

Application of Soil Actinomycetes and Repellent Plants to Control Guava Diseases

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Abstract

This study aimed to assess the applicability of *Streptomyces* spp. to control the most important limiting factors, wilt disease and root knot nematode, of guava. In this study, results showed the causal agent of wilt disease, *Nalathamala psidii*, was inhibited by *Streptomyces saraceticus* KH400 on Actinomycete isolation agar significantly. An established material (composed of barley, rice husk, oyster shell powder, shrimp and crab shell powder, and corn powder) was used to enrich the antagonistic strain efficiently. Applying the suspension of KH400 on pruning-wounds and soil reduced the incidence of *Nalathamala* wilt from 48.5 % to 6.7 %. The inhibitory effect of applying suspension on pruning wounds was equal to that of ethanol treatment. In addition, soil amendment prepared from the enriched material with KH400 also applied to assess the inhibitory effect on root knot nematode, *Meloidogyne* spp. Results of field trails from June, 2010 to November, 2011 showed the nematode was suppressed by KH400. Specifically, the density of 2nd instar larvae was decreased dramatically with monthly application of soil amendment. Moreover, the African marigold is applicable to control this nematode disease. The population of 2nd instar larvae was decreased greatly. Here, we showed two non-chemical strategies to control guava disease. The concepts of integrated pest management (IPM) are implemented in modern disease management of crops. In the disease management, field sanitation by using chemical and non-chemical materials to reduce pathogen population timely could be achieved.

Key words: Guava wilt, *Meloidogyne* spp., *Streptomyces saraceticus* KH400, African marigold, integrated pest management

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