SOME OBSERVATIONS ON THE EXTRACTION OF ZINC WITH 3-METHYL-1-PHENYL-4-TRIFLUOROACETYL-PYRAZOLIN-5-ONE

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Extraction of zinc with 3-methyl-1-phenyl-4-trifluoroacetyl-pyrazolin-5-one /FAP/ into chloroform has been investigated as a function of pH. The extraction is masked with cyanide and citrate ions. The extracted zinc can be quantitatively stripped into appropriate aqueous solutions. The distribution data of other metal ions show that zinc can be separated from a number of elements. Few possible applications of such separations from analytical and radiochemical point of view have been suggested.

INTRODUCTION

Beta-diketones have stimulated the interest of many investigators and have been used for the extraction of various metal ions. The extraction potentials of 3-methyl-1-phenyl-4-trifluoroacetyl-pyrazolin-5-one /FAP/, a heterocyclic beta-diketone, have been tested in this labora-
tory and the extraction of gold\textsuperscript{1}, cobalt\textsuperscript{2}, gallium\textsuperscript{3} and copper\textsuperscript{4} with this reagent has already been reported. The extractants more often used for the extraction of zinc are chelating reagents which coordinate through oxygen or nitrogen\textsuperscript{5}.

Therefore, this study has further been extended to zinc and the results of our findings about zinc are described in this communication.

EXPERIMENTAL

All the chemicals and reagents used were either c.p or of AnalaR grade. FAP was synthesized and purified as described in the literature\textsuperscript{6}. The radiotracers employed were either prepared locally in PARR-1 research reactor of this institute or were procured commercially. In most cases, their radiochemical purity was checked by gamma spectrometry. The composition of buffer solutions used was given earlier\textsuperscript{4}.

1 ml of 0.1\% /w/v/ FAP solution in ethanol was added to a 4 ml buffer solution containing radiotracer of zinc or of a test element. Later, 4 ml chloroform was added and shaken for 5 min, a sufficient time for equilibration. After phase separation, activity of 1 ml of each phase was assayed. The distribution coefficient /D/ was determined in the usual manner\textsuperscript{2}. The distribution coefficient for rhodium was measured spectrophotometrically\textsuperscript{2} using the tin/II/ chloride method\textsuperscript{7}.

The instruments used for pH, radiometric and spectrophotometric measurements have been described in detail elsewhere\textsuperscript{2}. All the measurements were performed at room temperature /23\pm2 \textdegree C/.