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# SEPARATION TECHNIQUES

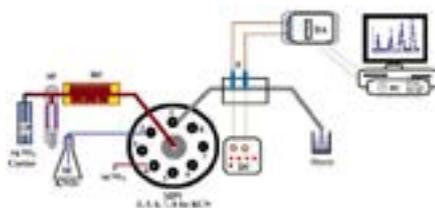
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## Modified silver electrode using carbon nanotubes as a cyanide detector in the differential electrolytic potentiometry

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Differential electrolytic potentiometry (DEP) using silver electrodes coated with carbon nanotubes (CNTs) was applied as a detector in a flow injection analysis of cyanide. The direct current- differential electrolytic potentiometry (dc- DEP) and the mark space bias - differential electrolytic potentiometry (m.s.b. DEP) both were applied as indicating systems. The parameters that give the best signal were investigated and optimized. A current density of  $17 \mu\text{A cm}^{-2}$  and a percentage bias of 2.8% were found to be optimum in case of dc- DEP and m.s.b. DEP respectively. The optimum flow rate of both the analyte and the supporting electrolyte was found to be of  $85 \mu\text{L s}^{-1}$  using a coil length of 45 cm. In case of dc- DEP, a linear range of 1ppm to 65 ppm of KCN with a detection limit of 0.5 ppm and a relative standard deviation of 2.1%. In case of m.s.b. DEP a linear range of 1ppm to 65 ppm of KCN with detection limit of 0.35 ppm and a relative standard deviation of 1.5%. The proposed DEP-FIA methods are computer controlled fast, sensitive, inexpensive and require low consumption of reagents.



**Figure:** Schematic diagram of the FIA system. (CP: carrier phase, SP: syringe pump, HC: holding coil, MPV: multi-position valve, dc: Direct current source, E: Silver modified electrodes, DA: digital to analog converter. PC: Desktop computer).

### Biography

Mousa Yasir Amayre is a Assistant Professor in Chemistry Department at King Fahd University of petroleum and minerals (KFUPM), Dhahran- Saudi Arabia. He published more than 10 papers in ISI journals. He completed his PhD in Analytical Chemistry (Chromatography and Separation Science) in 2014 from KFUPM. He got his M.Sc. degree of Science in Applied and Industrial Technology from Al-Quds University, Palestine in 2010.

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