

Isolation and Characterization of Naringinase Producing Bacteria from Palmyrah (*Borassus flabellifer* L.) Fruit Pulp

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Palmyrah (*Borassus flabellifer*) fruit pulp is known to have good nutritive and health beneficial properties. However the consumer acceptance of the pulp is low due to its bitter taste caused by a compound named as flabelliferin. Naringinase enzyme has the ability to hydrolyze this flabelliferin into non bitter aglycone and sugars. This study was aimed to isolate naringinase producing bacterial strain from Palmyrah and characterize the best naringinase producer. The naringinase producing bacterial strains were isolated from decaying palmyrah fruit pulp and the soil where pulp was allowed to decay, using the selective medium named Naringin Agar Medium. The crude naringinase enzyme activity was determined through the production of glucose by hydrolysis of flabelliferin using naringinase enzyme. Three bacterial strains designated as PB1, PB2 and PB3 were identified as naringinase producers through primary screening by qualitative naringinase assay. These bacteria were subjected to naringin liquid fermentation medium (LFM) for 48 h at 37°C at 100 rpm and solid state fermentation system (SSF) using paddy husk as a support for 48 h at 30±2°C and the crude naringinase enzyme activity was assayed at pH 5 and 60 °C for 10 min in all the cases. The bacterial strain (PB1) was selected as the best producer based on the enzyme activities obtained in the LFM (0.936U/ml after 30 h of incubation) and SSF (239.55U/gram of dry substrate after 48 h of incubation at 30±2°C). Based on the cellular and colony morphology, microscopic and biochemical tests done, the selected strain PB1 was identified as *Staphylococcus* sp. Large scale liquid and solid state fermentation studies and molecular analysis should be done to confirm these findings.

Keywords: *Borassus flabellifer*-pulp, Flabelliferin, Naringinase, Paddy husk, *Staphylococcus* sp.