

Biocompatibility Properties of Poly(2-(methacryloyloxy)ethyl- 2-(trimethylammonium)ethyl phosphate-co- acrylonitrile) membranes

Suk Kyu Jung, Jung Moon You, Shin Hee Lee, Soo Min Park

Dept. of Textile Eng., Pusan Univ.

Polymers containing monomers with pendant phospholipid polar group, 2-(methacryloyloxy)ethyl-2-(trimethylammonium)ethyl phosphate(MTP) were synthesized and blood compatibility of the copolymers was evaluated.

Good permeability of biocomponents of molecular weight below 10^4 through cellulosic membrane coated with the copolymer of 2-(methacryloyloxy)ethyl-2-(tri-methylammonium)ethyl phosphate and acrylonitrile was observed.

Amount of protein adsorption on polymer surface was investigated at 36.5 °C and pH 7.4 using sorption method. Protein adsorption on the surface of the MTP copolymer with phospholipid polar group was suppressed effectively. The adsorption ratio decreased with increase in the MTP composition of the MTP copolymers. There is significant difference among homopolymers, poly(AN) and poly(VA), and high MTP composition copolymer.

A large number of platelets were adhered and aggregated on the hydrophobic poly(AN), but platelet adhesion was completely suppressed on the surface of MTP copolymers. This result could be explained by the important role of the phospholipid moiety of the polymer on blood compatibility.