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شبكة المعلومات الجامعية التوثيق الالكتروني والميكروفيلم



جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

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Ain Shams University



Faculty of Science

**Preparation of eco-friendly nanocomposites from
nano metal oxides with conducting polymer for
enhancing catalytic degradation of petroleum
pollutants from industrial wastewater**

A Thesis submitted for

The Award of the Ph.D. Degree of Science in Chemistry

By

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ACKNOWLEDGMENT

First and foremost, I would like to thank "Allah" for giving me the opportunity and the strength to accomplish this work.

"My sincere gratitude is devoted to all those who taught me chemistry and still do".

Great thanks, appreciation, and gratitude to

Prof. Dr. Salah Abo-Elenien (May God bless his soul)

Professor of physical chemistry, Faculty of science, Ain-Shams University, for his supervision, pleasant guidance and encouragement throughout the registration and beginning of my work.

Prof. Dr. Mostafa Mohamed Khalil,

Professor of inorganic chemistry, Faculty of science, Ain-Shams University, for his supervision, pleasant guidance and encouragement throughout this work.

Prof. Dr. Abdel-Aziz Mostafa El-Fadly (May God bless his soul)

Professor of organic chemistry, analysis and evaluation Department, Egyptian Petroleum Research Institute, for his close supervision, continuous encouragement during all my work life after graduation, valuable advices and inspiration throughout Master degree and planning for my PhD work.

Prof. Dr. Fatma Zakaria,

Professor of organic chemistry, Department of Petrochemical, Egyptian Petroleum Research Institute, for her sound advices, helpful discussion, valuable remarks, pleasant

guidance, encouragement throughout this work and my personal life.

Dr. Amr Hussien Mady, associated professor of organic chemistry, Department of Petrochemical, Egyptian Petroleum Research Institute. This thesis would not have completed without his enormous help and worthy experience whenever I was in need, he was always behind me.

Prof. Dr. Yong-Ill Lee,

Professor of analytical chemistry, Department of chemistry, Changwon National University, South Korea, for her sound advices, helpful discussion, valuable remarks, pleasant guidance, encouragement throughout this work and kind hosting during my stay in Korea.

I would like to thank *my colleagues* and all members of petrochemicals Department, *EPRI*, for providing the different facilities to carry out the practical work.

No amount of thanks will be adequate for all the efforts provided by my family, my mother, my brothers and sister for their pleasant guidance, encouragement and support.

And finally, I want to thank my truly amazing husband, my best friend and closest advisor and my sweet kids Mahmoud and Malika.

Asmaa Ahmed Roshdy Mitwally

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ARABIC SUMMARY	

LIST OF ABRIVATIONS

PAHs	Polycyclic aromatic hydrocarbons.
AOP	Advanced Oxidation Process.
TOC	Total Organic Carbon.
NPs	Nitrophenols.
MCLs	Maximum contaminant levels.
EPA	US Environmental Protection Agency.
pH_{pzc}	zero-point charge
PNP	P-nitrophenol.
CB	Conduction band.
VB	Valence band.
RGO	Reduced graphene oxide.
MB	Methylene blue.
PANI	Polyaniline.
PPy	Polypyrrole.
PTh	Polythiophene.
FTIR	Fourier Transform Infrared.
GPC	Gel Permeation Chromatography.
TEM	Transmission electron microscopy.
CPs	Conjugated polymers.
GCE	Glassy carbon electrode.
gC₃N₄	Graphitic carbon nitride.

HOMO	Highest occupied molecular orbital.
MOF	Metal-organic framework.
PCPs	Porous coordination polymers.
ZIFs	Zeolitic imidazolate frameworks.
LUMO	lowest unoccupied molecular orbital
LMCT	ligand-to- metal charge transfer.
NH₂-BDC	2-Aminoterephthalic acid.
XRD	X-ray powder diffraction.
FE-SEM	Field emission scanning electron microscope.
EDS	Energy-dispersive spectra.
SBET	Brunauer-Emmett-Teller specific surface area.
UV-Vis	UV-Visible spectrophotometer.
PL	Photoluminescence
k	Pseudo-first-order kinetics constant.
pKa	Dissociation constant.
E_a	Activation energy.
R	Gas constant.
h⁺	Hole.
e⁻	Photo-generated electron.

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