30－62 Preparation of Resins Containing Phenol Derivatives from Chloromethylstyrene-Tetraethyleneglycol Dimethacrylate Copolymer Beads and Antibacterial Activity of Resins

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Copolymer beads (RCCS-4G) with many chloromethyl groups were prepared by treating macroreticular chloromethylstyrene-tetraethyleneglycol dimethacrylate (4G) copolymer beads with chloromethylether. Copolymer beads (RAAS-4G) with benzylamino groups were prepared by treating RCCS-4G with potassium phthalimide. Then the copolymer beads containing phenol derivatives were prepared by treating RAAS-4 G with *p*-hydroxybenzoic acid (*p*HBA), 2, 4-dihydroxybenzoic acid (DHBA), and 3, 4, 5-trihydroxybenzoic acid (gallic acid, GA) in *N*, *N*-dimethylformamide. The antibacterial activity of the obtained resins was examined against *Escherichia coli* and *Staphylococcus aureus*. Resins containing phenolic hydroxy groups of 2.3-7.7 mequiv/g were obtained. Antibacterial activity of the resins containing various phenol derivatives against *E. coli* or *S. aureus* increased in the order of RAAS-4G-GA>RAAS-4G-DHBA>RAAS-4G-pHBA. The resins containing pheol derivatives exhibited higher antibacterial activity against *E. coli* than against *S. aureus* and high activity even against bacteria in NaCl solution. Scanning electron micrographs showed that high antibacterial activity was brought about by the phenolic hydroxyl groups in the resin.

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