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## Graphite Pencil Electrode for Simultaneous Detection of Dihydroxybenzene Isomers

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Abstract: A novel, facile and low-cost electrochemical technique for the detection of dihydroxybenzene isomers (DBs) [hydroquinone (HQ), catechol (CC), and resorcinol (RS)], in aqueous system was developed. Both bare HB pencil electrode (HBPE) and electrochemically modified HB pencil by Aspartic Acid electrode (ASA-HBPE) were used in detection of DBs by Cyclic Voltammetry and Differential Pulse Voltammetry. Both HBPE and ASA-HBPE showed good electro-analytical activity effect on the redox reaction towards DBs. Total analyses and detection processes were performed in phosphate buffer solution at pH 6.8 which was used as supporting electrolyte. The limit of detection (LOD) was calculated by signal-to-noise ratio (S/N = 3). In simultaneous detection, the LOD for HQ, CC and RS were 12.473  $\mu$ ML<sup>-1</sup>, 16.132  $\mu$ ML<sup>-1</sup> and 25.25  $\mu$ ML<sup>-1</sup> and sensitivities were 470.481  $\mu$ A/mM/cm<sup>2</sup>, 363.781  $\mu$ A/mM/cm<sup>2</sup> and 232.416  $\mu$ A/mM/cm<sup>2</sup>, respectively at bare HBPE. The LOD for HQ, CC and RS were 374.483  $\mu$ A/mM/cm<sup>2</sup>, 330.108  $\mu$ A/mM/cm<sup>2</sup> and 219.574  $\mu$ A/mM/cm<sup>2</sup>, respectively at ASA-HBPE in simultaneous detection.

Keywords: Electrochemical technique; Limit of detection; Sensitivity

