

**TITLE**

**Design an alcohol biosensor based on alcohol dehydrogenase and modified electrode with cdo nanoparticles**

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In this work, we design a new alcohol biosensor for determination of ethanol. A new aspect of this project is use of cadmium oxide nanoparticles for facile electrochemical interaction. The carbon paste electrode (CPE) was used as worker electrode. In addition; electrochemical measurement was done versus saturated calomel electrode (SCE). A voltammetric ethanol biosensor was constructed using alcohol dehydrogenase (ADH). The alcohol dehydrogenase was immobilized on the surface of a carbon paste electrode modified by cdo. The linear range of this biosensor for ethanol determination was from 10 to 480  $\mu$ M. The biosensor was tested with very good results for ethanol determination in beverages. At the end of the 15<sup>th</sup> day, the biosensor retained 78% of its initial activity.

**Keywords:** biosensor, alcohol, alcohol dehydrogenase enzyme, cdo nanoparticles