Title: The Rat's not for Turning: Dissociating the Psychological Components of Cognitive Inflexibility

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Swift Electrochemical Detection of Paraben an Endocrine Disruptor By In_2O_3 Nanobricks

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Abstract

Novel indium oxide (In_2O_3) nanobricks have been prepared by template-less and surfactant-free hydrothermal synthesis method and were characterized by X-ray diffraction (XRD), Raman spectroscopy, Photoluminescence (PL) spectroscopy and field emission scanning electronic microscopy (FESEM). The synthesized In_2O_3 nanobricks were successfully immobilized on the surface of glassy carbon electrode for the detection of *Parabens* (butylparaben). Owing to the unique structure and intriguing properties of these In_2O_3 nanobricks, the nanostructured thin-film electrode has shown an obvious electrocatalytic activity for the detection of butylparaben (BP). The detection limit (LOD) was estimated as 3s/m and the sensitivity (LOQ) was calculated as 10 s/m and were found to be 0.08 µM and 0.26 $\mu A \mu M^{-1}$ cm^{-2} respectively. This sensor showed high sensitivity compared with the reported electrochemical sensors for the detection of BP. The fabricated sensor was successfully applied for the detection of butyl paraben in real cosmetic samples with good recovery ranging from 96.0% to 100.3%.

Keywords: In_2O_3 nanobricks, synthesis, Electrochemical BP detection

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