A Compact-Cell Sensor based on Diazacrown Ether Derivative for the Determination of Ephedrine

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In this study, a compact-cell sensor based on a plastic-membrane was introduced for the determination of ephedrine (EP) in pharmaceutical formulations. The sensing membrane of the sensor cell was made of either potassium tetrafluorophenyl borate (type-I) or N, N-bis-ethoxycarbonyl-1,4,7,10,13,16-hexaoxacyclooctadecane (type-II). The developed sensor exhibited typical Nernstian response (59.8 mV/decade) and high sensitivity (pM 6.2). The sensor was found to work in a pH range of 3.1–8.96 and showed good selectivity for EP relative to other organic and inorganic interferent. The sensor was applied effectively for the assessment of EP in different pharmaceutical formulations.

Keywords: Ephedrine, compact cell sensor, PVC membrane electrode.

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