Enzymatic glucose biosensor based on flower-shaped copper oxide nanostructures composed of thin nanosheets

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Abstract:

Well-crystallized flower-shaped copper oxide nanostructures composed of thin nanosheets has been synthesized by simple low-temperature hydrothermal process and used to fabricate highly sensitive amperometric glucose biosensor which exhibited a high and reproducible sensitivity of 47.19 μA mmol-1 Lcm-2, response time less than 5s, linear dynamic range from 0.01 to 10.0 mM, correlation coefficient of R=0.9986, and limit of detection (LOD), based on S/N ratio (S/N=3) of 1.37 μM. This work opens a way to utilize simply-grown CuO nanostructures as an efficient electron mediator to fabricate efficient glucose biosensors.

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