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Catechin detection by screen printed graphite electrode modified with p-L-Cysteine

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Apresentação Oral

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COMO CITAR ESSE TRABALHO?

Resumo

Screen-printed electrodes (SPEs) are distinguished by their low cost, ease of use, reproducibility, versatility, and scalability, rendering them highly effective tools for electrochemical sensing applications [1,2]. This study aimed to develop a polyethylene-based SPE incorporating carbon black and p-L-cysteine (p-L-Cys) for catechin (CAT) detection. The SPE was designed on a 0.3 mm thick polyethylene sheets as the substrate. For CAT detection, the SPE was modified with a Printex 6L carbon in chitosan dispersion (CP6L@Chi) and a layer of p-L-cys, resulting in the final sensor, SPE/CP6L@Chi/p-L-cys. DPV was utilized for CAT detection within a potential range of -1.0 to +1.0 V, employing a fixed concentration of 4×10⁻⁵ M CAT in 0.1 M PBS (pH 7). The platform composed with 5 mM p-L-cys exhibited a peak current of 10.49 µA at +0.03 V. In contrast, SPE/CP6L@Chi and SPE/CP6L@Chi/p-L-cys with 10 mM p-L-cys presented lower peak currents, 3.23 µA and 5.78 µA, respectively. The analytical curve was constructed with a range from 1.00×10⁻⁴ to 2.50×10⁻⁹ molL⁻¹, from which was obtained a LOD of 2.48×10⁻⁹ molL⁻¹, from there recoveries were carried out on real samples of green tea and black tea. These findings indicate that the electrochemical platform developed in this study hold significant promise for CAT detection in food samples, highlighting their potential for practical applications in food safety and quality control.

Compartilhe suas ideias ou dúvidas com os autores!

Sabia que o maior estímulo no desenvolvimento científico e cultural é a curiosidade? Deixe seus questionamentos ou sugestões para o autor!

+ Criar tópico

Programação

11:00 até 12:30 em 26/11/2024
 Bloco A - Auditório...
(<https://eventos.galoa.com.br/ensbe-2024/calendar/activity/10655>)

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Eixo Temático

- Sensores e Biossensores Eletroquímicos

Palavras-chave
screen printed electrodes
Catequin
eletrochemical sensor
polyethylene
graphite

Discussões Científicas de Qualidade

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