, *Bti* NJ 3 and *Bti* NJ 4 were tested for their toxicity against 3rd instars *Ae. aegypti*. These results indicated that locally isolated *Bti* strains are promising for the control of dengue vectors. In addition locally isolated strains are recommended for more enhancement of toxicity so that local commercial product will be synthesized to reduce the economic cost for the import of the current commercial products available in the market.