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## Synthesis of 3D Co-based Zeolitic Imidazolate Framework and Application as Electrochemical Sensor for H<sub>2</sub>O<sub>2</sub> Detection

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As an emerging hybrid porous coordination polymer comprising organic linkers and metal ions, metalorganic frameworks (MOFs) have shown up excellent electrochemical activity. Co-based zeolitic imidazolate framework (ZIF-67), a novel and special class of MOF with zeolite topological structure, has been deeply studied and employed as electrode materials and catalysis. Of note, ZIF-67 with 3D dodecahedron crystal structure (3D ZIF-67) has became the focus of attention. In this paper, 3D ZIF-67 materials synthesized by two different methods had been contrasted and researched for the first time. The as-prepared materials ( 3D ZIF-67(H) and 3D ZIF-67(M)) both exhibited typical morphological characteristics and crystal structure of 3D ZIF-67, but there were some slight differences between them. Furtherly, electrochemical sensors for the determination of  $H_2O_2$  were fabricated based on as-prepared materials, and 3D ZIF-67(H) had better hydrophilicity and stability, while 3D ZIF-67(M) had slightly better sensitivity and electrocatalytic activity for the reduction of  $O_2^{2^2}$ .

Keywords: 3D ZIF-67, Electrochemical Sensing, Synthesis, H<sub>2</sub>O<sub>2</sub>

## FULL TEXT

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