OP-1

Sri Lankan *Bacillus thuringiensis* for Control of Cruciferous Pests

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Cruciferous vegetables are damaged by lepidopteran pests resulting in significant crop losses leading to poor economic return in many regions of the world including Sri Lanka. *Plutella xylostella* L. is one of the most destructive pests of this lepidopteran pest complex and others include *Chrysodeixis eriosoma* Doubler, *Agrotis ipsilon* Hufnagel and *Crocidolomia binotalis* Zeller. In search of insecticidal indigenous strains of *Bacillus thuringiensis* (*Bt*) the insecticidal activity of two *Bt* isolates described in this paper was identified against lepidopteran pests through preliminarily bio-assays. The objective of the present study was to evaluate the field efficacy of these *Bt* strains in two seasons against cabbage pest complex. Under laboratory conditions *Bt* AB125 showed highest activity against *P. xylostella* and *A. ipsilon* (LC_{50} = 6.74 x 10^7 and 3.52 x 10^5 spores/ml) and AB142 showed highest activity against *C. eriosoma* (LC_{50} = 1.18 x 10^5 spores/ml).

In the field experiment I, the invert oil formulation of AB125, AB142 and *Bt.* subsp. *kurstaki* showed 84, 77 and 87% insect population reduction after 72 h of the application. In comparison, gel suspension formulation of *Bt* AB125 showed the population reduction of 91%. In all treatments 100% insect population reduction was observed after 7 days. In experiment II, invert oil formulation of *Bt* AB125, AB142 and *Btk* showed 95%, 77% and 95% population reduction while gel suspension formulation of *Bt* AB125 showed 95% after 48 h of the treatment. In all treatments 100% population reduction was observed after 4 days. With the introduction of 2nd and 3rd sprays after 10 and 22 days, insect population was fully controlled.

With the high bio-efficacy, *Bt*-based products could be recommended as microbial pesticides in cruciferous vegetables pest control programs.

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