ABSTRACT

To test the optimal growth conditions (pH and temperature) of *Bacillus thuringiensis*, different isolates of *Bacillus thuringiensis* were cultured at a pH range between 4-7 and a temperature range between 25-37°C. It was noticed that the neutral pH and 37°C temperature were most effective for their optimal growth. Growth curves of local isolate (SBS *B.t.* 47) and its positive control (HD500) were measured and compared. To determine the percentile mortality and 50% lethal concentration, a range of concentrations (100µg/ml – 1000µg/ml) of spore diet was used in bioassays, for both local isolate as well as the positive control, against third instar of *Anopheles stephensi*. The optimal spore diet concentrations of local isolate and the positive control were 700µg/ml and 900µg/ml, respectively.

A full length *cry*11A gene of *Bt* was released from an already cloned T/A vector (pTZ57R/T) and sub-cloned in pT7-7, an expression vector, under *Eco*R1 and *Hind*III restriction sites. The construct was confirmed by restriction as well as sequence analysis in *Escherichia coli* (DH5α) subsequently transformed *Escherichia coli* BL21C^{+} for expression. The expression was estimated by Lowery method. The conditions for time and IPTG concentrations were optimized. A high level expression of *cry*11A gene was achieved at an IPTG concentration of 0.5mM and a temperature of 37°C after 3hrs.