Patent Search

Invention Title	A FACILE GREEN SYNTHESIS APPROACH FOR FE2O3-CUO NANOPARTICLES COMPOSITE AND ITS SENSOR APPLICATION
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Abstract:

ABSTRACT TITLE OF THE INVENTION: A FACILE GREEN SYNTHESIS APPROACH FOR FeiOa-CuO NANOPARTICLES COMPOSITE AND ITS SENSOR APPLIC/
(APM) is an organophosphorus herbicide, moderately lethal to mammals and highly toxic to aquatic organisms. In this work, a green approach was a
Fe203-CuO nanocomposite using Ocimum Sanctum Linn leaf extract to detect APM by electrochemical techniques. The as-synthesized nanocomposi
ray diffraction (XRD) and scanning electron microscope (SEM). The electrochemical characterization of glassy carbon electrode modified Fe203-CuO N
performed using cyclic and differential pulse voltammetry at pH 6.0 in Britton-Robinson buffer medium. Optimization of experimental parameters ir
accumulation potential, and response time were studied to enhance the sensing abilities of the electrochemical sensor. The electrochemical signals l
the detection of AMP herbicide with Fe203-CuO NPs composite compared to the bare glassy carbon electrode. The obtained limit of detection was 0.
concentration range of 0.05 to 30 ug/mL. The developed electrochemical sensor was successfully applied for the detection of AMP herbicide in differ
with recoveries ranging from 96.00-99.00%. The outcome of this study ascertains Fe203-CuO NPs composite as a promising electron transfer catalyst
to the best sensing ability, with propitious prospects for the fabrication of electrochemical sensing of organic contaminants.

Complete Specification

We claim:

1. A method for facile green synthesis of Fe203-CuO NPs composite from Ocimum Sanctum Linn leaf extract and which further coated on GCEs for electrochemical determination of APM, comprising the following steps:

- Accurately weighed 20 gr of Ocimum Sanctum Linn leaf powder was transferred and dispersed into the doubly distilled deionized water and hea and cooled to room temperature followed by the centrifugation to remove the plant residues from the extract. The solution was filtered with Whatı eliminate any remaining biomasses in the leaf decoction.
- The Fe203-CuO NPs composite was prepared by adding ImM of FeCb-6H20 and 1 rnM of CuCb in the ratio of 1:0.5 of aqueous solutions dropwis of 25 mL Ocimum Sanctum Linn leaf extract. The pH of the mixture was bptimized and maintained at pH 10.2 with an aqueous ammonium solutior color solution changes to a dark brown precipitate within 6 h, confirming the formation of Fe203-CuO NPs composite.
- The obtained nanocomposite was filtered and subjected to several piles of washings with deionized distilled water and ethanol followed by over h. The final product was calcinated at 350 °C at the rate of 1 °C per min to yield a blackish-brown powder of Fe203-CuO NPs composite and refriger use.
- Further, 30 mg of as prepared Fe203-CuO NPs composite was added to 5% of 0.5 mL of Nafion followed by the addition of 1 mL of ethanol and to obtain uniform Fe203-CuO NPs thick material to coat on GCE surface to obtain Fe203-CuO NPs/GCE.

2. The method as claimed in claim 1, wherein the fabricated Fe203-CuO NPs/GCE is used as a working electrode, platinum wire and Ag/AgCl acts as

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APPLICATION STATUS	**Application Awaiting Examination**

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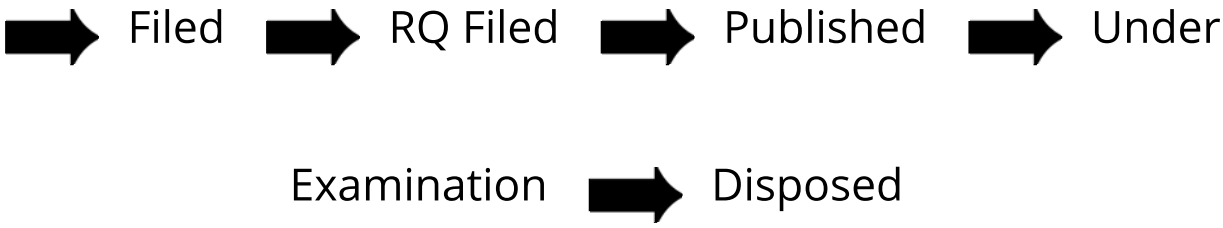

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