

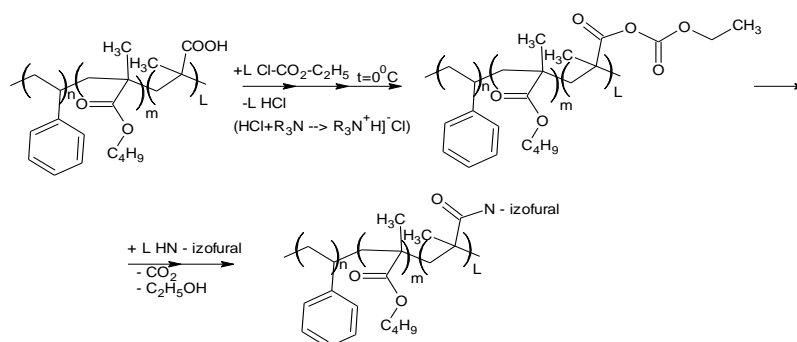
## DEVELOPMENT OF THE CONTROLLED TRANSPORT SYSTEMS OF IZOFURAL THROUGH THE COPOLYMER STYRENE: BUTYL METHALCRYLATE: METHACRYLIC ACID

**Vitalie Filip, Ph.D. Student**

*Moldova State University, Moldova*

It is known that the development of resistant pathogens to a range of antibiotics, has become a major problem of modern medicine [1,2]. In this context an important role has the polymer chemistry with specific functionality regarding the protection from bacteria/fungus and other microorganisms.

In this context it was performed the synthesis of Styrene copolymers (ST): butyl methacrylate (BMA): methacrylic acid (ACM). The copolymerization was accomplished by the method of radical polymerization at a temperature of 80°C for 4 hours. Conversion of the copolymers ST: BMA ACM with izofural was carried out in dimethylformamide at a temperature of 0°C with ethyl chloroformate for 3 hours with an ACM containing from 10 to 30 mol% according to the scheme:



The product obtained in solution was separated and purified two times in diethyl ether. The structure of support polymer ST: BMA: ACM as well as of medical polymer structure was confirmed by IR spectroscopy and elemental analysis. The study of the antimicrobial activity was performed using the reference culture *Staphylococcus aureus*, *Enterococcus faecalis*, *Escherichia coli*, *Pseudomonas aeruginosa*, *Proteus vulgaris*. Antimicrobial tests of the copolymers showed activity against these strains significant.



**Conclusions:**

1. It was carried out the synthesis of styrene copolymer: butyl methacrilat methacrylic acid. By polymer-analogous transformation was successful coupling of antimicrobial compounds as izofuralul the copolymer ST: BMA ACM. Copolymer matrix structure and medicinal as was confirmed by IR spectroscopy.
2. The antimicrobial tests have demonstrated activity against copolymers Gram-and Gram+.
3. Mechanical characteristics showed that medicinal polymers can be recommended for medicinal use fabricate objects.

**References:**

1. Biomedical polymers, Edited by Mike Dj. Jenkins, Boston, Cambridge, 2010
2. N.A. Payment, physiologic active Polymers, Moscow, Science, 1987 (Russian).