

netricarboxylic acid and pyridine can be used as a new reagent for ferrous ion in paper chromatography.

One to 2 μ g. of ferrous or ferric ion were spotted on a filter paper strip for chromatography (Tôyô Roshi, No. 51, 51 A or No. 53). The paper strips were developed for about 2 hr. by the ascending method in a mixed solvent of 4N hydrochloric acid-*n*-butanol-acetic acid-acetone²⁾ (1:1:1:1). The solvent front moved about 15 cm. at $15 \pm 2^\circ\text{C}$. The paper strip was, then, dried and the following solution was sprayed on them: 0.1 g. of 2,4,6-pyridinetricarboxylic acid dissolved in 100 ml. of methanol, with the addition of 5 ml. of pyridine. Ferrous ion was detected as a purple spot which did not fade away within about 24 hr. After marking the ferrous ion spot, the paper strip was sprayed with 10% hydroxylamine hydrochloride in methanol. Ferric ion was reduced to ferrous ion and it was clearly detected as a purple band. The detection limit was about 0.1 μ g. for ferrous ion. The color reaction is specific for ferrous ion and it does not interfere with other ions.

TABLE I. R_f VALUES OF Fe^{2+} AND Fe^{3+} WITH THE DEVELOPER, 4N HCl-*n*-BUTANOL-ACETIC ACID-ACETONE (1:1:1:1)

| Filter paper | R_f | |
|--------------|------------------|------------------|
| | Fe^{2+} | Fe^{3+} |
| No. 51 | 0.18 | 0.54 |
| No. 51 A | 0.15 | 0.55 |
| No. 53 | 0.17 | 0.57 |

*A New Spraying Reagent for Ferrous Ion
in Paper Chromatography*

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Separation of ferrous and ferric ions from each other, and the detection of these ions are important from the practical point of view. In the previous paper¹⁾, a colorimetric method was described for the determination of iron by making use of its colored complex with 2,4,6-pyridinetricarboxylic acid.

2,4,6-Pyridinetricarboxylic acid gives a purple complex with ferrous ion and the absorbance of this colored complex increases considerably by the presence of a small amount of pyridine. Therefore, a mixed solution of 2,4,6-pyridi-

The results are given in Table I. The separation of ferrous and ferric ions from each other in the mixed solvent gave satisfactory results. Other solvent mixtures were studied, but the results were unsatisfactory in the separation of ferric ion from ferrous ion. This new reagent is much sensitive and more convenient than any other reagents²⁾ like ammonia or cyanides used frequently in paper chromatography.

Further work is in progress and the results will be published later.

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