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Chemical and functional properties of selected traditional rice (*Oryza sativa*) varieties

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Rice is the single most important cereal consumed by Sri Lankans with a 114 kg per-capita consumption per year. Due to the current increase in the interest on consuming traditional rice varieties due to health benefits, information regarding chemical and the functional properties in terms of nutrients and the ability of the rice flour to be incorporated in food production led to this study where we determined the chemical composition, water solubility index (WSI) and water absorbability index (WAI) of five different raw and cooked traditional rice varieties named *Kaluheenati*, *Suwadel*, *Mavee*, *Masuran*, and *Gonabaru*. Rice was cooked as per home cooking. Raw and cooked flour were obtained after drying and milling. All the analyses were carried out according to standard methods (n=6). Significances were analyzed at 95% confidence interval. Among the analyzed traditional rice varieties, digestible starch (DS) content was prominent and ranged between 71-79% in raw and 77-84% in cooked rice. *Mavee* contained the highest DS content (83.7%) after cooking which had significantly increased from raw rice (70.7%). Crude fat and crude protein of cooked rice ranged between 4-6% and 5-10% while in raw rice the values were 4-5% and 6-9% respectively. Fat content of *Masuran* (6%) and *Suwadel* (4.6%) were significantly high in cooked and raw rice respectively. According to the results, majority of studied raw or cooked traditional rice are a good source of protein with *Suwadel* (9.5%) and *Mavee* (9.2%) having significantly high protein contents among the tested cooked varieties. WSI of all raw (2-5%) and cooked rice (4-9%) were low. However, the WAI ranged between 98-146% in raw rice and 192-236% of cooked rice. Highest WAI were found in *Suwadel* (236%) followed by *Mavee* (228%) both of which contained high protein. Cooking has increased the DS content, protein and WAI of rice flour when compared to raw rice flour.

Keywords: Chemical composition, functional properties, water absorbability index, water solubility index

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