ABSTRACT

YANI MAHARANI. Developmental Biology and Life Table of Papaya Mealybug, Paracoccus marginatus (Williams & Granara de Willink) (Hemiptera: Pseudococcidae) on Three Host Plant Species. Under direction of AUNU RAUF, DEWI SARTIAMI and RULY ANWAR.

The papaya mealybug, Paracoccus marginatus Williams & Granara de Willink (Hemiptera: Pseudococcidae), has been considered as a new invasive pest causing heavy damage on papaya in Indonesia since 2008. The pest is polyphagous with more than 55 host plant species. Study was conducted in laboratory with the objectives to determine developmental biology and life table parameters of the mealybug feeding on papaya, physic nut, and cassava leaves. Host plant species affected papaya mealybug performances. Egg stage lasted 7.25, 8.09, and 9.86 d on papaya, physic nut, and cassava, respectively. The shortest female nymphal developmental time was on papaya (18.91 d) and the longest on cassava (32.45 d). Longevity of adult males ranged from 1.09-2.85 d while females 12.29-14.93 d, respectively. When the mealybugs were reared on a seedling, the fecundity was higher on papaya (324.6) than those of physic nut (186.6) and cassava (157.5). No egg production occurred in virgin females. The sex ratio of P. marginatus favoured females, which comprised about 90% of population on papaya and cassava. The intrinsic rate of increase (r_m) was significantly different among hosts, with the highest rate (0.117 female offspring/female/d) occurred on papaya, followed by physic nut (0.079) and cassava (0.057). The maximum values of r_m along with net reproductive rate (Ro) and finite rate of increase (λ), and the shortest mean generation time (T) and doubling time (DT) on papaya, indicating that papaya was the most favorable host plant for P. marginatus.

Key words: Papaya mealybug, Paracoccus marginatus, life table