

A robust enzymeless glucose sensor based on CuO nanoseed modified electrodes

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Here, we report a facile one-pot synthesis of CuO nanoseeds by a low-temperature aqueous method and their further utilization for the fabrication of a robust enzymeless glucose sensor. The fabricated enzymeless glucose sensor (Nafion/CuO nanoseeds/Au/Glass) electrode exhibited excellent electrocatalytic ability towards glucose in NaOH solution as well as excellent sensing features. The amperometric studies showed a high performance for glucose sensing with wide linear range (0.1–13.3 mM), rapid response time (~2s), high sensitivity ($1101 \mu\text{A}\text{mM}^{-1} \text{cm}^{-2}$), low detection limit (0.05 mM; S/N = 3), good anti-interference ability and long-term stability. Furthermore, fabricated electrodes were evaluated to determine glucose concentration in freshly drawn mice whole blood and serum samples.