Hot water soaking in two temperatures to eliminate steaming and to reduce time in paddy parboiling

Gunathilake.,D.M.C.C., 2012, *Hot water soaking in two temperatures to eliminate steaming and to reduce time in paddy parboiling, Proceedings of the research Symposium on "Post Harvest Technology for Food security" Institute of Post Harvest Technology, pp.27 ,Abstracts.*

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Soaking of paddy is the most time consuming operation in the parboiling process. A hot water soaking in two temperatures of paddy parboiling was developed based on the gelatinization temperature of rice starch to achieve rapid completion of absorption of water in to the rice kernel. The objectives of this study were to eliminate the steaming process in paddy parboiling without loosening the parboiled rice qualities such as less broken grain percentage , high head rice yield percentage and kernel hardness. Treatments also caused to improve kernel whiteness and palatability characteristic of rice. BG358 rice variety (short grain rice) was used for the experiment. Experiment had two treatments and existing method was kept as the control. Out of these treatments, the soaking procedure in two temperature, involving 70^{o}C water as the first stage until an intermediate moisture content of 34.8% d.b (approx.2 hours) followed by 80^{o}C (approx.1 hours) as the second stage up to the saturation moisture content of 43.8% d.b., resulted in a 37.5% time reduction Compared with single stage hot water soaking at 70^{o}C and 87.5% time reduction compared with conventional cold water soaking of paddy at 25-30^{0}C and also it can be eliminated steaming completely in paddy parboiling. Also in milling analysis, treated rice by hot water soaked in two temperatures show significant improvement in terms of kernel colour, and palatability characteristics such as taste, texture and odor with compared to other two treatments. However, there is no significant difference among treatments in terms of head rice yield percentage, kernel hardness and broken grains percentage**.**