

Title Shelf life stability of California almond products

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Abstract

California (CA) almonds, a healthy and popular nut with low moisture content and high level of natural antioxidants, are well known for their long shelf life potential. Recently, the Almond Board of California (ABC) completed a three year research project with U.S. Natick Soldier Center (Natick) to evaluate if CA almond forms meet U.S. military ration quality requirement for shelf life stability. Five forms: natural whole (NE), dry roasted natural whole (NR), natural regular slice (NS), blanched whole (BW) and blanched regular slice (BL) were included in the three year shelf life study following U.S. military ration quality evaluation protocol. The products were packed into 28 gram triamine pouches and were stored at 40°F and 80°F for 36 months, and were evaluated at 0, 6, 12, 18, 24, 30, 33 and 36th month for sensory attributes and analytical quality parameters. The storage study and sensory evaluation were conducted by Natick while analytical testing was conducted by a commercial laboratory. The sensory attributes included appearance, odor, flavor, texture, overall quality, color difference and rancidity intensity while the analytical testing included moisture content (MC), free fatty acids (FFA), peroxide value (PV) and tocopherols at each sampling point and fatty acid profile at time zero and end. All five almond forms from both storage temperatures showed hedonic scores for all sensory attributes above military ration quality criteria at the end of the study. MC, FFA and PV levels in all forms under either temperature were within the almond industry quality specifications while tocopherols levels were stable through storage. FFA levels in all forms except for NR showed increasing trend through storage under 80°F while FFA levels in NR and NS increased faster than other forms. This presentation will highlight major findings of the project.