



## **Diferentes Métodos de Fabricação de Dispositivos Eletroquímicos em Papel e Aplicações Analíticas**

### **Different Approaches for Fabrication of Paper-Based Electrochemical Devices and Analytical Applications**

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**Abstract:** Paper-based chemical sensors and paper-based microfluidic devices, known as microPADs, have been demonstrated to be promising platform for the development of point-of-care diagnostic assays and inexpensive analytical tools for use in field. These devices are cheap to fabricate, they are typically small and portable, and they are claimed to be simple to operate for untrained users with a good accuracy and precision for the proposed methods in the literature. Since the report of wax printed hydrophobic barriers by Whitesides and Carrilho [1] to fabricate colorimetric paper-based chemical sensor the number of different method to fabricated chemical paper devices increase exponential. Although colorimetry is frequently used for these devices, electrochemical detection has the additional advantages to be used as detection technique due to permit quantitative analysis without susceptibility of colour intensity/luminosity or particulates interferences in samples. Some of reported procedures to fabricate colorimetric paper devices are used with success to manufacture electrochemical paper devices and some new approaches will be shown in this presentation combining new fabrication techniques, different chemical materials and paper types, as well as, how electrochemistry could solve some interference problems related in the colorimetric paper-based device. The application of the reported electrochemical paper devices will be demonstrated for forensic, clinical and environmental applications. These various examples will highlight how paper and electrochemistry combined advantages to bring new tools for Analytical Chemistry.

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#### **References:**

[1] A. W. Martinez, S. T. Phillips, G. M. Whitesides, E. Carrilho, *Anal. Chem.* 82 (2009) 3-10

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