

Development of silica gel matrix containing recombinant *E. coli* for biosensors

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Si-derived precursors were used for constructing the matrix. After comparison of various precursors, they were selected for the most effective one for matrix backbone. The recombinant *E. coli* containing some genes for detecting BTEX was prepared by gene cloning technique. In Sol-Gel process, according to drying methods, types of precursors, acid catalysts and gelation pH, contents of water, pore size and degrees of hydrolysis and condensation reactions can be differentiated. And recombinant *E. coli* in Sol-Gel matrix shows longer viability rather than free suspension of Recombinant *E. coli*. Combination of Sol-Gel matrix and recombinant biomolecules can make the detecting technique easy, low costly and strong against harsh condition in detecting site with short time interval.