GENETIC IMPROVEMENT OF Bacillus thuringiensis AS A BIOCONTROL AGENT AGAINST Biomphalaria alexandrina SNAIL.
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ABSTRACT
Susceptibility of Bacillus thuringiensis spores and toxin to UV-C (254nm) of the solar spectrum reaching earth's surface may be responsible for its inactivation and low persistence in nature. Spores of the Bt israelensis (1977 &HD522) were more resistant to UV-C radiation than spores of at lenebrionis (t4) and the isolated strain (66). Maximum mollusccidal activities were obtained following successive rounds of exposing the 2 strains; t4 and 66 to UV-C. The mutants obtained designated as 6615c & t4/2a showed 100% mortality of Biomphalaria aalexandrina snails, while their parental strains showed 60% & 80% of mortality, respectively. The highly toxic mutants derived from at. (66 & t4) appeared to produce number of crystals more than that of their parental strains. The protein patterns at these mutants indicated that they produced polypeptide of 65 KDa or its derivatives that caused high toxicity of these mutants. ... DNA profile of some mutants was established by using polymerase chain reaction (PCR). 111 e PCR screen can identify mutants with altered electrophoretic panems containing novel genes.

Keywords Bacillus thuringiensis, Mutation, Biomphalaria alexandrina snail, UV-radiation.

INTRODUCTION
Bacillus thuringiensis strains and varieties are pathogenic to a number of agricultural and medically important pests. The environmental safety of B. thuringiensis, coupled with the nature of toxicity, level of specificity for target hosts and relative ease of production has led to the use of B. thuringiensis in many pest control programmes in environmentally sensitive areas (Glares and O’Callaghan, 1998).

B. thuringiensis preparations were used as biocontrol agent against Biomphalaria alexandrina snails and cercariae (Osman & Mohamed, 1991 and Weiser, 2001).

Microbial control of agricultural pests and vectors of human diseases by B. thuringiensis (Bt) is an important alternative to chemical pesticides (Margalith and Dove, 2000) but the viability of spores and toxicity of crystals included in (Bt) preparation rapidly drop under field conditions (Leong et al., 1980). Sunlight -mediated in activation of these preparations, which affects their efficacy and commercial value, is believed to be caused by UV damage to spores and their a-endotoxin (Griego & Spence, 1978 and Jones et al., 1991). Spores of some strains of (Bt) have been shown to be highly sensitive