

Quality Standard Improvement in Paddy Parboiling Process of Traditional and Improved Paddy Varieties Through Hydro-Thermal Treatment

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Paddy parboiling unit was fabricated to produce SriLankan quality standard parboiled rice of two improved Sri-Lankan rice varieties: At 362, Bg 366 and one traditional rice variety “Addakari” at different parboiling conditions such as duration of soaking (hours), and three steaming methods: Pressurized-Soaking Steam (PSS), Un-soaked Steam (USS) and Soak Steam (SS). Quality standards of parboiled paddy were investigated for head rice yield (HR) during milling and resistance starch formation (RS) during cooking and texture during extrusion, with raw paddy rice as a control. Results show that PSS recorded the highest head rice yield as $(90 \pm 5\%)$, which was achieved as a higher milling yield than the other traditional steaming methods investigated, which achieved this for 2 days of soaking duration (48 hours) and 30 minutes of steaming. All other compared steaming methods (USS and SS) achieved a moderate head rice yield of $70 \pm 5\%$. The cooked rice kernel had high RS and a lower extrusion percentage ($65 \pm 5\%$). Among the combined parameters tested in this investigation traditional variety “Addakari” performed higher RS than the improved paddy variety under the improved PSS streaming process with lower extrusion outcome ($75 \pm 5\%$). Raw rice showed lower RS with higher extrusion output ($90 \pm 5\%$) and lower milling recovery yield ($65 \pm 5\%$) than all other parboiled rice samples investigated. Findings reveal that traditional variety performed a higher quality standard of parboiled rice than improved paddy variety.

Keywords: Dehusking, Hydro-thermal treatments of soaking, Milling and texture analysis, Paddy, Steaming and drying