Polymeric materials for ophthalmological applications

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Nowadays, both synthetic and natural polymeric materials have been applied in the ophthalmologic area. In our group some work has been done on the development of intraocular lenses (IOLs) as well as on soft contact lenses (SCLs) for endophthalmitis prophylaxis in cataract surgery and implantable disks for glaucoma treatment. The use of ocular controlled drug delivery systems after ocular surgery is being used as an alternative to the usual eye drop administration. The development of SCLs based on acrylic monomers for this purpose is the subject of our more recent study. Some membranes were prepared by bulk polymerization using different monomers, such as ethylhexyl methacrylate, methyl methacrylic acid and a crosslinking agent, and were characterized physically and chemically. To increase their performance as drug delivery systems, the surface membranes were also modified by using either graft copolymerization or plasma treatment. All the copolymers were loaded with several ophthalmologic drugs and used for drug release studies.

Recent publications


Biography

M Helena Gil is currently Professor at Chemical Engineering Department, University of Coimbra. She has a large experience in the preparation and characterization of polymeric materials to be applied in biomedical or industry fields. Research in polymer chemistry within her group includes also preparation and characterization of hydrogels, immobilization of biological compounds, biosensors and drug delivery systems. She is author or co-author of more than 200 scientific papers on international reviews and of more than 10 book chapters. M Helena Gil have supervised more than 60 MSc students and more than 20 PhD students, with 30 research fellows under the framework of several national and international projects.

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