

Eletrodos descartáveis de carbono em plataformas de papel e poliéster

Disposable carbon electrodes on paper and polyester platforms

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Paper and polyester substrates have emerged as simple, affordable and low cost platforms for the fabrication of analytical devices including microfluidic network and sensing electrodes. Electrochemical paper-based analytical devices (ePADs) were proposed in 2009 by Dungchai and co-workers [1]. In the last ten years, ePADs have been fabricated through conventional techniques including photolithography and sputtering as well as through simple approaches with affordable consumables, including screen printing, pencil drawing, glue-ink painting, and laser scribing. Our group have reported recently the fabrication of ePADs through pencil drawing and also painting paper surface with a composite prepared through the mixture of glue and grafite for applications in analytical and forensic chemistry. Besides paper, polyester films have also demonstrated great potential for the development of flexible electrochemical cells at low cost (about U\$ = 0.01/unit). The protocol is based on the use of graphite powder and thermal laminating sheets by solid-solid deposition through hot compression, without the aid of hazardous chemical reagents. This strategy has offered great reproducibility opening a feasible gate for the development of wearable sensors based on carbon sensing electrodes. The fabrication protocols, the experimental optimization and the applications involving the use of disposable carbon electrodes on paper and polyester platforms will presented and discussed.

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Referências:

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