

Title Residue levels of food-grade antioxidants in postharvest treated in-pod peanuts during five months of storage

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Abstract

In order to investigate residue levels of butylated hydroxyanisole (BHA), propyl paraben (PP) and butylated hydroxytoluene (BHT) during storage, eight-hundred kilograms of bulk peanuts were treated with the following antioxidant emulsions: BHA ($1802 \mu\text{g g}^{-1}$), BHA-PP ($1802 \mu\text{g g}^{-1} + 1802 \mu\text{g g}^{-1}$) M1 and BHA-PP-BHT mixtures ($1802 \mu\text{g g}^{-1} + 901 \mu\text{g g}^{-1} + 2204 \mu\text{g g}^{-1}$) M2 and ($1802 \mu\text{g g}^{-1} + 1802 \mu\text{g g}^{-1} + 2204 \mu\text{g g}^{-1}$) M3. Residues were determined in peanut pod and seed tissues at 1-month intervals during the storage. While the reduction levels of BHA and PP in pods at the end of the storage period ranged from 66% to 76%, BHT levels were decreased extensively (86%). Twenty-four hours after peanuts were treated, antioxidant emulsions effectively seeped into the seeds and low levels of these chemicals were detected during the assay. Residues of PP in seeds were lower (62%) than the other antioxidants. Although the doses used were higher than those approved for food-grade antioxidants in stored peanuts, the residue levels in seeds ($32.8\text{--}0.02 \mu\text{g g}^{-1}$) did not exceed the maximum residue limits during the storage period.