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Effect of Processing Conditions on Thermal Properties of Parboiled Rice

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Differential scanning calorimetry (DSC) was used to determine the thermal properties of parboiled rice, and these properties, i.e. gelatinization parameters, namely, peak temperature (T_p) and residual gelatinization enthalpy (ΔH) were evaluated. The T_p increased and ΔH decreased with increase in the severity of heat treatment during the parboiling process. The physical property of color value correlated positively with the T_p and the degree of starch gelatinization correlated positively with the hardness of the parboiled rice. The T_p , which represents half the conversion temperature of the sample melting, is believed to be a suitable indicator to identify the severity of heat treatment in the parboiling process. The quantitative T_p values of 77.4 to 79.2°C corresponding to the processing conditions of 90°C-30 min and 100°C-15 min are viewed as an index for better quality of the rice. The thermal properties thus can be utilized to understand the cooking behavior of parboiled rice.

Keywords: [experimental setup](#), [processing conditions](#), [parboiled rice](#), [thermal properties of parboiled rice](#)



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