

Comparison of amylose content of selected paddy varieties (*Oryza sativa* L.) in Sri Lanka against different cooking conditions

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Materials and methods

Raw rice varieties selected for analysis of amylose

Traditional rice varieties
-Moddakaruppan
-Periyavellai
-Pachchaperumal

Improved rice varieties
-Bg250
-Bw351

Rice varieties selected for traditional cooking methods and analysis of amylose

Traditional cooking methods

- Cooking Without Excess Water
- Pre-soaking and Cooking Without Excess Water
- Cooking with Excess Water
- Roasting of Rice Varieties

Result and discussion

All rice varieties showed reduction in amylose contents by the traditional cooking method.

Highest amount of the amylose contents were lost when rice samples were pre-soaked and cooked without excess water followed with those cooked with excess water.

The reduction in amylose contents was least in the rice samples, which were roasted.

The Periyavellai (traditional) rice variety contained the highest amounts of amylose content among all other selected rice varieties which were roasted.

Pachchaperumal rice variety lost the highest amount of amylose and the loss was highest by pre-soaking and cooking without excess water.

Bg250 lost the least amylose and the loss was least when roasted.

Conclusion

As processed rice is consumed; among the rice varieties and the processing methods, consuming roasted Periyavellai rice variety could be recommended to have more amylose content.

Amylose contents of starchy foods are considered to possess several effects on healthy life. Amylose content in different varieties of rice and the effect of different traditional methods of processing on amylose content were determined. To study the effects of different processing methods on amylose contents, five commonly consumed rice varieties (two improved (Bg250 and Bw351) and three traditional varieties (Periyavellai, Pachchaperumal, and Moddakaruppan)) were selected, the rice samples were processed by roasting, cooking with draining of excess water, cooking without draining water, and cooking the pre-soaked rice & cooking without draining water. Each treatment was replicated three times. The mean amylose contents obtained after the different cooking methods, which are applied to different rice varieties, showed a significant difference ($P < 0.05$). The highest mean amylose content was observed in rice varieties which were in raw form followed by roasted rice varieties. The lowest mean amylose content was observed in rice varieties in which were presoaked and cooked without excess water. The Periyavellai (traditional) rice variety contained the highest amounts of amylose content among all other selected rice varieties. The results showed that cooking methods have an effect on amylose contents. Different processing methods have significantly reduced the amylose contents. As processed rice is consumed; among the rice varieties and the processing methods, consuming roasted Periyavellai rice variety could be recommended to have more amylose content.

Keywords: amylose content, improved rice varieties, traditional rice varieties, traditional cooking methods