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شبكة المعلومات الجامعية

بِسْمِ اللَّهِ الرَّحْمَنِ الرَّحِيمِ



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شبكة المعلومات الجامعية



شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



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شبكة المعلومات الجامعية

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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بالرسالة صفحات

لم ترد بالأصل



"EFFECT OF SOME INHIBITORS
IN THE BLEACHING OF
CHEMICAL PULPS"

THESIS

Submitted for The Ph.D. Degree (Chemistry)

By

MAGED FEKRY MAHMOUD AL-AHWANY

(B.Sc. "Honors" 1986)

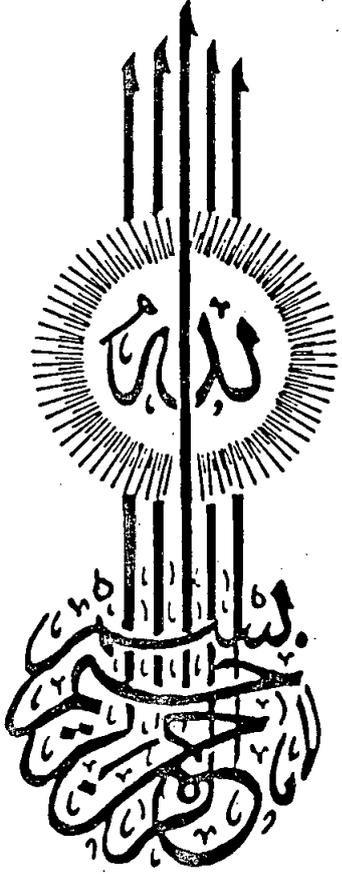
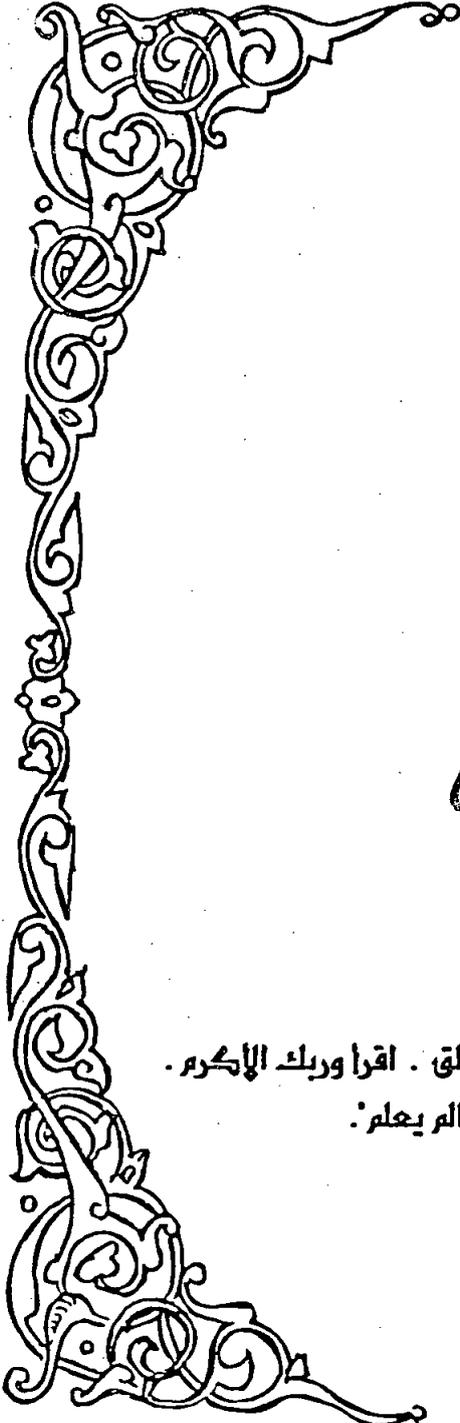
(M.SC. 1991)

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FACULTY OF SCIENCE
ZAGAZIG UNIVERSITY

1997



'بسم الله الرحمن الرحيم'

'اقرأ باسم ربك الذي خلق . خلق الإنسان من علق . اقرأ وربك الأكرم .
الذي علم بالقلم . علم الإنسان ما لم يعلم.'

'صدق الله العظيم'

حرفهات

ACKNOWLEDGEMENT

The author wishes to express his deep appreciation and gratitude to:

Prof. Dr. M. Amine Abou-State, Professor of Applied Organic Chemistry for suggesting the subjects investigated, supervision and helpful discussions.

Dr. Ahmed M. EL-Masry, Assistant Professor and **Dr. Alaa M. EL-Torky**, Lecturer, for guidance, help and advice.



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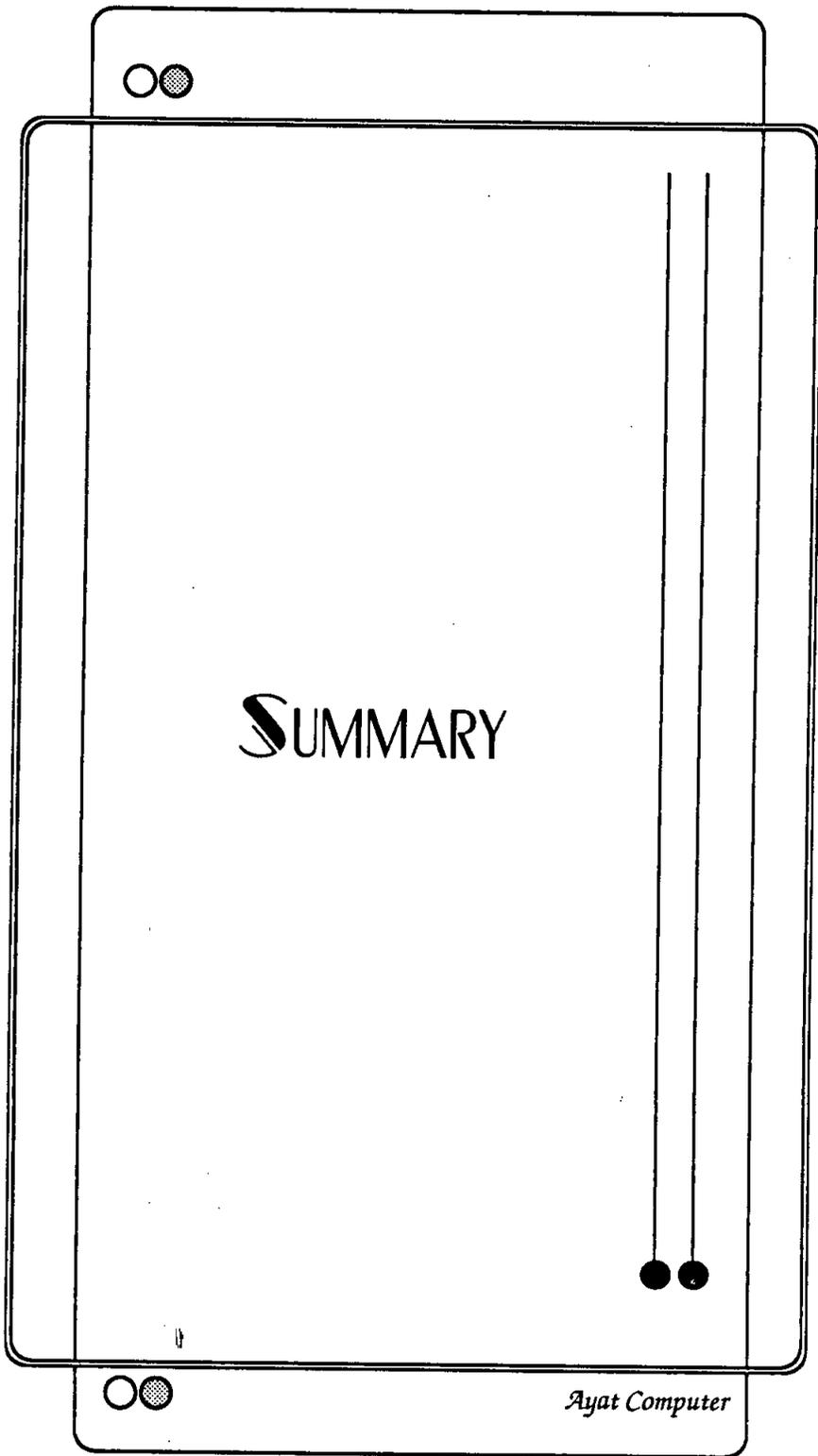
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SUMMARY

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Summary

Many studies have been carried out on the effects of some additives, particularly N-containing compounds, which were added during the chlorination and hypochlorite stages of bleaching wood pulp.

No studies seem to have been carried out on the effects of additives during the second alkali extraction stage of CEH bleaching of dissolving pulps from agricultural residues.

The aim of the present investigation was to study the effects of aromatic amines, namely, aniline, p-toluidine and p-nitroaniline when added during the alkaline extraction stage on the yield, the chemical characteristics, the fine structure, the chemical reactivity (xanthation) and the viscose filterability.

In the second part of this work, two alkali soluble aromatic amines were used, namely anthranilic and sulphanilic acid. They were applied during bleaching and their effects on the yield, chemical properties, fine structure, chemical reactivity (xanthation) and viscose filterability were studied.

Also, the effects of p-cresol, p-nitrophenol and pyrogallol as additives in the second step of CEH bleaching were investigated. The results were compared with those obtained before with phenol.⁽²¹⁹⁾

The presence of higher amounts of the lower molecular weight carbohydrates in the low-alpha pulp, resulted in lower D.P. and higher degree of swelling in alkali. However, it impaired of the reactivity towards xanthation as well as the viscose filterability. This was probably due to the presence of higher amounts of the less reactive degraded carbohydrates. The presence of aniline during the second step of bleaching, stabilized the carbohydrates in the pulp as indicated by the decrease in yield and D.P. The alpha-cellulose increased with aniline concentration up to a certain limit then showed a slight decrease.

The latter can be accounted for by increased stabilization of the shorter-chain carbohydrates at the higher concentration. Aniline also favoured the chemical reactivity and the viscose filterability of the low-alpha pulp. In case of the high-alpha pulp, aniline, p-toluidine and p-nitroaniline resulted in favourable effects on the yield, α -cellulose, accessibility of the fine structure, chemical reactivity and viscose filterability.

A comparison between the best pulps obtained with aniline, p-toluidine and p-nitroaniline showed that, in case of the low-alpha pulp, the role of the amine was to attack the positively polarized carbonyl carbons. The presence of the electron-donating methyl group in p-toluidine renders the lone pair on nitrogen more available for nucleophilic attack and was reflected in better pulp properties.

On the other hand, the electron-withdrawing nitro group in