

Symp C4

Characterization of Polyterthiophene Derivatives
and Applications to Biofuel Cells and Biosensors

폴리터사이오펜 유도체의 특성 및
생체연료전지와 바이오센서에의 응용

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This study will introduce syntheses of terthiophene derivative monomers, the characterization of electrochemically polymerized conductive films, and the application of the polymer films to biofuel cells and sensors. Various kinds of polyterthiophene derivatives having functional groups, such as carboxylic acid, amine, benzyl, Schiff base (salen), and their metal complexes were electrochemically polymerized in non-aqueous solvents. The resulting polymer films were characterized and used for a substrate to immobilize DNA, enzymes, proteins, and some organic ligands. The DNA, enzyme, proteins immobilized-polyterthiophene films gave good results for biosensors for the detection of biological compounds. In addition, the biofuel cells based on the enzyme and proteins immobilized on the polyterthiophene films were very stable and acted as a power source using some biological compounds, glucose, lactose, etc.