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Towards disposable sensors, recent developments and pharmaceutical applications of screen printed electrodes

Heba Moustafa Mohamed
Cairo University, Egypt

The combination of modern electrochemical systems along with screen printing technology give an amazing chance for the introduction of potential and powerful analytical tools for efficient monitoring and analysis of pharmaceuticals, biomarkers and metabolites, environmental and food pollutants. Screen-printed electrodes (SPEs) can successfully address the time constraints associated with the conventional laboratory analysis. The adaptability and low-cost of this technology is accountable for its nonstop expansion and the continuous grow within the SPEs field to discover new areas of applications. Their improvements mainly will depend on incorporating new printed materials, new ligands, new polymers, further nanostructure materials and new supports. Recently, SPEs are coupled to biomolecules with the assistance of modern electroanalytical techniques and offers an excellent chance for therapeutic drug monitoring. In this work, detailed description of the elementary fabrication principles, the different designs of SPEs and the different analytical methods that are based on SPEs will be presented. Special emphasis is given on the electrochemical application of SPEs in pharmaceuticals analysis, their recent designs and the future perceptions.

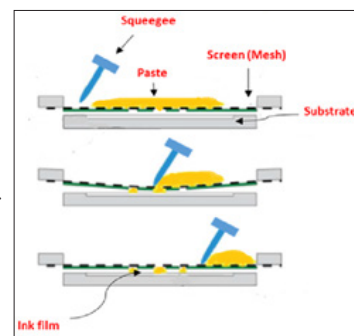


Figure 1. Schematic diagram of the screen printing basic process for electrodes manufacturing

Biography

Heba Moustafa has her demonstrated research expertise in pharmaceutical analysis, passionate to work at the interface of chemistry and biology towards better patients' health and safety. Strong technical skills in analytical techniques; spectroscopy (Mass spectroscopy, NMR, spectrophotometry), chromatography (LC/MS/MS, UPLC-MS/MS, HPTLC, HPLC) and electrochemical methods, in addition to educational research. She completed her MSc and PhD degrees in pharmaceutical analysis from faculty of Pharmacy, Cairo University-Egypt. She has published more than 25 papers in highly reputed international journals and has been serving as reviewer for many highly esteemed journals and participated in different international conferences.

hmostafa_7@yahoo.com

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