EFFECT OF PARBOILING ON PHYSICAL PROPERTIES, MILLING, NUTRITIONAL, AND COOKING QUALITIES OF TRADITIONAL RICE VARIETIES IN SRI LANKA

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Parboiling of rice (*Oryza sativa* L.) has been identified as a key technique to enhance the nutritional, cooking, and milling qualities of rice. However, there is a dearth of literature supporting this fact related to traditional rice varieties. Present study evaluated the effect of parboiling on six traditional rice varieties, i.e., *Kaluheenati, Kahawanu, Batapola al, Dikheenati, Kirinaran,* and *Kurulu thuda* selected based on their grain quality characteristics and nutritional value. Paddy was parboiled with steam after soaking for 3.5-4.0 h at 70°C and compared with raw rice. The grain length of all varieties after parboiling was significantly reduced ($p<0.05$) by an average of 4.14%. In contrast, the grain width of rice varieties except for *Kahawanu* and the thickness of all varieties increased in different magnitudes ($p<0.05$) in parboiled rice. Besides, *Kirinaran* showed the highest variation in grain length and width after parboiling. The total milling and head rice yield of all rice varieties increased by an average of 6.7 and 9.1%, respectively, while chalkiness decreased by 59.5% ($p<0.05$). Moreover, *Batapola al* resulted in the highest total milling yield (77.4%) and head rice yield (76.1%) after parboiling. The amylose content of all varieties increased significantly by 12.3-20.9% after parboiling, whereas *Kuruluthuda* resulted the highest (63.3%). The proximate composition of all varieties showed a significant difference between parboiled and raw forms. Accordingly, the crude protein and crude fat content of parboiled form of all rice varieties significantly increased compared to that of raw rice. In contrast, the crude ash, carbohydrate, and crude fibre content decreased ($p<0.05$) in parboiled rice of all varieties than in raw rice. In conclusion, parboiling improved the physical properties and milling, nutritional, and cooking qualities of the six selected traditional rice varieties.

Keywords: Amylose content, Head rice yield, Milling yield, Proximate composition