

The need for sensitive, selective, rapid and low-cost detection systems for DNA and DNA-drug interactions are in crucial demand for diagnostics and real-world applications. This work details the preparation of poly(3,4-ethylenedioxythiophene) (PEDOT) coated chitosan (CHIT) and the use of PEDOT coated CHIT modified disposable pencil graphite electrodes (PGEs) for DNA and DNA-anticancer drug interaction sensing. PEDOT coated CHIT (PEDOT/CHIT) was prepared with rotating plasma polymerization using radio frequency (RF: 13.56 MHz) power generator. Then, modification of PEDOT/CHIT onto PGE was performed. The use of the prepared electrode was carried out using differential pulse voltammetry (DPV). Cyclic voltammetry (CV) and scanning electron microscopy (SEM) were used to characterize the PEDOT/CHIT/PGE. The performance of the electrode was compared with CHIT/PGE and unmodified PGE. The electrode exhibited high sensitivity for the investigation of DNA sensing and DNA-anticancer drug interaction. Such disposable sensing platform hold considerable promise for diverse bioapplications. (C) 2014 Elsevier B.V. All rights reserved.