

THE APPLICATION OF VARIOUS CROWN ETHERS  
MODIFIED ELECTRODES AS POTENTIOMETRIC  
DETECTORS FOR FLOW INJECTION ANALYSES  
OF CATECHOL AND CATECHOLAMINES

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Catechol and catecholamines are important neurotransmitters secreted in the brain and control locomotion. Mental and behavioral disorders such as Schizophrenia, attention deficient disorder, Alzheimers disease, Parkinson's disease, eating disorders, epilepsy, amphetamine addiction, and cocaine addiction are all associated with altered levels of these neurotransmitters in the brain. Therefore, a technique for determining these neurotransmitters could lead to rehabilitation for these common disorders and diseases.

The goal of this study is to electrochemically polymerize crown ethers such as dibenzo-18-crown-6, benzo-15-crown-5, benzo-12-crown-4, tetraethylene glycol dimethyl ether (open crown) on a polished platinum electrode surface then use as selective electrodes for the determination of catechol and catecholamines. The various crown ethers were electrochemically polymerized on a platinum electrode surface for the analysis of catechols by static potentiometry, potentiometric-flow injection analysis and amperometric-flow injection analysis. A comparison will be made between the three different detectors for the analysis of catechol and caecholamines in terms of detection limits, common interferences, optimum response and life-time. The potentiometric- flow injection analysis achieved low detection limits of  $10^{-2}$  M to  $10^{-6}$  M and has several other advantages over the amperometric-flow injection analysis and these results will be shown and discussed.