

**EFFECTIVITY STUDY OF FERMENTATION SOLID OF *LANTANA CAMARA*
AND *BACILLUS THURINGIENSIS* USING LIQUID WASTE OF PALM OIL
FORMULATION AND COCONUT WATER TO CONTROL PALM OIL
NETTLE CATERPILLAR *SETOR NITENS***

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Abstract

The objective of this study was to determine the best formulation of fermentation solid of *Lantana camara* and *Bacillus thuringiensis* using Liquid Waste of Palm Oil (LWPO) and coconut water, and to test its effectivity in controlling palm oil caterpillar pest. Experimental study was carried out based on Completely Randomised Design (CRD), using a single experimental factor, i.e. the ratio between LWPO and coconut water, with 5 treatments: (A) LWPO : coconut water (1:0); (B) LWPO:coconut water (1:3); (C) LWPO:coconut water (1:1), (D) LWPO:coconut water (3:1), and (E) LWPO:coconut water (0:1). Parameters analysed during the experiments were: physical changes during fermentation, population dynamics of *Bacillus thuringiensis*, fermentation solid of *Lantana camara* and *Bacillus thuringiensis* using Liquid Waste of Palm Oil, and bioassay on Nettle caterpillar *Setora nitens*. The results of this study demonstrated the decrease of fermentation temperature reaching 25.6°C, pH 3.63, and the brownish appearance with strong odor, the increase of viscosity reaching 1360 ppm. Fermentation solid of *Lantana camara* and *Bacillus thuringiensis* using Liquid Waste of Palm Oil in the form of Wettable powder (WP) at the ration (1:1) resulted in the highest population dynamics of *Bacillus thuringiensis*. The bioassay results, however, showed that the ratio of (0:1) and (3:1) were more effective in controlling the pest with the mortality of 70%, death rate of 4 days, and efficacy reached 70% level.

Keywords : *B. thuringiensis*, *Lantana camara*, *Setora nitens*, Liquid Waste of Palm Oil-coconut water

