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Rheological analysis of the irradiated pectin/gelatin mixed systems

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The main biopolymers used in the edible films production are polysaccharides and proteins. Pectin is a heterosaccharidic polymer derived from the vegetal cell wall. Gelatin is a heterogeneous mixture of water-soluble proteins of high average molecular mass derived by hydrolytic action from animal collagen. The aim of this research was to evaluate the effect of ionizing radiation on either the biopolymers alone or on the mixed systems prepared with high-and low-methoxyl pectin and gelatin in solution and mixed gel. The results showed that gelatin viscosity remained almost unaffected by the irradiation with doses from 1 to 15kGy, with a slight increase at 3kGy. On the other hand, there was a sharp decrease of viscosity values of all pectin solutions upon irradiation, being this behavior predominant when both polysaccharides and proteins were present in a mixed system. The gel hardness and gel brittleness of the gelatin were affected by the increase of radiation dose.