Laboratory and field tests of spray-dried and granular formulations of a *Bacillus thuringiensis* strain with insecticidal activity against the sugarcane borer

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Abstract

Formulations of *Bacillus thuringiensis* Berliner (Bt) with insecticidal activity against the sugarcane borer, *Diatraea saccharalis* Fabricius (Lepidoptera: Pyralidae), were developed and tested under laboratory and field conditions. The formulations were prepared using biodegradable polymers such as modified corn starch as an encapsulating agent, gelatin as an adherent, powdered sugarcane as a feeding stimulant and a Bt var. kurstaki GM-34 strain from a non-sugarcane region as the active ingredient. The spore–crystal complex of this strain was mixed at three different concentrations (30, 70 and 100 g kg−1) with the other ingredients. The blends were prepared as spray-dried and granular formulations, and then submitted to laboratory tests with two day old larvae of *D. saccharalis* and field tests in sugarcane crops with natural sugarcane borer infestation. Spray-dried formulations in laboratory bioassays caused mortality near 100% with all three concentrations, and granular formulations caused mortality around 84%. The field tests showed that spray-dried formulations at 70 and 100 g kg−1 concentrations were as effective as a commercial bioinsectide (Lepinox™), while granular formulations were ineffective.