

Bacillus thuringiensis Development from 1971 to 1996: Cases of a Research Group in Brazil

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Brazil is internationally known for the activities in mass production and use of biocontrol agents. Batch studies on B.t. fermentation were initiated in 1970, at the State University at Campinas to explore the feasibility of producing endotoxin preparations, using cheap liquid by-products as culture media. The problems of the medium composition, its price and their influence on the final cost were studied for mini and pilot scale production. The results obtained, generated two industrial patents on the fermentation process, using sugar cane molasses and corn steep liquor as sources of nutrients. Besides these studies others such as the rheological characteristics of many culture media, the influence of different aeration levels on growth and sporulation, the continuous culture technique affecting growth rate or sporulation rate, the effects of different ways of drying on the viability of spores and the potency of the insecticide obtained, as well as the solid-state fermentation, were developed. These works have been registered in several dissertations, theses, and published papers. In order to produce B.t. at low costs and with good activity, some researches related to quality control, standardization, formulation and cost/benefit ratio are being developed.

In 1970 some researchers from the University of Campinas initiated studies on B.t. batch fermentation to explore the feasibility of producing endotoxin preparations, using cheap liquid by-products as culture media. The problems of the medium composition, its price and their influence on the final-cost were studied for mini and pilot scale production. The results obtained, generated two industrial patents on fermentation process, using sugar cane molasses and corn steep liquor as source of nutrients. The results have been published in several dissertations, theses and research papers.