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Effects of different sorbic acid and moisture levels on chemical and microbial qualities of sun-dried apricots during storage

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Sun-dried apricots (SDAs) containing various sorbic acid (SA) (0, 488–530 and 982–1087 mg/kg) and moisture [intermediate (271–278 g/kg and high (341–344 g/kg)] levels were stored in the consumer-size packages with very low moisture and gas permeability at various temperatures (4–30°C) for 10 months. Changes in chemical (brown color and β -carotene) and microbiological qualities of SDAs during storage were investigated. Moisture content, SA concentration and storage temperature showed significant effect on chemical and microbiological qualities of SDAs. Removal of SA from SDAs was fitted to a first-order kinetic model ($R^2=0.799-0.966$) and the highest SA loss was determined in SDAs stored at 30°C. Interestingly, SA oxidation protected β -carotene from oxidation; therefore, the lowest β -carotene degradation occurred in SDAs stored at 30°C. Also, increase in moisture content led to 1.3–1.9 times slower rate of brown colour formation in SDAs. On the contrary, increase in brown colour formation was found with increase in SA content. As storage temperature increased, brown colour formation increased. No spoilage was observed in SDAs with intermediate moisture content at all storage temperatures. On the contrary, SDAs containing no sorbic acid and high moisture were spoiled by mould and yeast at 20 and 30°C in a month and at 4 and 10°C in 1 to 3 months. sorbic acid must be used for the prevention of microbial growth in SDAs with high moisture. As a result, 500 mg SA/kg is sufficient to prevent the microbial spoilage and brown colour formation.

Biography

Sumeyye Alagoz was graduated from Department of Food Engineering at Ankara University as honor student in 2011, and then she completed her MS studies with the scholarship at the age of 25 years from Department of Food Engineering at Ankara University in 2014. She worked as a research assistant in the Department of Food Engineering at Çankırı Karatekin University for 11 months in 2014. Currently, she has been working as food engineering in Republic of Turkey Ministry of Food, Agriculture and Livestock in Food Control Laboratory Directorate, Bolu since January 2015. At the same time, she has been doing her PhD in the Department of Food Engineering at Ankara University since February 2014.

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