Perpustakaan
Kolej Universiti Sains Dan Teknologi Malaysia (KUSTEM)

1100038690

LP 22 FST 7 2005

1100038690

The synthesis and characterization of conducting polyanilane using various dopants in aqueous phase.

Kolej Universiti Sains & Teknologi Malaysia Perpustakaan

PERPUSTAKAAN
KOLEJ UNIVERSITI SAINS & TEKNOLOGI MALAYSIA
21030 KUALA TERENGGANU

1100038690

Lihat sebelah

HAK MILIK
PERPUSTAKAAN KUSTEM

4

THE SYNTHESIS AND CHARACTERIZATION OF CONDUCTING POLYANILINE USING VARIOUS DOPANTS IN AQUEOUS PHASE.

By

Siti Hajar Binti Junaidi

Research Report submitted in partial fulfillment of

the requirements for the degree of

Bachelor of Science (Analytical Chemistry and Environmental)

Department of Chemistry Sciences

Faculty of Science and Technology

COLLEGE UNIVERSITY OF SCIENCE AND TECHNOLOGY MALAYSIA

2005

1100038690

KUSTEM

JABATAN SAINS KIMIA
FAKULTI SAINS DAN TEKNOLOGI
KOLEJ UNIVERSITI SAINS DAN TEKNOLOGI MALAYSIA

PENGAKUAN DAN PENGESAHAN LAPORAN PROJEK PENYELIDIKAN I DAN II

Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk:

The synthesis and characterization of conducting polyaniline using various dopants in aqueous phase oleh **Siti Hajar Binti Junaidi**, No. Matrik **UK6970** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Kimia sebagai memenuhi sebahagian daripada keperluan memperolehi ijazah Sarjana Muda Sains **(Kimia Analisis dan Persekitaran)**, Fakulti Sains dan Teknologi, Kolej Universiti Sains dan Teknologi Malaysia.

Disahkan oleh :

.....

Penyelia Utama

Nama : Pn. Faizatul Shimal Binti Mehamod

Cop Rasmi : *Faizatul Shimal bt. Mehamod*
Lecturer
Department of Chemistry Science
Faculty of Science and Technology
University College of Science and Technology Malaysia
21030 Kuala Terengganu.

Tarikh : 14/4/05

.....

Ketua Jabatan Sains Kimia

Nama : Prof. Madya Dr. Ku Halim bin Ku Bulat

Cop Rasmi : **PROF. MADYA DR. KU HALIM KU BULAT**
Ketua
Jabatan Sains Kimia
Fakulti Sains dan Teknologi
Kolej Universiti Sains dan Teknologi Malaysia
21030 Kuala Terengganu.
Tel: 09-6683257

Tarikh : 14 April 2005

AKNOWLEDGEMENT

In the name of Allah, the most precious and the most merciful. Thanks to Allah that I have completed this research project in the given period of a year starting from early of March 2004 to the end of March 2005. It gives me great pleasure to thank the dedicated efforts of many good people around me that made this report a reality. My gratitude goes most to my supervisor lecturer, Pn. Faizatul Shimal Mehamod, who checks every single word and every figure that went into this report. The time she spends on me for discussing the matter, monitoring the research project flow and all her comment and advices, would be always clinging on my mind.

My particular thanks go to all KUSTEM's laboratory staffs and assistants especially, En. Asrul, En. Jamaluddin, En Tarmizi, and Pn. Hasbah, Cik Norie, En. Ruzeman, En. Maswadi, and En. Muzaffiq, for setting up the apparatus for synthesis, chemical needed, instrumentation, solved the instrumentation technical problem.

I'm greatly indebted to my colleagues whose suggestions and encouragement were invaluable throughout the research project done. A heart full thanks also goes to my family whom nurtured to be patience for keeping my pressure down during my hard time. I will remember this most cherish moment throughout my lifetime.

LIST OF CONTENTS

Perpustakaan
Kolej Universiti Sains Dan Teknologi Malaysia (KUSTEM)

LIST OF TABLE

LIST OF FIGURE

LIST OF ABBREVIATIONS

ABBREVIATIONS	DESCRIPTION
PAni	Polyaniline
AMPSA	2-Acrylamido-2-methehy-1-propanesulfonic acid
CSA	10- camphorsulfonic acid
DBSA	Dodecyl benzene sulfonic acid
NMP	1-methyl-2-pyrrolidinone
FTIR	Fourier Transform Infrared Spectrometers
UV-Vis	Ultraviolet-Visible spectroscopy
TGA	Thermogravimetry Analysis

APPENDIXES LIST

ABSTRACT

THE SYNTHESIS AND CHARACTERIZATION OF POLYANILINE USING VARIOUS DOPANTS IN THE AQUEOUS PHASE.

This research aim to determine the conductivity effect on various dopant agents, for synthesis of polyaniline. The dopants used were 10-camphorsulfonic acid (CSA), and Dodecyl benzene sulfonic acid (DBSA). While the surfactantused were, 2-Acrylamido-2-metheyl-1-propanesulfonic acid (AMPSA) as an ionic surfactant, and Triton-X 100 as anionic surfactant. Aniline will be oxidized to polyaniline using ammonium peroxydisulfate as an oxidizing agent in the present of toluene. Each polymer sample will be characterized using TGA, UV- VIS spectroscopy, and FTIR while the analyses of the conductivity material have be performed by electric conductivity measurement, which is galvanometer.

ABSTRAK

SINTESIS DAN PENCIRIAN POLYANILINA DENGAN MENGGUNAKAN BEBERAPA DOPAN DIDALAM FASA AKUEUS.

Kajian ini bertujuan untuk melihat kesan konduktiviti beberapa pendopan keatas PAni. Dopan yang dikaji adalah 10- kamphorsulfonik asid (CSA), dan Dodekil benzene sulfonik asid (DBSA). Manakala Surfaktan digunakan terdiri daripada 2-akrilamido-2-metil-1propanasulfonik asid (APMSA) sebagai surfaktan ionik, dan Triton X 100 sebagai surfaktan tidak ionik. Anilina akan dioksidakan kepada polianilina dengan menggunakan ammonium perokdisulfat sebagai agen pengoksidaan dengan kehadiran toulena. Setiap sampel polimer dicirikan dengan menggunakan TGA, UV- VIS spec. , dan FTIR . Sementara analisis untuk bahan konduktiviti dilaksanakan dengan menggunakan pengukuran konduktiviti elektrik, iaitu galvanometer.