

## Selection of Starch Hydrolysing Enzymes by the Fungal Strains Isolated From Contaminated Raw and Dried Palmyrah Tubers (*Odiyal*)

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The fungi isolated from 'odiyal' were analysed for the production of amylolytic enzymes with potential activities, and the kinetic properties of the selected enzymes were estimated. 'Odiyal' is a product of raw dried palmyrah (*Borrassus flabellifer*) tuber. *Aspergillus* sp., *Rhizopus* sp., *Mucor* sp. and *Fusarium* sp. were the four fungi isolated from contaminated 'odiyal'. The *Aspergillus* sp. and *Rhizopus* sp. were selected as good  $\alpha$ -amylase producers, and the *Rhizopus* sp. and *Mucor* sp. as good glucoamylase producers. Highest  $\alpha$ -amylase activities obtained from *Aspergillus* sp. and *Rhizopus* sp. were 4284 and 3762  $\mu\text{gmL}^{-1}\text{min}^{-1}$  respectively on the 7<sup>th</sup> day. Highest glucoamylase activity obtained from *Rhizopus* sp. and *Mucor* sp. were 1854 and 1800  $\mu\text{gmL}^{-1}\text{min}^{-1}$  respectively on the 6<sup>th</sup> day. The  $\alpha$ -amylases from *Aspergillus* sp. and *Rhizopus* sp. showed zero order kinetics for 6 and 8 min. respectively. The glucoamylases from *Rhizopus* sp. and *Mucor* sp. showed zero order kinetics for 14 and 10 min. respectively, and the reaction time was fixed as 5 min. The optimum pH for the activity of  $\alpha$ -amylase from both *Aspergillus* sp. and *Rhizopus* sp. was 6.5. The optimum pH for the activities of glucoamylases from both *Rhizopus* sp. and *Mucor* sp. was 3.5. The optimum temperatures for the activity of  $\alpha$ -amylase from *Aspergillus* sp. and *Rhizopus* sp. were 55 and 65<sup>o</sup>C respectively at pH 6.5. The optimum temperatures for the activities of glucoamylase from *Rhizopus* sp. and *Mucor* sp. were 55 and 70<sup>o</sup>C respectively at pH 3.5. According to the findings, pH 6.5 and 55<sup>o</sup>C were optimum for the activity of  $\alpha$ -amylase from *Aspergillus* sp.; pH 6.5 and 65<sup>o</sup>C were optimum for the activity of  $\alpha$ -amylase from *Rhizopus* sp.; pH 3.5 and 55<sup>o</sup>C were optimum for the activity of glucoamylase from *Rhizopus* sp.; pH 3.5 and 70<sup>o</sup>C were optimum for the activity of glucoamylase from *Mucor* sp.

*Keywords: amylolytic activity,  $\alpha$ -amylase, enzyme activity, fungal strain, glucoamylase*