Population Dynamics of Papaya mealybug, Paracoccus marginatus Williams & Granara de Willink (HEMIPTERA: PSEUDOCOCCIDAE) and its natural enemies on cassava

Muhammad Zainal Fanani[1], Nina Maryana[2]

[1], Djuanda University, Indonesia ;
[2], IPB University, Indonesia ;
[1]; [2];

Abstract

Background - Paracoccus marginatus Williams & Granara de Willink (Hemiptera: Pseudococcidae) is one of the most dominant mealybugs found on cassava. This pest was firstly detected in Indonesia in 2008. Parasitoid Acerophagus papayae Noyes & Schauff (Hymenoptera: Encyrtidae) are exotic biological agents that have the potential to control mealybugs in many countries.

Purpose - This study was aimed to draw the population dynamic of P. marginatus and its natural enemies in the field.

methodology - Monitoring were conducted by observed 50 plants per month. The objects were observed including the incidence and population of mealybug attacks, the percentage of parasitization and hyperparasitization as well as the population of predator insects on three cassava fields for 12 consecutive months.

Findings - The highest incidence and attack rate of mealybugs were 26% and 64% respectively during the dry season. A. papayae was able to suppress the population of P. marginatus between 1-15 individuals per plant with a parasitization rate of 9-16%. The parasitization dynamics of parasitoid depend on the abundance of mealybugs in the field. The hyperparasitoid insects found attacking A. papayae were Chartocerus sp. (Hymenoptera: Signiphoridae) and Prochiloneurus sp. (Hymenoptera: Encyrtidae). Hyperparasitization of Chartocerus sp. in A. papayae it ranges from 0.87-1.05%, while hyperparasitization of Prochiloneurus sp. in A. papayae it ranges from 0.47-1.35% per plant.

Originality - Dynamic population of papaya mealybug and its natural enemies in Indonesia

Keywords: alien pest, biological control, invasive, observation