L-DOPA synthesis using electrochemically pretreated graphite/nafion modified GCE

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Levodopa or L-3,4-dihydroxyphenylalanine (L-DOPA) is the precursor of the neurotransmitter dopamine. L-DOPA is a famous treatment for Parkinson's disease symptoms. In this study, electroenzymatic synthesis of L-DOPA was performed in a three electrode cell, comprising a Ag/AgCl reference electrode, a platinum wire auxiliary electrode, and a glassy carbon working electrode. We conducted some immobilization modified working electrode using graphite to improve reusability of enzyme. Electrochemically activated graphite/nafion composite was prepared by using a simple electrochemical method. Optimizations of experimental variables, such as the pH, temperature, operational and storage stability experiments were investigated. Kinetic parameter of enzyme and electrode was also studied.