

ONIUM SYSTEM APPLICATION FOR SEPARATION AND MICROAMOUNT DETERMINATION OF ZINC (II) BY USE METHYL STEARATE

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ABSTRACT

As sensitive application method of solvent extraction used onium system for extraction Zinc ion Zn^{2+} from acidic aqueous solution of HCl as oxonium species by used Methyl Stearate ester as sensitive extract and dissolved in chloroform at 1×10^{-3} molar concentration, the study show extracted species giving maximum absorbance at wave length $\lambda_{max} = 275 \text{ nm}$ in presence 1M HCl with shaking time equal to 25 min. so that the study appear extraction efficiency differ with organic extract and used whereas 2,4-Dimethyl -3- pentanone giving higher extraction efficiency, electrolyte effect study show there is enhancement in extraction efficiency in presence electrolyte salt in aqueous solution as well as foundation 30% methanol in aqueous solution effect to increase extraction efficiency. Thermodynamic study appear the extraction behavior was endothermic giving maximum increasing in extraction at 40°C with thermodynamic data $\Delta H_{ex} = 0.068 \text{ kJ.mol}^{-1}$ and $\Delta G_{ex} = -53.95 \text{ kJ.mol}^{-1}$ $\Delta S_{ex} = 172.58 \text{ J.mol}^{-1}.\text{K}^{-1}$. The study included also organic solvent effect and spectrophotometric determination of Zn^{2+} in different samples by used calibration curve appear good linearity from (1-10) ppm and molar absorptivity $\epsilon = 7861.45 \text{ L.mol}^{-1}.\text{cm}^{-1}$, RSD% (n=3)=0.00545 and standard deviation=0.0728, Sandal's sensitivity= $0.00832 \mu\text{g.cm}^{-2}$.

KEYWORDS: Extraction of Zn^{2+} Ion, Solvent Extraction Method, Onium System