Determination of Some Cations Using A Home- made Ion Chromatography System تقدير بعض الأيونات الموجبة بأستحدام نظام كرومتغرافي أيوني محلي الصنع

Abstract

Single – column ion chromatography system equipped with conductivity detector and with a home-made 12.5 µl sample volume flow cell can be constructed and build-up from simple , inexpensive and off the shelf parts readily available in our analytical laborites .The approach of single-column IC instrumentation depend on the small differences in conductivity between sample ions and the prevailing eluent .To amplify these difference , low capacity exchanger (Purolite -Slightly acid cation R-COO) are used for the home-made separation column (3 mm ID and 300 mm length) which permit elution with low electrolyte concentration . The home-made single column IC has been applied to separate and determination of 25 µl of injecting cations (Li^+ , Na^+ , K^+ , NH_4^+, Ca^{2+} , Mg^{2+} , Al^{3+} and Fe^{3+}) at 25ºC temperature . The accuracy of the home –made IC instrument was examined by performing recovery experiments using standard additions method. The results were compared with other classical methods and good agreement was obtained (94.28- 100.58)% . Relative standard deviations (R.S.D. %) were calculated for six chromatogram runs for each ions . The values obtained were between (0.9 – 1.50 %) and (0.9 – 1.40 %) for peak heights and retention times respectively.