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**CANKER DISEASE OF *Psidium guajava* L. CAUSED BY
Pestalotiopsis psidii AND HOST DEFENSIVE RESPONSES**

A PROJECT REPORT PRESENTED BY

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ABSTRACT**CANKER DISEASE OF *Psidium guajava* L. CAUSED BY
Pestalotiopsis psidii AND HOST DEFENSIVE RESPONSES****Bandaranayake B.M.R.P**

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Canker disease caused by *Pestalotiopsis psidii* is a major problem in guava. The disease is characterized by the browning and cracking of the outermost fruit epicarp. The internal tissues of the fruit become exposed to the environment resulting secondary infections by wound pathogens and the deposition of eggs by the pests like fruit fly. Infection and the initial symptom development commence at the field. The disease reduces the cosmetic value and thereby the marketability and also causes loss of the yield. During ripening, the canker infection may develop into progressive fruit rot.

Causative agent, *Pestalotiopsis psidii* was isolated from the infected areas of the epicarp after single sterilization and also from internal tissues where symptoms were not visible after triple sterilization. Therefore, it was identified to be an endophytic pathogen, which colonizes in the internal tissues of the fruit without showing symptoms.

Epicarp tissues from mature and immature fruits were used for the extraction of antifungal compounds. The canker-infected and healthy epicarp tissues from above fruits were extracted separately using ethyl acetate and used to detect the antifungal activity that may have occurred as a defensive response by the host. Four pre-formed antifungal zones were identified from healthy tissues. But two pre-formed antifungal zones present in the healthy tissues were not observed in the infected tissues. Presence of additional compounds or increased amounts of compounds which are already present were not observed in infected tissues.

Microtome sections of infected tissues were used to study the symptom development and the histology of the disease. Sections through infected areas were visible in yellowish brown color and the cells are disintegrated in those areas. The cuticle was not observed as a continuous layer and the epidermis showed cracks by exposing the internal tissues to the environment. At the initial stage of symptom development, the lesions are minute in size, raised, superficial, and irregular in shape. In the advanced stages of symptom development the lesions cover a larger area of the epicarp and penetrate deeply into the mesocarp. The hand sections of infected areas appeared in dark brown and showed crate-like depressions.

The infected necrotic tissues were checked for the deposition of lignin, suberin, and tannin which are associated with post-infectious disease resistance. Those compounds were not accumulated in the infected tissues of guava. pH was measured at the canker infected and healthy areas of the guava fruits. But they did not exhibit a significant difference.

