

Effect of Convective Dryness Combined with Osmotic Dehydration, Blanching, Microwave and Ultrasonic Treatment on Bioactive Compounds and Rehydration Capacity of Dried Plums

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Abstract : Increasing interest in keeping bioactive compounds (anthocyanins, vitamin C) and dried fruit quality has motivated the researchers to investigate new combined drying technologies. The aim of this study was to evaluate the effects of convective dryness combined with osmotic dehydration, blanching, microwave treatment and ultrasonic treatment on the quality of dried plums. Osmotic dehydration was achieved by maintaining plums for 1 h in sucrose solution (300Brix). For microwave treatment, the plums were kept at 400 W for 80 sec. For ultrasonic treatment, plums were immersed in distilled water and sonicated for 30 minutes at 40 kHz and 200 W. The blanching consists of immersing plums in hot water at 90°C for 20 seconds and cooling them rapidly. Conventional drying was carried out at 70°C for 630 minutes. Drying curves, drying rate, anthocyanin and vitamin C stability, acidity variation (expressed as malic acid), reducing sugar content, and rehydration capacity of dried plums were analyzed. Blanching led to the largest amount of evaporated water. Blanched plums have had 13.36% less water than sonicated ones. The lowest anthocyanal loss of 34.5% was obtained in osmotically dehydrated plums, and 2.93% vitamin C is found in the plums sonicated. There were no significant differences in regards acidity and reducing sugar. The plums blanched before drying have had a high capacity of rehydration.

Keywords : anthocyanin, dried plums, pretreatments, vitamin C

Conference Title : ICFSN 2018 : International Conference on Food Science and Nutrition

Conference Location : Madrid, Spain

Conference Dates : March 26-27, 2018