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Nanostructured copper oxide (CuO--ATP) thin films as real time monitoring of heavy metal ions and microbial drinking water quality

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In order to design and developed a wearable Micro-Fluidic Devices with more fundamental approaches, we investigate the capabilities of Functional Materials, Ion-Sensitive Field-Effect Transistor (ISFET) in the realization of wearable biosensors. We study the potential of doped Copper Oxide (CuO) Adenosine triphosphate (ATP) as a monitoring parameter for heavy metal ions and microbial drinking water quality. we identify and provide information on essential requirements for the automation capability of the (CuO-ATP) doped assay in order for the assay to be implemented on a sensor platform for continuous real-time monitoring of heavy metal ions and microbial drinking water quality. CuO-ATP thin films were developed by the Successive Ionic Layer Adsorption and Reaction (SILAR) method. The morphological, structural and electrical properties of the CuO-ATP films were investigated by scanning electron microscopy, X-ray diffraction analysis, and room temperature current-voltage measurements, respectively. We doped CuO films with ATP during the film growth process. We also drop cast the surface of the intrinsic CuO films with ATP to investigate the effect of partial doping. This method of partial doping can be a new way of exploring sensing techniques, particularly for biological monitoring systems.

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