

**Title** Quality of electron beam irradiation of blueberries (*Vaccinium corymbosum* L.) at medium dose levels (1.0–3.2 kGy)

**Author** Maria A. Moreno, M. Elena Castell-Perez, Carmen Gomes, Paulo F. Da Silva and Rosana G. Moreira

**Citation** LWT - Food Science and Technology, Volume 40, Issue 7, September 2007, Pages 1123-1132

**Keywords** Fruits; Decontamination; Texture; Color; Sensory

### **Abstract**

We assessed the effect of electron beam irradiation of packaged fresh blueberries at doses greater than 1.0 kGy on the quality attributes of the fruits. Irradiation experiments were conducted using a 10 MeV (18 kW) linear accelerator with single beam fixture. Fruits were stored at 5 °C and 70.4% RH for 14 days and tested at days 0, 3, 7 and 14 for physico-chemical, textural, microstructural, and sensory characteristics. Control samples consisted of non-irradiated fruits. Irradiation at doses higher than 1.1 kGy did affect ( $P<0.05$ ) the texture of blueberries as the fruits became considerably softer and less acceptable throughout storage. Only irradiation at 3.2 kGy affected the color of blueberries by the end of storage. Irradiation slightly reduced the respiration rates of the blueberries by the end of storage. In terms of overall quality, texture and aroma, only fruits exposed to 3.2 kGy were found unacceptable by the sensory panelists. Irradiation at the dose levels used in this study did not affect the density, pH, water activity, moisture content, acidity and juiciness of blueberries. Electron beam irradiation of blueberries up to 1.6 kGy is a feasible decontamination treatment that maintains the overall fruit quality attributes.