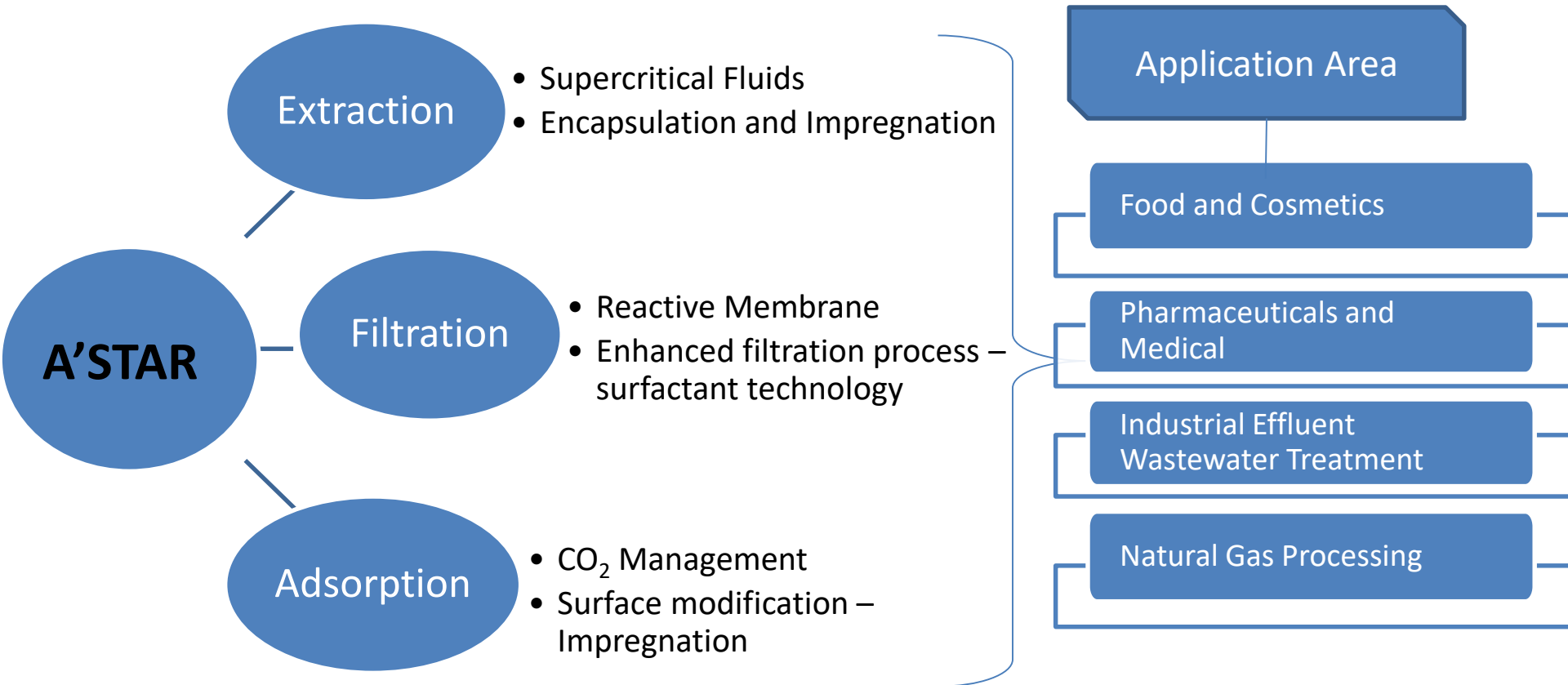








**Advanced Separation Technology and Research  
(A'STAR)  
Frontier Materials and Industrial Application  
( FMIA)**

**Faculty Of Chemical Engineering**  
Universiti Teknologi MARA



# Background - A'STAR



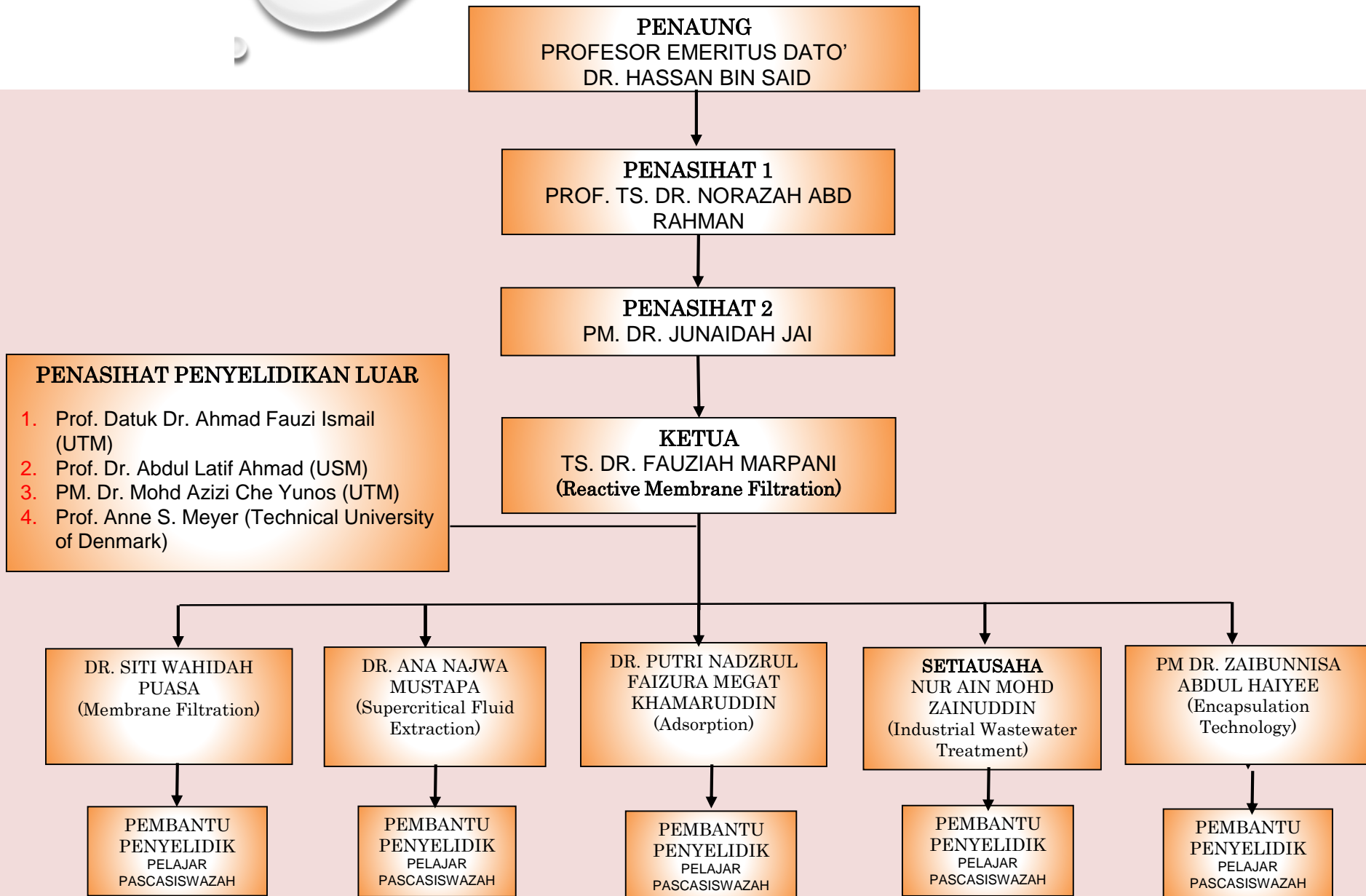
# Background of Members

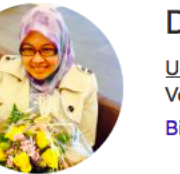
	Name of Leader & Members	Faculty & Staff No.	Qualification	Area of Expertise
	Ts Dr Fauziah Marpani	Faculty of Chemical Engineering	PhD (Technical University of Denmark)	Biocatalysis, reactive membrane filtration, particle technology
	PM Dr Zaibunnisa Abdul Haiyee	Faculty of Applied Science	PhD	Extraction and encapsulation technology
	Dr Siti Wahidah Puasa	Faculty of Chemical Engineering	PhD (Universiti Teknologi MARA)	Membrane technology, industrial wastewater treatment, surfactant technology
	Dr Ana Najwa Mustapa	Faculty of Chemical Engineering	PhD (Universidad de Valladolid, Spain)	Supercritical fluid extraction, materials, nanoparticles

# Background of Members

	Name of Leader & Members	Faculty & Staff No.	Qualification	Area of Expertise
	Dr Putri Nadzrul Faizura Megat Khamaruddin	Faculty of Chemical Engineering	PhD (Universiti Teknologi Petronas)	Wastewater treatment, advanced oxidation processes, adsorption, CO <sub>2</sub> management
	Nurain Mohd Zainuddin	Faculty of Chemical Engineering	MSc (Universiti Teknologi MARA)	Supercritical fluid extraction, industrial wastewater treatment

# Organizational Chart





## Dr Ana Najwa Mustapa

Lecturer, [Universiti Teknologi MARA \(UiTM\)](#)  
Verified email at [salam.uitm.edu.my](mailto:salam.uitm.edu.my)

[Supercritical Fluids](#) [Pharmaceuticals](#) [Natural Products](#) [Medicinal Plants](#) [Microwave](#)

[FOLLOW](#)

[GET MY OWN PROFILE](#)

TITLE	CITED BY	YEAR
-------	----------	------

Cited by

	All	Since 2013
Citations	197	166
h-index	7	6
i10-index	6	5



## Puasa, S.W

Senior Lecturer  
Verified email at [salam.uitm.edu.my](mailto:salam.uitm.edu.my)

[Membrane separation](#) [textile wastewater](#) [surfactant colloids](#) [coagulation flocculation](#)  
[micellar enhanced ultrafiltra...](#)

[FOLLOW](#)

[GET MY OWN PROFILE](#)

TITLE	CITED BY	YEAR
-------	----------	------

Cited by

	All	Since 2013
Citations	265	175
h-index	4	4
i10-index	3	3



## Dr. Zaibunnisa Abdul Haiyee

Associate Professor, [Universiti Teknologi MARA](#)  
Verified email at [salam.uitm.edu.my](mailto:salam.uitm.edu.my)

[Supercritical Fluid Extraction](#) [Pressurised Liquid Extracti...](#)

[FOLLOW](#)

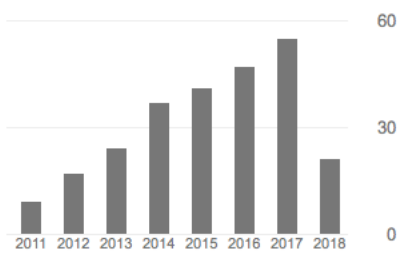
[GET MY OWN PROFILE](#)

TITLE	CITED BY	YEAR
-------	----------	------

Cited by

	All	Since 2013
Citations	266	225
h-index	9	9
i10-index	9	9

TITLE	CITED BY	YEAR
<a href="#">An experimental design approach for the extraction of volatile compounds from turmeric leaves (<i>Curcuma domestica</i>) using Pressurized Liquid Extraction (PLE)</a> AH Zaibunnisa, H Norasikin, S Mamot, S. Osman Journal of Food Science and Technology 42, 233-238	63	2009
<a href="#">Characterization of cyclodextrin complexes with turmeric oleoresin</a> ZA Haiyee, N Saim, M Said, RM Illias, WAW Mustapha, O Hassan Food Chemistry 114 (2), 459-465	47	2009
<a href="#">Optimization of cocoa beans roasting process using response surface methodology based on concentration of pyrazine and acrylamide</a> DMH Farah, M Zaibunnisa, AH International Food Research Journal 19 (4), 1355-1359	23	2012
<a href="#">Optimization of roasting conditions for high-quality Arabica coffee.</a> KYK Madihah, AH Zaibunnisa, S Norashikin, O Rozita, J Misnawi International Food Research Journal 20 (4)	15	2013



Co-authors

TITLE

TITLE

Directing filtration to optimiz  
J Luo, F Marpani, R Brites, L Fred  
Journal of Membrane Science 451

Enzymatic conversion of C  
Quantitative comparison of  
F Marpani, M Pinelo, AS Meyer  
Biochemical engineering journal 11

In Situ Formation of a Bioca  
Polarization  
F Marpani, J Luo, RV Mateiu, AS M  
ACS applied materials & interfaces

Kinetics based reaction opti  
methanol with synchronous  
F Marpani, Z Sárossy, M Pinelo, A  
Biotechnology and bioengineering

Cold Flow Binary Fluidization  
System

Dr F  
Univers  
Verified  
Biocata

# Niche Area and Relevance of RIG

- **Integration** of sustainable advanced separation technologies to enhance product development and chemical process with **energy savings** and **environmental friendly features**.
- Discover **new coupled processes as novel tools** to **solve industrial problems** and **human health issues**.
- Emphasizing on **process design study** including **fundamental and applied research** in various applications.

# Facilities



Supercritical Fluid Extractor

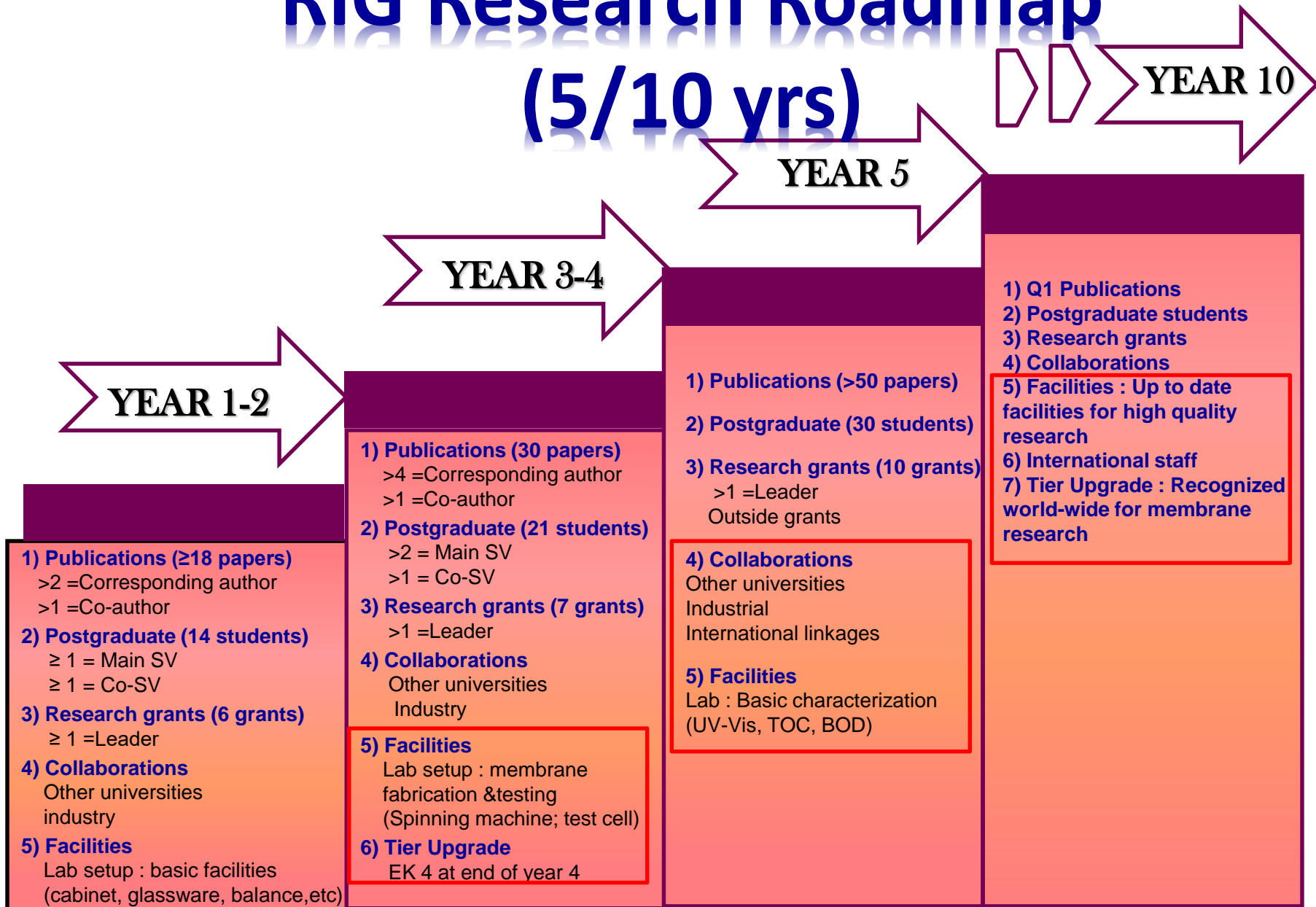


Membrane Filtration Rig





# RIG Research Roadmap (5/10 yrs)



# Research Grants

BIL	NAMA PENYELIDIK UTAMA	NAMA PROJEK	JENIS	AGENSI PEMBIAYA	STATUS	TARIKH MULA	TARIKH TAMAT	JUMLAH PEMBIAYAAN (RM)
1	Dr Fauziah Marpani	Synergistic mechanism of biocatalytic graphene-oxide based polymer membrane filtration of water micropollutants	FRGS	MOE	Aktif	15/8/2017	14/8/2019	<b>86,284</b>
		Alcohol dehydrogenase (ADH) immobilization on polymer membrane for reactive separation of methanol	LESTARI	UITM	Aktif	1/7/2017	30/6/2019	<b>20,000</b>
2	Dr Siti Wahidah Puasa	Electrostatic and hydrophobic interaction between oil-heavy metal mixture and plant-based surfactant in surfactant-enhanced oil recovery (SEOR)	FRGS	MOE	Aktif	15/8/2017	14/8/2019	<b>87,450</b>
		Cleavable surfactant-impregnated activated carbon for enhanced adsorptive removal of reactive dye from an aqueous solution	LESTARI	UITM	Aktif	1/7/2016	30/6/2018	<b>20,000</b>

# Research Grants

BIL	NAMA PENYELIDIK UTAMA	NAMA PROJEK	JENIS	AGENSI PEMBIAYA	STATUS	TARIKH MULA	TARIKH TAMAT	JUMLAH PEMBIAYAAN (RM)
3	Dr Ana Najwa Mustapa	Synthesis of hybrid beta-cyclodextrin/alginate aerogels via chemical cross-linking for drug delivery system	LESTARI	UITM	Aktif	1/7/2017	30/6/2019	<b>20,000</b>
		Development of natural superabsorbent hybrid alginate/soy protein aerogels as hemostatic wound dressing with antimicrobial activity by supercritical fluids	BESTARI PERDANA	UITM	Aktif	1/7/2018	30/6/2020	<b>30,000</b>
4	Dr Putri Nadzrul Faizura Megat Khamarrudin	Study on the mechanisms of crude oil removal from sand using ultrasonic energy	BESTARI PERDANA	UITM	Aktif	1/1/2018	31/12/2019	<b>35,000</b>
5	PM Dr Zaibunnisa Abdul Haiyee	Solid state fermentation of edible seaweed for the enhancement and bioavailability of bioactive compounds	BESTRAI PERDANA	UITM	Aktif	2016	2018	<b>35,000</b>
							<b>JUMLAH</b>	<b>RM333,734</b>

# Postgraduates (Research)

BI L	NAMA PENYELIA	STATUS PENYELIA AN	NAMA PELAJAR	NO MATRIK S	TAHUN KEMASU KAN	TAHUN TAMAT PENGAJI AN	JENIS PENGAJI AN	STATUS PENGAJI AN	JENIS PEMBIAYA AN
1	Dr Fauziah Marpani	Penyelia utama	Farazatul Harnani Ismail	2017328399	2018	2020	MSc	Aktif	FRGS
		Penyelia bersama	Nurul Amal Nadhirah	2016818728	2016	2020	PhD	Aktif	-
2	Dr Siti Wahidah Puasa	Penyelia utama	Nur Amalina Mohd Sulong	2017812156	2017	2019	MSc	Aktif	FRGS
3	Dr Ana Najwa Mustapa	Penyelia utama	Nurhaslina Che Radzi	2017157979	2018	2023	PhD	Aktif	-
		Penyelia Utama	Siti Nur Shazana Othman	2017341371	2018	2020	MSc	Aktif	-
		Penyelia bersama	Izni Atikah Abd Hamid	2015258686	2015	2019	PhD	Aktif	-
4	Dr Putri Nadzrul Faizura Megat Khamarrudin	Penyelia utama	Zuraidah Ibrahim	2014432106	2014	2018	MSc	Aktif	-
		Penyelia utama	Nur Afiqah Anuwar	2017921883	2018	2020	MSc	Aktif	-
		Penyelia bersama	Mizan Qistina Saharuddin	2016891662	2016	2019	MSc	Aktif	-
		Penyelia bersama	Nur Amalina Mohd Sulong	2017812156	2017	2020	MSc	Aktif	-

BIL	NAMA PENYELIA	STATUS PENYELIAAN	NAMA PELAJAR	NO MATRIKS	TAHUN KEMASUKAN	TAHUN TAMAT PENGAJIAN	JENIS PENGAJIAN	STATUS PENGAJIAN	JENIS PEMBIAYAAN
5	PM Dr Zaibunnisa Abdul Haiyee	Penyelia utama	Norakma Mohd Nor	2013923213	2014	2019	PhD	Aktif	MyBrain15
		Penyelia utama	Siti Hahfsah Mohd Shah	2012194991	2013	2018	Masters	Aktif	-
		Penyelia utama	Nor Izzatul Adyani Yahya	2012235776	2012	2018	Masters	Aktif	-
		Penyelia utama	Fauziah Che In	2010952159	2010	2018	Masters	Aktif	-
		Penyelia utama	Nurul Adilla M. Loai	2010988999	2010	2018	Masters	Aktif	-
		Penyelia bersama	Maryam 'Afifah Abdul Latif	2013880672	2013	2018	Masters	Aktif	-
		Penyelia Bersama	Amirah Sa'aidah Nafisah Othman	2012142813	2012		Masters	Aktif	-
		Penyelia bersama	Muhammad Basir Mongudal	2011649812	2011		Masters	Aktif	-
		Penyelia bersama	Abdullah Abd. Razak	2011847134	2011		Masters	Aktif	-
		Penyelia bersama	Nur Syuhada Amir	2013674518	2013		PhD	Aktif	-
		Penyelia bersama	Nurul Izzah Mohd Ariffin	2013629322	2013		PhD	Aktif	-
		Penyelia bersama	Rohaya Ibrahim	2014272548	2014		Masters	Aktif	-
		Penyelia bersama	Norhana Abdullah	2015626976	2015		Masters	Aktif	-
		Penyelia bersama	Nur Farah Wahida Mohd Nawi	2014952497	2014		Masters	Aktif	-

# Q1 Publications

AUTHOR	TITTLE	JOURNAL/ VOL/PAGE	YEAR	IMPACT FACTOR
<b>Fauziah Marpani</b> , Zsuzsa Sárossy, Manuel Pinelo, Anne S Meyer	Kinetics based reaction optimization of enzyme catalyzed reduction of formaldehyde to methanol with synchronous cofactor regeneration	<a href="#">Biotechnology and bioengineering</a> (114), 2762-2770	2017	3.952
<b>Fauziah Marpani</b> , Manuel Pinelo, Anne S Meyer	Enzymatic conversion of CO <sub>2</sub> to CH <sub>3</sub> OH via reverse dehydrogenase cascade biocatalysis: Quantitative comparison of efficiencies of immobilized enzyme systems	<a href="#">Biochemical engineering journal</a> (127), 217-228	2017	3.226
Joana Maria Lopes, <b>Ana Najwa Mustapa</b> , Milica Pantić, María Dolores Bermejo, Ángel Martín, Zoran Novak, Željko Knez, María José Cocero	Preparation of cellulose aerogels from ionic liquid solutions for supercritical impregnation of phytol	<a href="#">The Journal of Supercritical Fluids</a> (130), 17-22	2017	3.122
<b>AN Mustapa</b> , A Martin, LM Sanz-Moral, M Rueda, MJ Cocero	Impregnation of medicinal plant phytochemical compounds into silica and alginate aerogels	The journal of supercritical fluids (116), 251-263	2016	3.122
<b>Fauziah Marpani</b> , Jianquan Luo, Ramona Valentina Mateiu, Anne S Meyer, Manuel Pinelo	In situ formation of a biocatalytic alginate membrane by enhanced concentration polarization	<a href="#">ACS applied materials &amp; interfaces</a> (7), 17682-17691	2015	8.097
<b>Ana N Mustapa</b> , Ángel Martín, Rafael B Mato, María José Cocero	Extraction of phytocompounds from the medicinal plant <i>Clinacanthus nutans</i> Lindau by microwave-assisted extraction and supercritical carbon dioxide extraction	<a href="#">Industrial Crops and Products</a> (74), 83-94	2015	3.849

# Q1 Publications

AUTHOR	TITTLE	JOURNAL/ VOL/PAGE	YEAR	IMPACT FACTOR
<b>AN Mustapa</b> , A Martin, JR Gallego, Rafael B Mato, MJ Cocero	Microwave-assisted extraction of polyphenols from Clinacanthus nutans Lindau medicinal plant: Energy perspective and kinetics modeling	<a href="#">Chemical Engineering and Processing: Process Intensification</a> (97), 66-74	2015	2.826
Jianquan Luo, <b>Fauziah Marpani</b> , Rita Brites, Lisbeth Frederiksen, Anne S Meyer, Gunnar Jonsson, Manuel Pinelo	Directing filtration to optimize enzyme immobilization in reactive membranes	<a href="#">Journal of Membrane Science</a> (459), 1-11	2014	6.578

# Other Publications

AUTHOR	TITTLE	JOURNAL/VOL/PAGE	YEAR
Norizzah A Rashid, <b>Zaibunnisa A Haiyee</b> , Hosam-Eddin M El-Garhi , Safaa AM El-Aidie	Quality improvement of spreadable processed cheese made from ultrafiltered milk retentates using commercial starter cultures	Food Science and Technology International (article in press)	2018
<b>Nur Ain Zainuddin</b> , Norhuda Ismail, Sitinoor Adeib Ismail, <b>Ana Najwa Mustapa</b> , Siti Halimah Sarijo	Rapid expansion supercritical solution (RESS) carbon dioxide as an environmental friendly method for ginger rhizome solid oil particles formation	International Journal of Chemical, Molecular, Nuclear, Materials and Metallurgical Engineering (9), 1523-1528	2017
YN Shariffa, U Uthumporn, AA Karim, <b>AH Zaibunnisa</b>	Hydrolysis of native and annealed tapioca and sweet potato starches at sub-gelatinization temperature using a mixture of amyolytic enzymes	International Food Research Journal (24)	2017
R Ibrahim, <b>ZA Haiyee</b> , SNHM Latip	The antifeedant activity of essential oil from <i>Cymbopogon citratus</i> and <i>Piper bitele</i> for controlling golden apple snail, <i>Pomacea canaliculata</i>	Journal of Fundamental and Applied Sciences (9), 39-49	2017
Siti Hafsa Mohd Shah, <b>Zaibunnisa Abdul Haiyee</b> , Khudzir Hj Ismail, Nooraain Hashim, Wan Iryani, Wan Ismail	Quality of turmeric extracts obtained from supercritical carbon dioxide (sc-co <sub>2</sub> ) extraction and ultrasonic assisted extraction (UAE)	Symposium on Innovation and Creativity (2), 1-4	2017
U Uthumporn, NI Nadiah, WY Koh, <b>AH Zaibunnisa</b> , L Azwan	Effect of microwave heating on corn flour and rice flour in water suspension.	International Food Research Journal (23)	2016
Wan Iryani Wan Ismail Siti Hafsa Mohd Shah, <b>Zaibunnisa Abdul Haiyee</b> , Khudzir Ismail, Nooraain Hashim	Optimization of curcuma longa l. Rhizome supercritical carbon dioxide extraction (SC-CO <sub>2</sub> ) by response surface methodology (RSM)	Jurnal Teknologi (78), 87-92	2016
<b>Siti Wahidah Puasa</b> , Ruzitah Mohd Salleh, Sharifah Aishah Syed Abdul Kadir	Competitive binding interaction between anionic reactive dyes and cleavable surfactant micelles in micellar-enhanced microfiltration	Procedia engineering (148), 516-523	2016



# Other Publications

AUTHOR	TITLE	JOURNAL/VOL/PAGE	YEAR
CI Fauziah, <b>AH Zaibunnisa</b> , H Osman, WM Wan Aida	Physicochemical analysis of cholesterol-reduced egg yolk powder and its application in mayonnaise	International Food Research Journal (23)	2016
Raseetha Siva, Noratikah Rajikin, <b>Zaibunnisa Abdul Haiyee</b> , Wan Iryani Wan Ismail	Assessment of antioxidant activity and total phenolic content from green coffee Robusta Sp. beans	Malaysian Journal of Analytical Sciences (20), 1059-1065	2016
<b>Zaibunnisa Abdul Haiyee</b> , Nor Izzatul Adyani Yahya, Norizzah Abd Rashid, Dzulkify Mat Hashim	Characterisation of catfish (clarias batrachus) oil: $\beta$ -cyclodextrin inclusion complex	Malaysian Journal of Analytical Sciences (20), 838-843	2016
Fauziah Che In, <b>Zaibunnisa Abdul Haiyee</b> , Osman Hassan, Wan Aida Wan Mustapha	Nutritional composition and colour analysis of cholesterol-reduced egg yolk powder	Malaysian Journal of Analytical Sciences (20), 820-828	2016
Nurul Adilla M Loai, Halimahton Zahrah Mohamed Som, <b>Zaibunnisa Abdul Haiyee</b>	Effect of edible lipid-chitosan film forming dispersion on postharvest life of guava stored at chilled temperature	Malaysian Journal of Analytical Sciences (20), 618-625	2016
<b>Nur Ain Zainuddin</b> , Norhuda Ismail, Sitinoor Adeib Ismail, Siti Halimah Sarijo	Solid oil particles formation of ginger rhizome using rapid expansion supercritical carbon dioxide solution (RESS) as an environmentally friendly method.	Advanced Materials Research (1113)	2015
<b>Nur Ain Zainuddin</b> , Norhuda Ismail, Sitinoor Adeib Ismail, Siti Halimah Sarijo	Rapid expansion of supercritical fluids for particle formation from pharmaceutical compounds: A review	Advanced Materials Research (1113)	2015
<b>Nur Ain Zainuddin</b> , Norhuda Ismail, Sitinoor Adeib Ismail, Ana Najwa Mustapa, Siti Halimah Sarijo	Artificial neural network modeling ginger rhizome extracted using rapid expansion Super-Critical Solution (RESS) Method	Journal of Advances in Technology and Engineering Research (1), 1-14	2015