Title	Effects of irradiation on residues and migration levels of antioxidants and their degradation products of LDPE packaging film
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Citation	Book of Abstracts, 2004 IFT (Institute of Food Technologists) Annual Meeting and Food Expo, 13-16 July 2004, Las Vegas, Nevada, USA. 321 pages.
Keywords	LDPE film; packaging

Abstract

The effects of γ-irradiation on residues and migration levels of antioxidants, tris (2,4-ditert-butylphenyl) phosphate (Irgafos 168), octadecyl β-(2,6-di-tert-butylphenol) propionate (Irganox 1076) and their degradation products of low density polyethylene (LDPE) packaging film were investigated in the range of 0 to 200 kGy. The residues of Irgafos 168 were not detected after 5 kGy and that of Irganox 1076 at 0, 5, 10, 30, 60, 100 and 200 kGy were 1126, 607, 730, 243, 126, 59 and 34 mg/kg, respective. The migration levels of antioxidants from LDPE into food stimulants, water, 4% acetic acid, 20% ethanol and olive oil were decreased with increasing γ-irradiation. The decomposition products, 1,3-di-tert-butybenzene and 2,4-di-tert-butylphenol, of Irgafos 168 were identified with GX/MSD and the residues were increased with increasing γ-irradiation in LDPE. However, the decomposition products of Irganox 1076 could not be identified by same method.