

**Electrochemical Determination Of Interaction  
Between An Alkylating Anticancer Drug And  
DNA In Solution And At The Electrode  
Surface**

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The synthesis of a new alkylating anticancer drug, 4,4' - dihydroxy chalcone (DHC), has been accomplished. The interaction of DHC with calf thymus double-stranded DNA (dsDNA) and calf thymus single-stranded DNA (ssDNA) was studied electrochemically by using differential pulse voltammetry (DPV) and cyclic voltammetry (CV) at carbon paste electrode (CPE). As a result of the alkylation of DHC between the base pairs in dsDNA, the voltammetric signal of DHC greatly decreased. After the interaction of DHC with ssDNA, a slight decrease in the DHC signal was observed under the same conditions. It was also shown that DHC adheres strongly to the bare CPE so that the highest DHC signal was obtained with bare CPE. Experimental parameters such as the concentration of DHC, the scan rate and the effect of interaction time on the voltammetric signal was studied by using CV. In addition, the detection limit and the reproducibility was determined by using DPV. The DHC signals in the cyclic voltammograms and the differential pulse voltammograms were found to be decreasing in the order of bare CPE, ssDNA modified and dsDNA modified CPE, respectively. The prospects of using electrochemical methods in the studies of DNA - anticancer drug interactions were discussed.