

Effectiveness of Cashew Nut Shell Liquid (CNSL) with Bait Formulation Against *Iridomyrmex cordatus* as a Vector of Cocoa Pod Rot Disease Caused by *Phytophthora palmivora*

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Abstract

Background and Objective: *Cashew nutshell oil* (CNSL) is a biopesticide that is environment-friendly in controlling ants *Iridomyrmex cordatus* as a Vector pot rot disease caused by *Phytophthora palmivora*. The research aimed to obtain the best concentration of *cashew nut shell oil* formulated as smart food bait to tackle the ant population of *Iridomyrmex cordatus* due mainly to a vector of *Phytophthora* pod rot.

Materials and Methods: The research was carried out in cocoa areas in South Sulawesi with a randomized block design consisting of six treatments. Feeding trials consisted of food bait formulation was added with cashew husk respectively are 1%, 10%, 20%, 17.5 g carbaryl (recommended dose), and control (without cashew husk or carbaryl). Each trial was replicated five times and set near to petiole and ant tunnel nest. The research focused on the number of ant colonies established in the trees until food bait was given.

Results: The trial with CNSL concentration had a positive effect on the ant population which was the higher concentration was given, the lower the ant population was obtained. Meanwhile, the population of *I. cordatus* had a positive contribution to the increase of disease incidence of *Phytophthora* pod rot disease. Feeding trials with 1 and 5% CNSL concentrations were less effective to limit ant population and disease incidence according to the efficacy test. In contrast, the trials of 10 and 20% were able to control ant population density and disease incidence due to over 51.39% efficacy test. **Conclusion:** There was a positive trend of CNSL concentration to reduce the ant population of *I. cordatus*. There was the greatest association between the increase of ant population density and the increase in disease incidence of *Phytophthora* pod rot.

Keywords: Feeding trials, food bait, CNSL, *Iridomyrmex cordatus*, *Phytophthora* pod rot