

Determination of LD₅₀ and LT₅₀ against *Spodoptera frugiperda* (J E Smith) for Native *Bacillus thuringiensis* Isolates

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ABSTRACT

Bacillus thuringiensis Berliner is a rod shaped, facultative, spore forming, gram positive and crystal bearing soil borne bacterium that is highly pathogenic and specific to insects. Several Strains of Bt were found effective against lepidopterans with highly infective strains like HD-1 which resulted in high larval mortality and was on par with chemical pesticides. To ascertain the insecticidal activity of six native *Bt* isolates viz., isolate 49, 51, 52, 55 and 493, a bioassay was carried out on third instar larvae of *Spodoptera frugiperda* using a standard leaf dip method and efficacy was compared with a reference strain *B. thuringiensis* subsp. *Kurstaki* HD1. Mortality was calculated up to seven days after treatment. Efficacy was compared to Lethal dose (LD₅₀), which ranged between 2.64×10^7 (reference strain HD1) and 1.34×10^{11} CFU ml⁻¹ (isolate 52) and LT₅₀ in the range of 101.65 (reference strain HD1) to 146.16 hpi (isolate 52) at a uniform higher dose of 1×10^{12} .

Keywords: *Bacillus thuringiensis*, hpi, Lethal dose, Lethal time and *Spodoptera frugiperda*.