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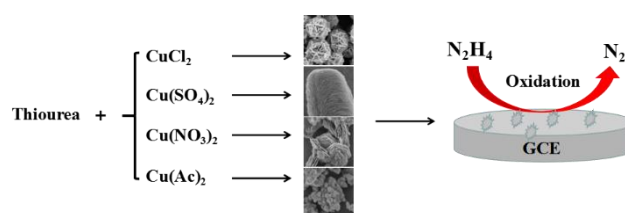
Controllable synthesis of copper sulfide for nonenzymatic hydrazine sensing

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Graphical Abstract



CuS with different morphologies were synthesized for electrochemical sensing of N_2H_4 .

Highlights

- Morphology controlled synthesis of CuS was achieved by a facile hydrothermal method without using template, structure-directing agent or complicated steps.
- CuS with flower-like, nanoparticle-like, rod-like and multilayered-like structures were obtained by just changing the type of metal precursor.
- For the first time, the electrocatalytic activities of CuS with different morphologies toward N_2H_4 oxidation were explored.
- The sensor based on flower-like CuS exhibited remarkable catalytic performance for N_2H_4 detection in neutral medium.

Abstract

Constructing a novel enzyme-free electrode for sensitive and selective detection of hydrazine (N_2H_4) in neutral medium is important. In this paper, Copper sulfide (CuS) with different morphologies were synthesized for electrochemical sensing of N_2H_4 . A facile hydrothermal approach is developed for the shape-controlled synthesis of CuS architectures. The effects of reaction temperature, time, solvent and anion type on the morphologies of CuS were studied and it was found that CuS with flower-like, nanoparticle-like, rod-like and multilayered-like morphologies could be selectively

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