

Title Effect of Gamma-ray Irradiation on Drying Characteristics of Wheat
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Abstract

Wheat, pre-treated by gamma-ray irradiation, was air-dried and the influence of irradiation dose, air temperature, and initial moisture content of wheat on drying rate and surface temperature was investigated. Irradiation dose, air temperature, and initial moisture content of wheat affected drying characteristics. Drying rates increased with an increase in dose and temperature. Surface temperature of wheat samples increased with increasing dose at the same drying rate but decreased with increasing dose at the same moisture content. These changes of drying characteristics of irradiated wheat samples were the result of wheat cell structure changes caused by gamma-ray irradiation. It was clear from the microscopic observation that increasing irradiation dose reduced cell-wall thickness or eventually destroyed the cell-wall, causing the cytoplasm to leak from its own cell.