

Title Effect of degree of milling on specific energy consumption, optical measurements and cooking quality of rice

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Abstract

This investigation attempts to minimize the degree of milling (D_{OM}) for uniform light colour and superior cooking quality of long, medium and short grain rice varieties. Three *indica* varieties of rice samples were milled to various degrees (2–18%) in Satake laboratory abrasive polisher. The effect of D_{OM} on specific energy consumption (E_S), optical value measured with a Satake milling meter, and cooking qualities were analyzed for the three varieties. Cooking index (CI) was determined as a function of optimum cooking time (C_T), water uptake ratio (W_{UR}), volume expansion ratio (V_{ER}) and length expansion ratio (L_{ER}). E_S , Satake degree of milling (SDM) values and CI increased with progressive milling. Long and slender variety has lower mass loss during milling compared to the short-bold variety and therefore has higher E_S . However, the long-slender variety has higher CI compared to the other two varieties considered in this study. Optimum D_{OM} was determined using Excel solver and by superimposition of graphs, considering the E_S , SDM measurement and CI. The optimum D_{OM} was found to vary between 10 and 13% for the long-slender, medium and short-bold varieties of rice within the acceptable range of optical property, and CI.