

Peanut Skin Extracts as Natural Antioxidant Ingredients for Peanut Butter

D.A. MOHEBPOUR, Department of Food, Bioprocessing and Nutrition Sciences, North Carolina State University, Raleigh, NC 27695-7624; **L. L. DEAN*** and K.W. HENDRIX, Food Science and Market Quality and Handling Research Unit, USDA, ARS, SEA, Raleigh, NC 27695-7624.

Peanut butter is a popular food product made from roasted peanuts. Due to its high oil content, the shelf life is often limited by lipid oxidation. This process results in rancid aromas and flavors that have negative impacts on consumers. Peanut skins, the paper-like coatings that surround peanut kernels, are a waste product of peanut blanching operations. This material contains phenolic compounds with antioxidant properties in chemical assays that indicate they would be effective in preventing lipid oxidation in foods. The additions of peanut skin extracts to fresh peanut paste were evaluated for their effectiveness in retarding oxidation of the lipids present. Peanut skins were extracted with a mixture of 70% ethanol in water to isolate the phenolic compounds present. The extracts were spray dried with and without encapsulation with maltodextrin. The encapsulation produced a free-flowing powder with more physical bulk that is easier to handle. A paste was produced from freshly roasted peanuts and the extracts were added at 1% and 2%. The paste was packed into glass jars and incubated at 30 C and 26 % relative humidity. Control samples of peanut paste without the addition of the peanut skins extract ingredients were prepared using both blanched and unblanched peanuts from the same batch of peanuts. Samples were evaluated biweekly over a 24-week period for free fatty acids, peroxide value, hexanal production and with descriptive sensory analysis to determine the progression of lipid oxidation. Free fatty acids were elevated by the addition of the extracts, but the peroxide values were decreased over the test period. Hexanal production was not significantly different between treatments. Descriptive sensory analysis showed a decrease in roast peanut flavor and an increase in rancid off flavors over time regardless of the additions. The addition of the peanut skin extracts also resulted in distinct flavors that were not considered positive attributes for peanut butter.