

بسم الله الرحمن الرحيم





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جامعة عين شمس

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Spectrophotometric determination of some metal ions using chromone azo dyes

A Thesis presented

To

Faculty of science

Cairo university

By

Abdel Rahman Mohammed Ahmed Younes

B. Sc., M. Sc.

For

The Degree of

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(Analytical Chemistry)

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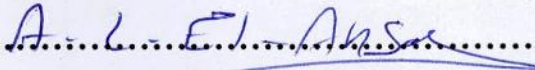
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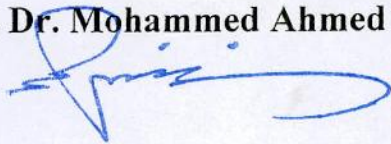
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Abstract

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Title of thesis: Spectrophotometric determination of some metal ions using chromone azo dyes

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The present work presents a study of the absorption spectra of the prepared chromone azo dyes under investigation in different organic solvents of various polarities as ethanol, 1-propanol, acetone, dioxane and dimethylformamide and the data are correlated with the solvent parameters. The effects of the substitutions on the acid dissociation constant of the studied ligands were examined by spectral measurements. New spectrophotometric methods for the quantitative determination of some metal ions such as copper, zinc, vanadium, cobalt, molybdenum and iron by chelation with chromone azo dyes were studied. The optimum conditions for the color formation and the stoichiometry of the reaction leading to chelation have been studied spectrophotometrically. A spectrophotometric method for determination of the above mentioned cations is presented. The proposed method is applied for the colorimetric determination of these metal ions in real samples. A first derivative spectrophotometric method for simultaneous determination of binary mixtures containing a pair of the cations: cobalt and copper; molybdenum and copper using chromone azo dyes is presented.

Key words: chromone, azo dye, copper, zinc, vanadium, cobalt, molybdenum and iron.

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