Review

Recent progress in cerium-based nanomaterials for electrochemical biosensors

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doi: 10.20964/2020.10.12

Received: 19 March 2020 / Accepted: 23 April 2020 / Published: 31 August 2020

Cerium (Ce) is a rare earth element widely used for its excellent physical and chemical properties. Ce-based nanomaterials have become highly relevant for electrochemical biosensors due to their attractive catalytic activities and electrical conductivity properties. Importantly, Ce-based nanomaterial preparation significantly affects their properties for electrochemical applications. This review summarizes some common methods for Ce-based nanomaterial synthesis, including sol-gel, co-precipitation and micro-emulsion approaches, and their applications in electrochemical biosensors, such as DNA sensors, immunosensors and enzyme sensors. Also, we summarize by discussing some defects and complementary methods of Ce-based nanomaterials.

Keyword: CeO₂; Ce-based materials; electrochemical biosensor; preparation method

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