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Evaluation of four plant substrates for mass rearing of *Paracoccus marginatus* Williams and Granara De Willink (Hemiptera: Pseudococcidae)

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The papaya mealybug, *Paracoccus marginatus* is a polyphagous insect and poses a significant threat to local agriculture. Biological control is one of the sustainable methods for control of the pest. Although mass rearing of mealybugs is important for maintaining cultures of natural enemies, no effective rearing protocols have been developed under Sri Lankan conditions. Therefore, four substrates; potato sprouts, immature papaya fruit, cassava shoots and papaya seedlings were evaluated for mass rearing of *P. marginatus.* Each substrate was inoculated with a newly laid ovisac. The advancement on the development was observed daily by removing the exuviae. The pre-emaginal development time, pre-oviposition period, generational period, incubation period, oviposition period, fecundity and fertility were recorded. The generational period was significantly lower on potato sprouts (24.0 ± 1.4 days) and papaya seedlings (23.4 ± 1.1 days) than on immature papaya fruit (27.0 ± 3.3 days) and cassava stem shoots (27.6 ± 0.9 days). The substrate had no effect on the pre-oviposition period. The female and male pre-emaginal development was faster on papaya seedlings than on others. The shortest oviposition period was observed on immature papaya fruit (10.7 ± 1.5 days). The incubation period was longer on potato sprouts (8.1 ± 1.4 days) and cassava shoots (7.8 ± 1.0 days) by one day than in the others. Least fecundity was recorded on immature papaya fruit (121.6 ± 52.9) while similar fecundity was recorded on the other substrates. The fertility was higher (5%) on immature papaya fruit (96.3 ± 0.91%) and papaya seedling (95.8 ± 1.4%) than on the others. Parthenogenesis was not observed. The four substrates could sustain one generation, but the shortest development and highest fecundity were obtained on papaya seedlings and potato sprouts.

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