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ABSTRACT

Various rice products are available for retail sale in the U.S. In this study, the sensory and nutritional quality of rice products was determined and sensory analysis was conducted to evaluate and compare the quality of several brands of white rice products packaged for long-term storage, available at the retail level.

RESULTS AND DISCUSSION

Quality of white rice retail packaged in No. 10 cans for long-term storage

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INTRODUCTION

During storage, milled rice undergoes continuous physical and chemical changes. Many enzymes are active (Charastil 1990). Proteins induce changes both in texture and color (Juliano 1980), Hortin and Yasumatsu 1972). Lipids in the rice endosperm, at a concentration of 8%, influence hydrophobic and oxidative changes that lead to undesirable changes in aroma and taste (Davies and others 1980). However, during storage, reduction in flavor is not due to inadequate sensory decomposition of free radicals, is considered the major state constituent of cooked rice (Booth and others 1960). Variation in flavor during storage is due to Maillard browning reactions of protein with reducing sugars which are concentrated in the surface layer of milled rice (Pillaiyar and Nelson 1970). In addition, insects, mild, and other organisms are found in this layer (Thames and others 1980). Enzymatic activity has shown the most important environmental factors influencing these changes are moisture, temperature, and oxygen (Charastil 1990). Most of the research on the storage of milled rice has been limited to relatively short-term studies, usually under two years. The objective of this research was to evaluate and compare the quality of several different brands of white rice products commercially packaged for long-term storage, available at the retail level.

METHODOLOGY

Samples of 12 popular brands of rice were obtained from 10-cans each of these rice products (2,000 g) were obtained from the following rice producers: A - (Santee Rice, Inc.), B - (Meadow Gold Rice, Inc.), C - (Instant White), D - (Aunt Jennie Rice), E - (Tajin Foods, Inc.), F - (Texas Rice), G - (Congo), H - (Kroger Foods), I - (Chemenos Foods), J - (Parboiled Rice), and K - (Market Pantry Milled Rice). A 50-member consumer panel evaluated aroma, flavor, texture, and overall acceptability on a five-point hedonic scale.

Thiamin

Three different classes or groups within the panel were used for the evaluation: (A) flavor, (b) texture, and (c) overall acceptability. The data were analyzed by using General Linear Model (GLM) procedures in Statistical Analysis System software (SAS Institute, 1999). A mixed model analysis of variance (PROC MIXED) with Duncan’s new multiple range test was used for the sensory data. Significant differences were defined as p<0.05.

RESULTS AND DISCUSSION

Headspace Oxygen, Can Seam, and Water Activity

Headspace oxygen was measured using the 3500 oxygen analyzer (ThermoElectron, Madison, WI). The analyzer was adjusted to a moisture content of various types of rice (OAC 1991). Multiple t-test was used for the sensory data. Significant differences were defined as p<0.05.

Introduction

There were no significant differences between the sensory scores for aroma, flavor, texture, and overall acceptability. Like superscripts indicate no significant difference (p = 0.05).

REFERENCES


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