EFFECTS OF RICE VARIETY AND AGEING ON THE PROPERTIES OF EXTRUDED RICE

Marcela C. Saises, Trinidad II T. Arcangel, Abbie L. Padrones, Cecilia S. Quindara, Sandro S. Flores, John Lester G. Ramirez, Dona Rose C. Layusa, Shiela Marie R. Gulay, Jonnel I. dela Rosa, and Junimer B. Lala

BACKGROUND

The Department of Science and Technology-Food and Nutrition Research Institute (DOST-FNRI) has been studying the technology on extruded iron rice premix and multi-nutrient extruded rice kernel (MNERK) to address vitamin and mineral deficiencies (VMD). However, the type of rice variety and the ageing of rice affect the quality of the extruded rice.

OBJECTIVES

The study aimed to determine the effect of rice variety according to amylose content and age on the properties of extruded rice. Specifically it aimed to (1) select a common rice variety in the market to be used for extrusion, (2) conduct production runs using the existing standardized process for extrusion, (3) determine the effect of ageing on grain quality and acceptability of extruded rice, and (4) identify the appropriate rice variety and age for extrusion process.

MATERIALS AND METHODS

Different varieties of newly harvested rice paddies samples with high amylose (Rc 10, Rc 214, and SL8-H), intermediate amylose (C14, C18, and Rumbled Rice), low amylose (Rc 160), and very low amylose conten (Rc 15) were used in the study. Two equal portions of each variety were prepared. The first portion was immediately dehulled and extruded using a single screw extruder machine while the other portion was stored for twelve months prior to extrusion. Extruded rice samples were analyzed for grain quality in terms of amylose content, crude protein, gelatinization temperature, gel consistency, hardness (cooked), color (lightness), bulk density, pasting properties and sensory acceptability test.

RESULTS

The grain quality characteristics and sensory acceptability scores of extruded rice samples of different varieties did not differ significantly in terms of variety and age. Rice extrusion using aged samples with high and intermediate amylose contents were easier handled and extruded as compared to those samples with low and very low amylose contents using the standardized extrusion process of FNRI. Aged rice varieties with high and intermediate amylose contents are more suitable raw materials for extrusion as compared to rice varieties with low and very low amylose contents.

CONCLUSION AND RECOMMENDATION

Rice variety did not significantly affect the quality of extruded rice. Aged rice with high and intermediate amylose varieties are suitable for extrusion. Porosity and compactness analysis of extruded rice using Scanning Electron Microscopy (SEM) and texture using texture analyzer need to be conducted to determine breaking strength and hardness respectively. Study on the use of these rice varieties with added micronutrients needs to be undertaken.