

## ETHANOL PRODUCTION FROM MALTED PADDY

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Paddy was steeped in water for 24 h and allowed to germinate in dark for 5 days. The germination was arrested on the 6th day by drying the paddy in hot sun and husk was removed manually. Malted rice was powdered in a grinding mill. Moisture content, reducing sugar, total carbohydrate content and endogenous amylase activity of malt powder were  $97.5 \text{ g kg}^{-1}$ ,  $97.2 \text{ g kg}^{-1}$ ,  $720 \text{ g kg}^{-1}$  and  $488.8 \mu\text{mol min}^{-1} \text{ g}^{-1}$  malt powder respectively. Optimum endogenous amylase activity was observed at pH 4.5 and  $50^\circ\text{C}$ . By the action of endogenous amylase activity at  $50^\circ\text{C}$  and pH 4.5, about 50% of starch present in malt powder was hydrolysed in 5 h. The simultaneous saccharification by endogenous amylases and fermentation by a yeast strain isolated locally from toddy produced 275.3 g ethanol from one kg malt powder at room temperature in 120 h. In this research we have achieved an efficient saccharification and fermentation process (76.5%) in which the malted paddy was hydrolysed by its endogenous amylases with concomitant conversion of the sugars to ethanol by yeast fermentation.