



ISSN 0975-413X
CODEN (USA): PCHHAX

Der Pharma Chemica, 2018, 10(7): 117-123
(<http://www.derpharmachemica.com/archive.html>)

Liquid Ion Exchange Application for Micro Amount Separation and Determination of Ca(II) and Mg(II) as Anions Species with EDTA

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ABSTRACT

Extracted Mg(II) and Ca(II) each one alone after combined with EDTA (H_3Y) as ($MgHY$) and ($CaHY$) after preparing ion pair complexes according to liquid ion exchange method by using Cinchonine (CK) after changing to liquid ion exchanger $HCK^+;Cl^-$ in HCl medium, spectrophotometric studies showed that the ion pair magnesium complex HCK^+ ; $MgHY$ had a wave length for maximum absorbance of $\lambda_{max}=241$ nm, but the maximum absorbance for calcium HCK^+ ; $CaHY$ was $\lambda_{max}=278$ nm to determine the remaining quantity of Mg(II), the Eriochrome black T method was used, but for Ca(II) the crown ether DB18C6 method was used as new spectrophotometric method. Limitations to the study include optimum conditions for extraction ions in this study show a need for 1 M HCl for Mg(II) and 0.8 M HCl for Ca(II), to be present 100 μ g for each ion, 0.08 M Ethylenediaminetetraacetic acid (EDTA) for Mg(II) and 1.0 M EDTA for Ca(II), 1×10^{-4} M CK, after shaking for 10 min. Thermodynamic study shows $\Delta H_{ex}=0.058$ k.J.mol⁻¹, $\Delta G_{ex}=-47.28$ k.J.mol⁻¹, $\Delta S_{ex}=158.86$ J.mol⁻¹.K⁻¹ for Mg(II) and for Ca(II) was $\Delta H_{ex}=0.0892$ k.J.mol⁻¹, $\Delta G_{ex}=-54.66$ k.J.mol⁻¹, $\Delta S_{ex}=180.69$ J.mol⁻¹.K⁻¹.

Keywords: Calcium, Magnesium, EDTA, Cinchonine, Liquid ion exchange.

The Editorial office of the Der Pharma Chemica Journal has accepted the article entitled “**Liquid Ion Exchange Application for Micro Amount Separation and Determination of Ca(II) and Mg(II) as Anions Species with EDTA**” for publication by taking into consideration the statements provided in the article as personal opinion of the author which was found not having any biasness or conflicts towards anything. Since, the article is the perspective one, information provided by the author was considered as an opinion to be expressed through publication. But post publication we were requested by the author to retract the paper because of his personal reasons regarding the further more work that needs to be carried out. Publisher took decision to make the article online solely based on the reviewers suggestion which considered the article not but a personal opinion of the author.

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