

## **Fabrication of Biosensor Based on Layered Double Hydroxide/Polypyrrole/Carbon Paste Electrode for Determination of Anti-Hypertensive and Prostatic Hyperplasia Drug Terazosin**

**Authors :** Amira M. Hassanein, Nehal A. Salahuddin, Atsunori Matsuda, Toshiaki Hattori, Mona N. Elfiky

**Abstract :** New insights into the design of highly sensitive, carbon-based electrochemical sensors are presented in this work. This was achieved by exploring the interesting properties of conductive (Mg/Al) layered double hydroxide- Dodecyl Sulphate/Polypyrrole nanocomposites which were synthesized by in-situ polymerization of pyrrole during the assembly of (Mg/Al) layered double hydroxide, and by employing the anionic surfactant Dodecyl sulphate as a modifier. The morphology and surface area of the nanocomposites changed with the percentage of Pyrrole. Under optimal conditions, the modified carbon paste electrode successfully achieved detection limits of 0.057 and 0.134 nmol.L-1 of Terazosin hydrochloride in pharmaceutical formulation and spiked human serum fluid, respectively. Moreover, the sensors are highly stable, reusable, and free from interference by other commonly present excipients in drug formulations.

**Keywords :** layered double hydroxide, polypyrrole, terazosin hydrochloride, square-wave adsorptive anodic stripping voltammetry

**Conference Title :** ICSIB 2017 : International Conference on Biological Imaging and Biosensors

**Conference Location :** Tokyo, Japan

**Conference Dates :** November 13-14, 2017