THE UTILIZATION OF LOCAL CARBON AND NITROGEN SOURCE FOR THE PRODUCTION OF *Bacillus thuringiensis* subsp. aizawai AS THE ACTIVE INGREDIENT OF BIOINSECTICIDE

Bambang Sukmadi[1'], Bambang Haryanto[2)], and Ratna Siri Hadioetomo[3)]

[1)]Center for the Assessment Application of Industrial and Agricultural Biotechnology - BPPT, PUSPITEK, Serpong, Tangerang
[2)]Directorate for the Assessment of Technical Science BPPT, Jakarta
[3)]Faculty of Mathematics and Natural Science, Bogor Agricultural University

ABSTRACT

The effect of concentrations of nitrogen sources in the media formulation containing 1.25% molasses as the carbon source on the production of spore- crystal mixture (active ingredient of bioinsecctiside) by *Bacillus thuringiensis* subsp. aizawai was investigated. The nitrogen sources tested were soybean flour in the concentration of 0.5, 1.0, 1.5, 2.0, and 2.5%, and fish meal in the concentration of 0.35, 0.7, 1.05, 1.4, and 1.75%. Among the various concentration tested 1.5% soybean flour or 1.05% fish meal was found to be optimum. Both were found to produce the highest cell concentration and more than 90% of the cells in the cultures underwent lysis after 48 hours of fermentation, releasing their spores and crystal into the media. Furthermore, the concentration of 1.5% soybean flour or 1.05% fish meal in the media produced dryweights of spore-crystal mixtures (lyophilized in the presence of 26.08 g lactose) as much as 30.35 and 29.42 g/l, viable spore counts of 2.83 x 10^8 and 2.27 x 10^8 VSC per mg dryweight of spore-crystal mixture, and LC_{50} values (against the first-instar larvae of *Spodoptera litura)* of 387.78 and 431.03 ^ig/ml, respectively.

Keywords : *Bacillus thuringiensis* subsp. aizawai, carbon and nitrogen source, fermentation, active ingredient of bioinsecticide