

Co-polymerization of MTPC (Methylene Tri *p*-Cresol) and *m*-cresol using CiP (*Coprinus cinereus* peroxidase) to improve the dissolution characteristic of the enzyme-catalyzed polymer

김한상, 김용환*, 송봉근¹, 안은숙¹
광운대학교; ¹한국화학연구원
(metalkim@kw.ac.kr*)

MTPC and *m*-cresol were copolymerized by *Coprinus cinereus* peroxidase in aqueous acetone. Although MTPC (Methylene Tri *p*-Cresol) did not dissolve completely in the aqueous acetone, copolymerization was achieved owing to the radical transfer between solute and solid surface. Various polymerized products with different molecular weights and hydroxyl values were synthesized depending upon reaction compositions (ratio of MTPC to *m*-cresol and buffer to acetone). Poly(MTPC-*m*-cresol), a copolymer of MTPC and *m*-cresol, was mixed with a diazonaphthoquinone derivative to form a new type of photoresist, a thin film of which was formed on a silicon wafer and immersed in alkaline solution (tetramethylammonium hydroxide) to measure speed of dissolution. Poly(MTPC-*m*-cresol), with higher hydroxyl value (over 80%), showed remarkably improved dissolution characteristics (dark loss in alkaline solution decreased by almost half), which is prerequisite for sensitive photoresist polymer.