

**Title** Effect of continuous and intermittent ultrasound on drying time and effective diffusivity during convective drying of apple and red bell pepper

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**Citation** Journal of Food Engineering, Volume 108, Issue 1, January 2012, Pages 103-110

**Keywords** Convective drying; Continuous and intermittent ultrasound; Screen; Red bell pepper; Apple

### **Abstract**

A new approach of ultrasound-assisted convective drying was tested in this study using a screen as product support and sound transmitting surface. Red bell pepper and apple cubes were dried at 70 °C in a laboratory scale hot-air drying oven. In addition to continuous ultrasound used for both products, intermittent ultrasound was applied for apple drying reducing net sonication time to 50% and 10%. Significant improvements of drying characteristics were observed for continuous sonication and intermittent ultrasound at 50% net sonication time. Experimental data were fitted with eight models, among which the Midilli model resulted in the best fit with  $R^2 > 0.9988$  and reduced  $\chi^2 \leq 0.0002$ . The influence of ultrasound on drying time to reach 20% and 30% residual moisture content as well as on effective moisture diffusivities and drying periods is discussed.