



AHMAD SALIHIN

**BIN
SAMSUDIN**

870826-04-5125

“My strengths are my attitude that I like to take challenges that I CAN do it, my way of thinking that I take both success and failure in a balanced manner.”

EXECUTIVE SUMMARY

Ahmad Salihin bin Samsudin was born on 26 August 1987 in Melaka, Malaysia.

He received his primary education at Sekolah Rendah Kebangsaan Bukit China, Melaka and continued his secondary education at Malacca High School. He attended Pahang Matriculation College for a year and then enrolled his first degree in Physics, Electronic and Instrumentation at Universiti Malaysia Terengganu (UMT) in 2010. In 2012, he managed to convert his M.Sc to Ph.D and also finished his Ph.D study in 2014. He is the recipient of the highest UMT scholarship – Biasiswa Tuanku Canselor (BTC) UMT, to pursue his Ph.D. at Universiti Malaysia Terengganu, Malaysia. He is also presently working as research assistant in the field of Solid State Ionics.



During his time as postgraduate student, he has participated in many research programmes organized nationally and internationally. He demonstrated outstanding skills and experience in the field of solid state ionics specialising in electrochemistry and physical sciences. He also aiming at excellence in the working field through hard work, dedication, and honesty at challenging environment. To date, Ahmad Salihin Samsudin manage to authored over 18 peer-reviewed indexed articles, 2 articles in magazines and 13 articles in proceeding. In addition, Ahmad Salihin Samsudin has been awarded for his research contribution with double-gold-special award from British Invention Show, Motorola Innovation Award, 1 gold in the International Technology Expo (ITEX) and bronze medals in the International Higher Learning Innovation Expo & Conference (PECIPTA) and BioMalaysia Innovationn competition.

Moreover, Ahmad Salihin Samsudin also has been awarded for young researcher supporting program and invited to present his research work in the Solid State Ionic-19 Conference held in Kyoto, Japan. He also presented in 7th IUPAC International Conference on Novel Materials And Their Synthesis (NMS-VII) & 21st International Symposium on Fine Chemistry and Funtional Polymers (FCFP-XXI) held in Shanghai, China, 3rd International Conference of Functional Materials and Devices (ICFMD) and International Conference on Engineering, Applied Sciences and Technology (ICEAST) held in Bangkok, Thailand.

AHMAD SALIHIN BIN SAMSUDIN



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Marital status : Single

*“Aiming at excellence
in the working field
through hard work,
dedication, and
honesty at challenging
environment”*

SKILLS

Language:

Malay and English

Computer softwares:

Microsoft Office,
Chemdraw Ultra 11.0,
OriginLab 8, Microsoft
C++, NI Multisim,
Mathlab, Adobe
Photoshop.

Others:

Advanced diver

ACADEMIC QUALIFICATION

Ph.D. In Physics

2012 – 2014

Universiti Malaysia Terengganu

Development Of Carboxymethyl Cellulose Based Proton Conducting
Biopolymer Electrolytes And Its Application In Solid-State Proton Battery

B.App.Sc. (Electronics and Instrumentational Physics) CGPA: 3.09

2007 – 2010

Universiti Malaysia Terengganu

Preparation And Characterization Of Carboxymethyl-Cellulose Biopolymer
Electrolytes Doped Ammonium Bromide

Matriculation (Physical Sciences)

2005 2006

Pahang Matriculation College, Pahang.

PROFESSIONAL SERVICES & MEMBERSHIPS

1. **Editorial Board Member** of Greener Journal of Physics and Natural Sciences, Greener Journal of Physical Sciences, Greener Journal of Chemical Sciences and Greener Journal of Sciences, Engineering and Technology Research.
2. **Board of Advisory/ Reviewers** of International Journal of Applied Research & Studies, iJARS
3. American Association of International Researchers (AAIR), Natural Sciences Member-AAIR Membership ID: NS-AAIR-1002 (International).
4. International Society for Solid State Ionics Member (International).

AREA OF EXPERTISE

Solid State Ionics, Polymeric Materials, Applied Sciences, Physics and Chemistry.

RESEARCHERID : C-6849-2014

SCOPUS ID : 54893526100

PREVIOUS APPOINTMENT

1. Demonstrator, co-supervision and tutor, School Of Fundamental Science, Universiti Malaysia Terengganu. (SEPTEMBER 2011– to date).
 - 1) Demonstrator and tutorial class:
 - a. FBN 4401 – Materials Processing Technology
 - b. FIZ 4105 – Seminar & Research Method
 - c. SFZ 4302 – Design of The Electronic Equipment
 - 2) Final Year Project Co-Supervision (B.Sc. Student).

Batch:

 - a. 2010/2011.
 - b. 2011/2012.
 - c. 2012/2013.
 - d. 2013/2014
2. Research Assistant FRGS Grant Vot. 59319, Investigation Of Biopolymer Based Carboxymethyl Cellulose As Potential Advanced Materials For Solid Bio-Polymer Electrolytes: Part Ii- Structural, Optical, Thermal And Biodegradable Properties, (April 2014 – to date).

Scope of work:

- 1) Investigation of biopolymer film on mechanical and biodegradable properties.

Equipment:

- a. Thermo Gravimetric Analysis (TGA)
- b. Scanning Electron Microscope (SEM)
- c. Tensile Strength
- d. Differential Scanning Calorimetric (DSC)
- e. Ultraviolet Spectroscopy

3. Research Assistant FRGS Grant Vot. 59185, Conductivity, Electrical And Ionic Transport Study Of Copolymer Based Carboxymethylcellulose As A Potential Advanced Material For Solid Bio-Polymer Electrolytes, (April 2010 – March 2012).

Scope of work:

- 1) Preparation and characterization of Carboxymethylcellulose Biopolymer Electrolytes.

Equipment:

- a. X-ray Diffraction (XRD)
- b. Fourier Transform Infrared (FTIR) Spectroscopy
- c. Autolab (Electrochemical Impedance Spectroscopy)
- d. HIOKI LCR Meter (Electrical Impedance Spectroscopy)
- e. Linear Sweep Voltmammety Technique (LSV)

AWARDS AND HONORS

NAME OF AWARDS	TITLE	AWARD AUTHORITY	AWARD LEVEL	YEAR
Research Foundation	Young Researcher Supporting Program	International Society For Solid State Ionics (ISSI) And Solid State Ionics-19 Committee (ISI-19, Japan)	International	2013
Research Award	Special Award	British Invention Show (Bis) 2012	International	2012
Research Award	Gold Medallist	British Invention Show (Bis) 2012	International	2012
Research Foundation	Phd Scholarship	Tuanku Chancellor Scholarship	University	2012
Research Award	Motorola Innovation Award	Novel Research And Innovation Competition (Nric) 2012	International	2012
Research Award	Gold Medallist	International Technology Expo (Itex) 2012	International	2012
Research Award	Gold Medallist	Innovation@Umt 2012	University	2012
Research Award	Silver Medallist	Scitech 2012	University	2012
Research Award	Bronze Medallist	International Conference And Expositions On Inventions Of Higher Learning (Pecipta) 2011	International	2011
Research Award	Bronze Medallist	Biomalaysia 2011	International	2011

PEER-REVIEWED ARTICLES IN JOURNALS

NO.	TITLE OF ARTICLE	AUTHOR	YEAR	JOURNAL NAME	VOL.	PAGES
1.	Biopolymer Materials Based Carboxymethyl Cellulose as a Proton Conducting Biopolymer Electrolyte for Application in Rechargeable Proton Battery	A.S. Samsudin, H.M. Lai and M.I.N. Isa	2014	Electrochimica Acta	138	1-13
2.	Contribution of Methyl Substituent on the Conductivity Properties and Behaviour of CMC-Alkoxy Thiourea Polymer Electrolyte	Saidatul Radhiah Ghazali, K. KuBulat, M.I.N. Isa, A. S. Samsudin & Wan M. Khairul	2014	Molecular Crystals and Liquid Crystals	-	In press
3.	Synthesis and Characterization of Nitro Benzoyl Thiourea Derivatives as Potential Conductive Thin Film	Khalisah Asilah Mokhtar, Wan M. Khairul, M.I.N. Isa, A.S. Samsudin, Hasyiya Karimah Adli, Saidatul Radhiah Ghazali and Adibah Izzati Daud.	2014	Phosphorus, Sulfur and Silicon	189	640-651
4.	Conductive Biodegradable Film of <i>N</i> -octyloxyphenyl- <i>N'</i> -(4-methylbenzoyl) thiourea	Wan M. Khairul, M.I.N. Isa, A.S. Samsudin, Hasyiya Karimah	2014	Bulletin of Materials Sciences	37	357-369

		Adli and Saidatul Radhiah Ghazali				
5.	Conductivity and transport properties study of plasticized carboxymethyl cellulose (CMC) based solid biopolymer electrolytes (SBE)	A.S Samsudin and M.I.N. Isa	2014	Advanced Materials Research	856	118-122
6.	Ionic conduction behaviour of CMC based green polymer electrolytes	A.S Samsudin and M.I.N. Isa	2013	Advanced Materials Research	802	194-198
7.	Investigation of a biodegradable polymer electrolytes based on carboxy methylcellulose and its potential application in solid-state batteries	A.S. Samsudin, J.P. Tham and M.I.N. Isa	2013	Advanced Materials Research	802	99-102
8.	Natural polymer electrolytes system based on Sago: Structural and transport behavior characteristic	A.S. Samsudin, M.I.A. Aziz, and M.I.N. Isa	2012	International Journal of Polymer Analysis and Characterization	17	600-607
9.	Characterization of carboxy methylcellulose doped with DTAB as a new types of biopolymer electrolytes	A.S. Samsudin and M.I.N. Isa.	2012	Bulletin of Materials Sciences	35 (5)	1-9
10.	Ionic Conductivity Study on Hydroxyethyl Cellulose (HEC) doped with NH ₄ Br Based Biopolymer Electrolytes	Y.K. Sit, A.S. Samsudin & M.I.N. Isa	2012	Research Journal of Recent Sciences	1 (11)	16-21
11.	Ionic conductivity and relaxation process in CMC-G.A solid biopolymer electrolytes.	M.F. Othman, A.S. Samsudin & M.I.N. Isa	2012	Journal of Current Engineering Research	2 (4)	6-10
12.	Ion Conducting Mechanism Of Carboxy Methylcellulose Doped With Ionic Dopant Salicylic Acid Based Solid Polymer Electrolytes	M.L.H. Rozali, A.S. Samsudin and M.I.N. Isa	2012	Int. J. of Applied Science & Technology	2 (4)	113-121
13.	Characterization on the potential of carboxy methylcellulose for application as proton conducting biopolymer electrolytes	A.S. Samsudin, Khairul, W.M. and M.I.N. Isa.	2012	Journal of Non-Crystalline Solids	358	1104-1112
14.	Structural and ionic transport study on CMC doped NH ₄ Br based a new types of biopolymer electrolytes	A.S. Samsudin and M.I.N. Isa.	2012	Journal of Applied Sciences.	12	174-179
15.	Structural And Electrical Properties Of Carboxy Methyl Cellulose-Dodecyltrimethyl	A.S. Samsudin and M.I.N. Isa.	2012	International Journal of Polymeric	61	30-40

	Ammonium Bromide Based Biopolymer Electrolytes System			Materials		
16.	New types of biopolymer electrolytes: Ionic conductivity study on CMC doped with NH ₄ Br	A.S. Samsudin and M.I.N Isa.	2011	Journal of Current Engineering Research.	1	7-11
17.	Investigation on the potential of proton conducting biopolymer electrolytes based methyl cellulose - glycolic acid.	A. S. Samsudin, E. C. H. Kuan & M. I. N. Isa.	2011	International Journal of Polymer Analysis and Characterization.	16	447-485
18.	Conduction mechanism of enhanced CMC–NH ₄ Br biopolymer electrolytes	A.S. Samsudin and M.I.N Isa.	2014	Advanced Materials Reserarch	-	In press
19.	Ionic conduction mechanism on biopolymer electrolytes based carboxymethyl cellulose doped NH ₄ Br	A.S. Samsudin and M.I.N. Isa.	2014	Materials Science Poland	ISI & Scopus	Under review
20.	Study of Ionic Conduction Mechanism Based on Carboxymethyl Cellulose Biopolymer Electrolytes	A.S. Samsudin and M.I.N. Isa	2014	Journal of The Korean Physical Society	ISI & Scopus	Under review

PROCEEDINGS

NO.	TITLE OF ARTICLE	AUTHOR	YEAR	CONFERENCE	LOCATION	PAGES
1.	Preparation and performance analysis of CMC-NH ₄ Br based biopolymer electrolyte for electrochemical cell application	A.S. Samsudin, H.M. Lai and M.I.N. Isa	2013	Proceeding in The 19th International Conference on Solid State Ionics (SSI-19)	Kyoto, Japan	85
2.	Conduction Mechanism on Plasticized CMC Based Polymer Electrolytes	A.S Samsudin and M.I.N. Isa	2013	Proceeding in Universiti Malaysia Terengganu 12th International Annual Symposium (UMTAS) 2013	Terengganu, Malaysia	765
3.	Ionic conduction behaviour of CMC based green polymer electrolytes	A.S Samsudin and M.I.N. Isa	2013	Proceeding in International Conference of Engineering, Applied Sciences and Technology (ICEAST) 2013	Bangkok, Thailand	232
4.	Investigation of a biodegradable polymer electrolyte based on	A.S. Samsudin, J.J.P. Tham	2013	Proceeding in International Conference of Engineering, Applied	Bangkok, Thailand	130

	carboxy methylcellulose and its potential application in solid-state batteries	and M.I.N. Isa		Sciences and Technology (ICEAST) 2013		
5.	The Novel Cellulose Based Solid Biopolymer Electrolytes Towards to Development of Electrochemical Energy: Ionic Conductivity, Structural and Transport Properties Study	A.S Samsudin and M.I.N. Isa	2013	Proceeding in Seminar Hasil Penyelidikan Sektor Pengajian Tinggi ke-3. EDC	Kedah, Malaysia	211
6.	Conduction mechanism of enhanced CMC-NH ₄ Br biopolymer electrolytes	A.S Samsudin and M.I.N. Isa	2013	Proceeding in 27th Regional Conference on Solid State Science and Technology (RCSST27)	Sabah, Malaysia	85
7.	Ionic Conductivity Studies On Carboxy Methylcellulose Based Biodegradable Polymer Electrolyte And Its Application In Electrochemical Cell	A.S. Samsudin, J.J.P. Tham and M.I.N. Isa	2012	Proceeding in Advanced Materials Conference (AMC 2012)	Langkawi, Malaysia	20
8.	Protonic Battery based on a CMC doped with Dodecyltrimethyl ammonium bromide based bio-polymer electrolytes	A.S. Samsudin, J.J.P. Tham and M.I.N. Isa	2013	Proceeding in AKEPT 2nd Global Annual Young Researchers Conference & Exhibition 2012	Melaka, Malaysia	65
9.	Electrical conduction in biopolymer electrolytes: temperature dependence mechanism	A.S Samsudin and M.I.N. Isa	2011	Proceeding in AYRC X3-1st AKEPT Young Researcher Conference (AYRC X3)	Kuala Lumpur, Malaysia	903
10.	The Electrical and Ionic Conductivity on Carboxy Methylcellulose –NH ₄ Br Based Biopolymer Electrolytes System	A.S Samsudin and M.I.N. Isa	2011	Proceeding in 7th IUPAC International Conference on Novel Materials and Synthesis (NMS-VII) & 21st International Symposium on Fine Chemistry and Functional Polymers (FCFP-XXI)	Shanghai, China	31
11.	Methyl Cellulose –Glycolic Acid System: Study on the Potential as Proton	A.S. Samsudin, E. C. H. Kuan	2011	Proceeding in Universiti Malaysia Terengganu 10th International Annual	Terengganu, Malaysia	375

	Conducting Bio-Polymer Electrolytes	and M.I.N. Isa		Symposium (UMTAS) 2011		
12.	Ionic Transport Study of CMC Based Proton Conducting Biopolymer Membrane	A.S Samsudin and M.I.N. Isa	2010	Proceeding in 3rd International Conference of Functional Materials and Devices (ICFMD-3)	Terengganu, Malaysia	120
13.	Electrical properties of CMC-DTAB based Biopolymer Electrolytes System	A.S Samsudin and M.I.N. Isa	2010	Proceeding in 23rd Symposium Kimia Analisis Malaysia (SKAM-23) 2010	Terengganu, Malaysia	131

OTHER PUBLICATION

NO.	TITLE OF ARTICLE	AUTHOR	YEAR	PUBLICATION NAME/ TYPE	VOL.	PAGES
1.	Green Materials Based On Carboxy Methylcellulose-Ammonium Bromide As Solid Bio-Polymer Electrolytes (GREEN CELL)	Mohd Ikmar Nizam B. Mohamad Isa and Ahmad Salihin B. Samsudin	2011	Scitech Discovery	Edition 01/2011-Volume 3 (ISSN 2180-2025)	8-10
2.	Investigation of Carboxy Methylcellulose As Polymer Electrolytes Towards Green Technology	Ahmad Salihin B. Samsudin and Mohd Ikmar Nizam Bin Mohamad Isa	2011	Scitech Discovery	Edition 02/2011-Volume 3 (ISSN 2180-2025)	12-14

RESEARCH PROJECT GRANTS

PROJECT NO.	PROJECT TITLE	ROLE	YEAR	SOURCE OF FUND	STATUS
PRGS/1/2014 /TK06/UMT/0 2/1	DEVELOPMENT AND PERFORMANCE OF CAMBRO BEST: A NOVEL CELLULOSE BASED BIO-ELECTROLYTES RECHARGEABLE PROTON BATTERY	Co-Researcher	2014-2015	Ministry of Education Malaysia (MOE)	On-going
FRGS 59319	Investigation Of Biopolymer Based Carboxymethyl Cellulose As Potential Advanced Materials For Solid Bio-Polymer Electrolytes: Part II- Structural, Optical, Thermal And Biodegradable Properties	Co-Researcher	2014-2015	Ministry of Education Malaysia (MOE)	On-going
FRGS 59185	Conductivity, Electrical and Ionic Transport Study of Ciopolymer Based Carboxylmethylcellulose As a Potential Advanced Material For Solid Bio-polymer Electrolytes	Co-Researcher	2010-2012	Ministry of High Education Malaysia (MOHE)	Completed (Awarded best FRGS project)

REFEREES

Assoc. Prof. Dr. Mohd Ikmar Nizam B. Hj. Mohamad Isa
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DECLARATION

I hereby declare that all the details furnished above are true to the best of my knowledge and belief.

AHMAD SALIHIN BIN SAMSUDIN

Date: 10 July 2014