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

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ABSTRACT

Various dry rice products are available for retail sale in No. 10 cans, packaged for long-term storage in a variety of retail packages. The objective of this research was to evaluate and compare the quality of several different brands of white rice products packaged for long-term storage, available at the retail level. Ten brands of rice products (7 long-grain white rice, 2 parboiled white rice, 1 instant white rice) packaged in No. 10 cans were obtained from eight different retail distributors in four states. Observations included can appearance, can seam quality, odor, color, and water activity. A 50-member consumer panel evaluated aroma, flavor, texture, and overall acceptability of the rice samples and assigned a Hedonic score. Multiple linear regression was used for the sensory analysis. Significant differences were determined at α = 0.05.

RESULTS AND DISCUSSION

Headpace Oxygen, Can Seam, and Water Activity

Analysis of variance revealed significant differences at the α = 0.05 level for aroma (Brand F had a higher average headspace oxygen than the other brands), color (the instant rice had lower Hunter L* values compared to the other brands), and the oxygen absorber. The instant rice had a lower a* value than the other rice brands, and a higher b* value compared to the regular milled rice. Sensory Evaluation

Analysis of variance revealed significant differences at the p > 0.05 level for all attributes tested. The hedonic scores for aroma ranged from 5.88 to 6.89, with the instant rice receiving the highest score. The scores for flavor ranged from 5.68 to 6.92, with the instant rice receiving the highest score. The scores for color ranged from 5.17 to 6.38, with the instant rice receiving the highest score. The scores for overall acceptability ranged from 5.48 to 6.79, with the instant rice receiving the highest score. The instant rice was also found to be the most acceptable under long-term storage conditions, as it had low headspace oxygen levels and low water activity.

CONCLUSIONS

Variation in the quality of packaging of white rice products available at the retail level suggests that manufacturers need to ensure proper packaging and labeling to retain product quality during long-term storage. Retailers should be aware of potential differences in quality between brands and can make informed decisions regarding the packaging methods and ingredients used in the packaging of rice products. Quality of white rice retail packaged in No. 10 cans for long-term storage

REFERENCE


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