Effects of long-term storage on quality of regular and quick rolled oats

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M. B. McEwan, Lynn V. Ogden, and Oscar A. Pike
**ABSTRACT**

There exists a need for food packaging for long-term storage, for such uses as emergency relief efforts, military ration, and personal storage. The objective of this research was to investigate the quality of regular and quick rolled oats, commercially packaged in cans for long-term storage.

**METHODOLOGY**

**Samples**

Twenty-eight samples of rolled oats were collected from ten research laboratories and were obtained under conditions that ensured the highest sensory, flavor, texture, shelf-life, and overall acceptability over a 20-year period. The oat samples varied with respect to time and oxygen level of storage, which was determined by the storage conditions at the time of collection. The sensory scores of the samples were compared to those of the samples stored under controlled conditions at the time of collection.

**RESULTS**

**Vitamin Content**

Vitamin E content varied between brands with values ranging from 0.02 to 0.18 μg/g. Though the headspace analysis revealed that the headspace oxygen levels varied significantly among brands, with values ranging from 0.02 to 0.18 μg/g. Approximately half of the samples had total local limits similar to this level, indicating that it is possible to store rolled oats such that their loss of vitamin E occurs.

**CONCLUSIONS**

There was a loss of some aspects of quality over time, but all samples were considered acceptable. Manufactures must observe good manufacturing practices to ensure the longest possible shelf life and consumer acceptance. The results of this study provide guidelines for the development of long-term food storage plans.

**REFERENCES**


**ACKNOWLEDGEMENTS**

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**Presented at the Annual Meeting of the Institute of Food Technologists in Chicago, IL. July 2015**

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