LOW PROTEIN RICE KERNEL FROM SAGO FLOUR AND STARCH FOR CHRONIC KIDNEY DISEASE PATIENTS

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BACKGROUND

In the National Nutrition and Health Survey (NNHS) 2003 – 2004, more than 1 million Filipino adults had Chronic Kidney Disease (CKD). CKD is a condition wherein the function of kidneys as excretory organs is decreased, leading to build-up of toxic wastes in the blood. To address this lifestyle related disease, the Department of Science and Technology – Food and Nutrition Research Institute (DOST – FNRI) developed a technology on low protein rice through the use of sago flour and starch. Sago is an excellent source of carbohydrates with minimum amounts of protein.

OBJECTIVES

The study aimed to develop a technology for the production of low-protein rice kernel utilizing sago flour and starch with optimum physico-chemical and microbiological characteristics and sensory attributes.

MATERIALS AND METHODS

Sago flour and starch were initially produced utilizing standard production procedures developed by DOST – FNRI. Experimental trials for the production of rice kernel from sago flour and starch were conducted following two mixture optimal designs (Design Expert 8.0). Parameters for %sago flour, %sago starch, and %rice flour were optimized, and rice kernels were produced by extrusion. Optimal appearance, color, odor, hardness, smoothness and general acceptability of the product were assessed by Quantitative Descriptive Analysis. Physico-chemical and microbiological tests were also conducted.

RESULTS

The technology for the production of rice kernel from sago flour and starch with optimum physico-chemical, microbiological, and sensory characteristics was developed. Protein content of the raw and cooked variants was 0.5% and 0.4% respectively.

CONCLUSION AND RECOMMENDATIONS

The developed rice kernels from sago flour and starch have lower protein content than the regular rice in the market and may be a good substitutes for ordinary rice being eaten by individuals with CKD. Experimental trials to further lower protein content and optimize the shelf-life of the developed rice kernels may be conducted. Procedures for cooking also need to be standardized.