Glucose Oxidase Embedded ZnO Nanowires/Ferrocenyl-Alkanethiol Array for efficient glucose-sensing application

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One-dimensional ZnO nanowires/ferrocenyl-alkanethiol array is synthesized on silicon substrate combined by self-assembled and low temperature aqueous methods. Electro-catalytic responses of glucose oxidase/ ZnO nanowires/ferrocenyl-alkanethiol array/Silicon (GOx/ZnO NWs/FcC11SH/Si) electrode are detected deeply. The ZnO nanowires/ferrocenyl-alkanethiol array has provided a favorable environment to the immobilization of glucose oxidase. The morphology and crystal structure of the as-grown products have been characterized by many methods, including scanning electron microscopy (SEM), X-ray diffraction (XRD) and electrochemical test. Electrochemical results demonstrated that the well configuration GO_x/ZnO NWs/FcC11SH/Si possessed excellent electrocatalytic activity to glucose, which provide a meaningful way for the practical applications in clinical, environmental, and food analysis.

Keywords: Electrochemical behavior; Glucose oxidase; ZnO NWs/FcC11SH/Si; Biosensor

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