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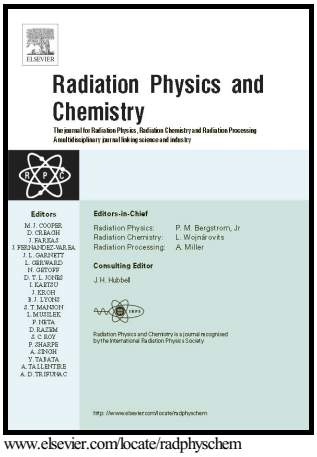

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Abstract:

The use of proteins as natural biopolymers are sensibly increasing in several application fields such as food industry, packaging and environment protection. In particular, rice proteins (RP) present good nutritional, hypoallergenic and healthful properties very interesting for human consumption. Since ionizing radiation can be successfully applied on protein containing systems involved in different industrial processes, this work aims to determine the effect of gamma radiation on 5%wt and 7.5%wt RP aqueous solutions in a wide range of absorbed doses up to around 40 kGy. The changes of RP secondary and tertiary structures and their chemical composition were followed by UV-VIS absorbance spectroscopy, luminescence analysis and pH measurements. The experimental data showed the occurrence of the unfolding of RP chains with the increase of the absorbed dose and the formation of new molecules, due to the reaction among tryptophane and tyrosine amino acids and the radical species induced by gamma radiation. The results are also confirmed by the modification of the pH values measured for the irradiated solutions.

Keywords: gamma radiation; rice protein; UV-VIS spectroscopy; luminescence; pH.