

The assessment of the oxidation strength of γ -irradiated EVA in the presence of rosemary extract

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Abstract. This study deals with the evaluation of oxidation stability of poly(ethylenevinylacetate) (EVA) samples stabilized with rosemary extract under accelerated degradation under the action of ionizing radiation. The solid plat extract was obtained using Soxhlet extraction followed by solvent evaporation to dryness. Three types of films have been studied: free of additive EVA, EVA + 0.25% rosemary extract and EVA + 0.50% rosemary extract; the films have been exposed to a GAMMATOR M-38-2 (USA) irradiator having a ¹³⁷Cs source with a dose rate of 0.4 kGy/h to perform accelerated degradation. The FTIR and UV spectra of each film before and after the irradiation have been investigated and pointed out that the efficiency of natural stabilization of the EVA products increase with the rosemary extract' concentration increasing. As a conclusion, the studied materials could be used for the manufacture of "clean" products, promoting healthy products for medical and pharmaceutical purposes like drug packaging, medical wear and blood preservation.

Keywords: EVA, rosemary extract, ionizing radiation, FTIR, UV spectra
