Short Communication

Intelligent sensor of glucose based on CuO nanomaterials

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As theory and technology are becoming increasingly mature, the concept of intelligent sensor technology is being introduced into various research fields and gaining increasing attention in current research. Owing to errors when calculating the optimum response voltage of electrodes in the analysis of electrochemical sensors, this paper proposes an algorithm to identify and analyze the data collected from an electrochemical workstation. Subsequently, the optimum working voltage or optimum working voltage range can be found by setting constraints. In addition, a simple preparation process of CuO is introduced, and a series of confirmatory tests are conducted using a CuO electrode with good electrochemical properties. The scientificity, accuracy, and practicability of the intelligent selection voltage are further explained. Finally, through the construction and debugging of the intelligent, portable, and disposable glucose detector hardware circuit, real-time monitoring of glucose concentration is achieved. The results of this research also provide data and a theoretical basis for future studies in the fields of big data analysis and deep learning.

Keywords: Intelligent sensor technology; Electrochemical sensor; CuO electrode; Algorithm; Hardware circuit

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