Title	Heating process of soybean using hot-air and superheated-steam fluidized-bed dryers
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Citation	LWT - Food Science and Technology Volume 39, Issue 7, September 2006, Pages 770-778
Keyword	Antinutritional factor; Drying; Fluidized bed; Superheated steam

Abstract

The present work investigated drying characteristics and inactivation of urease in soybean dried by superheated-steam and hot-air fluidized beds. The value of effective diffusion coefficient, which was determined by a method of slopes, was increased with increased drying temperature and increased moisture content. Furthermore, it depended on the type of heating medium, with higher moisture diffusion for soybean dried by hot air. Inactivation of the urease enzyme in both media showed difference in rate, in which the enzymatic inactivation was faster for soybean dried in superheated steam than in hot air. For the individual heating medium, the modified first-order reaction was adequately fitted to experimental data. The rate of inactivation was found to increase as the temperature and moisture content were increased. The urease enzyme was inactivated, along with maintaining protein solubility and lysine content being in standard range, as soybean was treated at a temperature between 135 and 150 °C for the hot air and the treatment temperature could be reduced to be lower than 135 °C by using superheated steam.