

Nutritional Analysis of Improved Red and White Rice (*Oryza sativa*) Varieties in Sri Lanka

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Background: Rice, as a major cereal crop and staple food, plays a crucial role in meeting the nutritional requirements of populations worldwide. In Sri Lanka, improved red and white rice varieties of *Oryza sativa* are widely consumed in their whole grain form or as processed products. However, despite the importance of rice in the diet, there is a lack of comprehensive studies evaluating the nutritional properties of these improved rice varieties.

Objective: To compare the nutritional properties of the selected improved rice varieties in Sri Lanka

Methods: Rice varieties: Ld408, Ld371, Ld368, Ld376, Ld253, and Ld365, were collected from the rice research station, Labuduwa, Sri Lanka. Total carbohydrate, protein, and amylose content present in the flour of rice varieties were observed using Phenol Sulphuric acid, Lowry, and iodine methods, respectively. The statistical analysis was carried out using GraphPad Prism 9.

Results: It was observed that mean carbohydrate content was in the range of 88.30 ± 0.011 to $79.25 \pm 0.010\%$ on a dry basis. Ld368, a white variety, had the highest carbohydrate content. The mean protein content was in the range of $6.32 \pm 0.064\%$ – $8.46 \pm 0.028\%$ and the red rice variety, Ld408 has the highest protein content. The mean amylose percentage ranged from 20.51 ± 0.32 to $31.96 \pm 0.16\%$. Rice Ld376, red variety has the highest amylose quantity.

Conclusions: Red rice varieties show nutritional advantages over white rice, with higher protein content and potentially serving as a source of essential amino acids. Certain red rice varieties also exhibit higher amylose content, which may have benefits for digestion and glycemic control. This analysis emphasizes the importance of incorporating different rice types for a balanced diet and promoting dietary diversity.

Keywords: Carbohydrate, *Oryza sativa*, Protein, Red rice

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