Title	Consumer acceptance of roasted peanuts affected by storage temperature and humidity conditions
Author	C.M. Lee and A.V.A. Resurreccion
Citation	LWT - Food Science and Technology Volume 39, Issue 8, October 2006, Pages 872-882
Keyword	Peanuts: consumer acceptance; Shelf-life; Moisture; Water activity; Peanuts

Abstract

Consumer acceptance and intensity ratings of roasted peanuts stored at temperatures of 23, 30, 35, and 40 °C, and water activities (a_w) of 0.33, 0.44, 0.54, 0.67 and 0.75 were determined over time. Consumer acceptance ratings, including overall, appearance, color, and texture were affected by storage water activity and time, but not by storage temperature. Consumer intensity ratings of crunchiness were affected by storage water activity and time, but not storage temperature. Aroma acceptance, flavor acceptance, and roasted peanutty and stale/oxidized/rancid intensity ratings of roasted peanuts were dependent on storage temperature, water activity and time.

Shelf-life of roasted peanuts was predicted by all consumer attributes (R^2>0.60) and was best predicted by aroma acceptance (R^2=0.75). Using contour plots with ratings >5.0 for all acceptance attributes, the shelf-life of roasted peanuts stored at 23 °C and between 0.33 and 0.75 a_w was limited by overall acceptance and decreased by approximately 50% with each 0.1 a_w increase. At accelerated temperatures of 30, 35 and 40 °C, shelf-life of roasted peanuts was predominantly limited by flavor acceptance (>5.0), and to a lesser extent by overall acceptance (>5.0). Shelf-life of roasted peanuts stored at accelerated temperatures decreased by 50% or more with each 0.1 a_w increase.