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GREEN SYNHTESIS OF COBALT-BASED METAL-ORGANIC FRAMEWORK AND ITS POSSIBLE USE AS SUPERCAPACITOR ELECTRODE

Metal-organic networks (MOF) are crystalline materials characterized by the coordination of metal centers with organic ligands. This class of material stands out for its properties such as high specific surface area, porosity and easy functionalization. The field of application of MOFs has ranged from gas separation/storage, adsorption/desorption of toxic gases and vapors, catalysts, drug delivery to, recently, their use as electrocatalysts for hydrogen production, as electrodes in Li-ion batteries, and in supercapacitors. However, the synthesis of MOFs often involves the use of aggressive and polluting solvents (DMF, ethanol, etc.). The use of water as a solvent in the synthesis and purification of MOFs is an attractive strategy for the reduction of pollution caused by the processing of these materials. In this work, we synthesized a Co-based MOF using only water as solvent and purified the product. Co-MOFs exhibit high electrochemical reversibility, a feature that is not common in MOF materials. Taking advantage of this feature, together with its structure, especially its redox centers, we studied this material for its application as a supercapacitor electrode.

Keywords

Metal-organic frameworks; supercapacitor; Co-MOF; green-synthesized; electrode

Reference

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