بسم الله الرحمن الرحيم

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تم رفع هذه الرسالة بواسطة / مني مغربي أحمد

بقسم التوثيق الإلكتروني بمركز الشبكات وتكنولوجيا المعلومات دون أدنى مسئولية عن محتوى هذه الرسالة.

ملاحظات: لا يوجد

Ain Shams University
Faculty of Science
Department of Chemistry

Comparative study in using natural and commercial organic coagulants for the treatment of petroleum refining unit waste water

A Thesis Submitted for Ph.D. Degree in Chemistry

By

Gamal Mahmoud Mohammed El-Kareish
(M. Sc. 1994)

Supervised by

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(2022)

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Aknowledgment

The author wishes to refer his deep appreciation

and gratitudeTo

Prof. Dr. Wael S. I. Abou El-Magd, Professor of Organic Chemistry,Chemistry Department, Faculty of Science, Ain Shams University.

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Dr. Ashraf Ibrahem Shehata Hafez, General Manager of Chemistry. Egyptian Electricity Holding Company

For

Suggesting the subject, interpreting the results, their

valuable scientificguidance, help, and encouragement

during the work of this thesis.

LIST OF ABBREVIATIONS

CTAC	3-Chloro2-hydroxy Triethyl AmmoniumChloride
BOD	Biochemical oxygen demand.
COD	Chemical oxygen demand.
PAM	polyacrylamide.
TDS	Total dissolved solid.
TGA	Thermal gravimetric analysis.
FT-IR	Fourier-transform infrared spectroscopy.
NOM	Natural Organic Matter.
STPs	sewage treatment plants.
EPA	Environmental Protection Agency.
APAM	Anionic polymers.
PDADMAC	Poly(di-allyl –di-methyl-ammonium chloride)
ECH/DMA	Epichlorohydrin/dimethylamine polymers.
CPAMs	Cationic Polyacrylamides
AFEX™	Ammonia fiber expansion.
CMC	Carboxymethyl cellulose.
DMF	Dimethylformamide.
NTU	Nephelometry turbidity Unit.
TOC	Total organic carbon.
EDX	Energy dispersive x-ray.
MCL	Maximum contaminant level

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This study focused on exploring the possibility and evaluation of some modified natural compounds to be applied in the refinery waste water treatment as a key measure of waste water clarification processes.

The thesis was designed to investigate the following:

i. Synthesis of modified natural compound from rice starch.

ii. Using jar test as simulation of clarification processes which considered the most applicable way to permit the comparison of various chemicals combination for determining the optimum chemical program to establish the correct order of addition.

iii. The products obtained by dry state process are characterized by FT-IR spectroscopy, elemental analysis (C, H, N and S) and Thermal gravimetric analysis TGA. Total dissolved solid (TDS), turbidity and conductivity were also measured.

iv. Studying the efficiencies of cationic rice starch as a coagulant in water treatment in comparison with ferric chloride and some of commercial flocculants.

Abstract