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Effect of Temperature Distribution on the Quality of Parboiled Rice Produced by Traditional Parboiling Process

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Laboratory scale studies were conducted to determine temperature distribution in the traditional parboiling process using a rice cooker. A sample holder with a wire-mesh bottom was used to keep the sample from the hot water. The material temperature and the qualities of parboiled rice (hardness, color, lightness and head rice yield) were determined for different layers. The thickness of each layer was about 20 mm. The temperature distribution in this parboiling process (pre-steaming and steaming) was found to be uneven. The change of material temperature was faster for the first (bottom layer; beneath which steam started to penetrate the paddy mass), next was the second (middle) and last was the third (top) layer. The greater the thickness of the material, the lower was the material temperature. The hardness and the head rice yield were found to be the highest for the first, with the second and third layers following in that order; this might be affected by the material temperature. Difference in color intensity and lightness value was insignificant among the layers. The hardness, color intensity and lightness value were about 70 N, 24, and 57, respectively, corresponding to the maximum head rice yield (67%, first layer) which is considered to be the suitable quality of parboiled rice.

Keywords: [traditional parboiling](#), [temperature distribution](#), [material temperature](#), [quality of parboiled rice](#)

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