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BIORFACTIVITY OF POLYMERS PREPARED BY IRRADIATION TECHNOLOGY

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abstract

Irradiation technology can be apply in the study and development of biocompatible polymers for biomedical uses such as artificial organs or as support for drugs delivery systems, immunodiagnosis materials and cell culture. The major tissue response produced by the interaction of the body with biogels in the extravascular system is the inflammatory process. The aim of this work was to verify the biocompatibility of polymers prepared by radiation polymerization. Different concentrations of aqueous solutions of hydroxyethyl-metacrylate (HEMA), hydroxyethylacrylate (HEA) and acrylamide were irradiated at -78°C with 10^4 Gy of ^{60}Co . After irradiation, the polymeric rods obtained were cutted in discs of about 0.5 mm of diameter and 1 mm of thickness and washed thoroughly with bidestilated water at room temperature in a shaker. The hydrated discs were autoclaved and kept in 0.85% NaCl for 280, 60 and 7 days. Healthy adult rabbits weightings not less than 2.5 kg were selected for the "in vivo" test. The animals were anesthetized with ethylic ether and clipped the fur on both side of the spinal column. The sterile discs were implanted in a clean area in both side of the rabbit spine 2.5 to 5.0 cm from the midline and 2.5 cm apart from each other. Macroscopical examination of the area was performed after 72 hours. In each case inflammatory reactions, hemorrhage or encapsulation, were recorded comparing with the negative control.