

EVALUATION OF PHYSICO-CHEMICAL PROPERTIES AND BIODEGRADATION OF POLYMERIC MEMBRANES BASED CHITOSANA, STARCH, AND POLYVINYLPIRROLIDONE (PVP) SYNTHESIZED BY GAMMA RADIATION AT DIFFERENT DOSES AND DOSE RATES

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The use of gamma radiation in the synthesis process of products for human use has increased in recent years. This fact is due to the advantages of the process, which in the case of polymers is part of the synthesis and physical crosslinking agent process that can sterilize the product, already in its final packaging, increasing the agility of the process by reducing two steps into one. In this study, it was evaluated the influence of the dose rate of gamma radiation, in relation to the physico-chemical characteristics of the synthesized membranes based on natural polymers (chitosan and starch) and the synthetic polymer (polyvinylpyrrolidone), in different proportions. According to the dose rate and the total dose, an increased fragility of the membranes composed of polysaccharides occurs. The opposite occurs with the PVP at a certain dose, when its strength rises due to the increase of the crosslinking degree. The polymers were subjected to doses ranging from 1 to 100 kGy and two different dose rates. The results demonstrated that it is possible to change the rate of biodegradation of polymeric membranes and change their physicochemical properties using different doses of gamma radiation at different dose rates^{1,2}.

REFERENCES

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