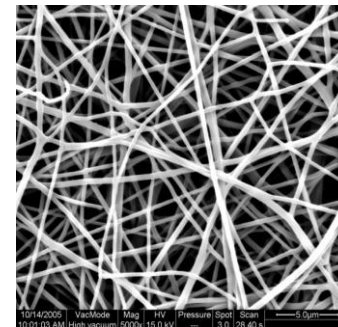
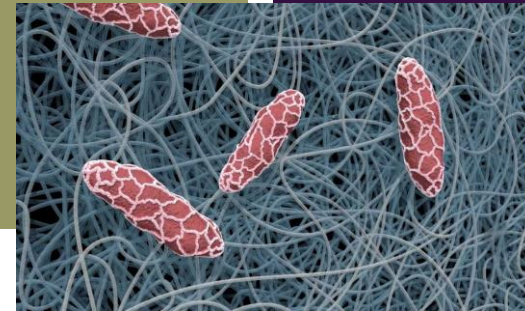
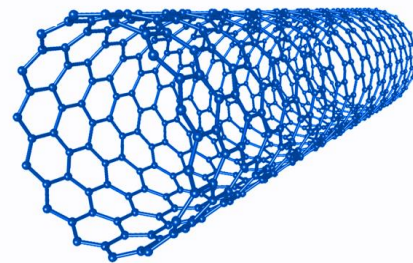




UNIVERSITI
TEKNOLOGI
MARA

NANOCOMPOSITE MATERIALS AND INDUSTRIAL APPLICATIONS



TIER 5 – RESEARCH INITIATIVE GROUP (RIG)



Name of RIG	:	NANOCOMPOSITE MATERIALS AND INDUSTRIAL APPLICATIONS RESEARCH GROUP
Registration Code	:	CoRe81/T5/2015(15)/FMIA(11)
Tier	:	5
Leader	:	DR MOHD NAZARUDIN ZAKARIA
CoRe	:	Frontier Materials and Industrial Application (FMIA)
Registered Faculty	:	FACULTY OF APPLIED SCIENCES
Registration date (Senate Approval)	:	18 JUN 2015
UiTM Niche Area	:	INDUSTRY 4.0
RIG Niche Area	:	Nanocomposite , nanomaterials, Synthesis of nanomaterial & nanofibre, Wood composites., Polymeric Materials, Materials Science, Advanced Materials, Bacteria cellulose , Material Processing & instrumentation , manufacturing products.

BACKGROUND OF MEMBERS

BIL	NAMA	KELAYAKAN AKADEMIK	FAKULTI	BIDANG KEPAKARAN
1	DR NOOR NAJMI BONNIA	PhD	FSG	Polymeric materials, nanocomposite, biosynthesis nanosilver
2	PM DR SITI NORASMAH SURIP	PhD	FSG	Bio-composites, nano materials.
3	DR MOHD NAZARUDIN ZAKARIA	PhD	FSG	Natural fibre composites, bacterial cellulose
4	PM .DR.MANSUR AHMAD	PhD	FSG	Bio-composites, Natural fibre composites
5	PM DR.MIMI AZLINA ABU BAKAR	PhD	FKM	Bio-composites, nano materials.



ACHIEVEMENT(2015-2017)

PENCAPAIAN INNOVATION	2015	2016	2017 NAJMI
Master Degree – Enrolled/On-Going	9	9	13
Master Degree - Graduated	1	2	5
PhD – Enrolled/On-Going	8	10	6
PhD – Graduated	1		2
No. of research grants (Leader)	3	3	4
Total value of research grants (RM)	264000	92000	L= 92k M= 338,500k
Total publication (Indexed Journals)	13	11	14
Total publication (Non-indexed Journals)	1	1	6(indexed proceeding)
IPR (Patent, Industrial design, Copyright)	1	1	2
INNOVATION AWARD	2 GOLD	3 GOLD	0

OTHER ACHIEVEMENT FMMI (2015-2017)

ACHIEVEMENT	2015	2016	2017 najmi
NO. OF CONSULTANCY/ INDUSTRIAL LINKAGE/ COLLABORATION (National & International)	2	2	5
NO. OF MEMBERSHIP OF PROFESSIONAL BODIES AND ASSOCIATIONS (National & International)	7	7	9
NO. OF SPECIAL INVITATION/ APPOINTMENT/ EXPERTISE (National & International) incl. Keynote Speaker, Invited speaker, Thesis examiner, Judge, Reviewer, Panel, etc.)	22 (reviewer,judge)	29 (reviewer,judge, invited speaker)	Invited:1 Judge:2 journal reviewer: 25 thesis examiner: 8
NO. OF AWARDS/ RECOGNITION AND APPRECIATION (National & International)	3 (iidex)	4 (iidex,festasi)	4 sriic

RESEARCH HIGHLIGHT

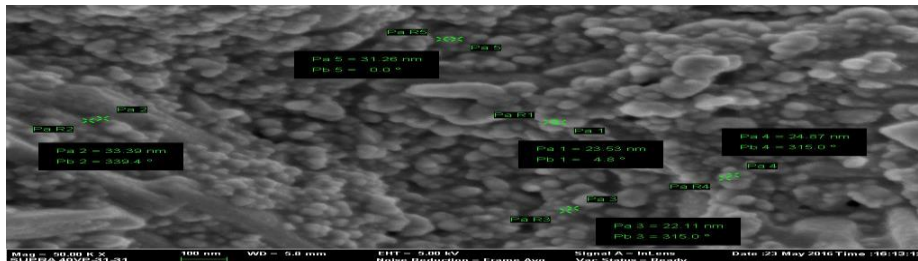
- ❑ Nanocomposite
- ❑ Nanomaterials
- ❑ Synthesis of nanomaterial & nanofibre
- ❑ Wood composites.
- ❑ Thermoset Polymer
- ❑ Materials Science
- ❑ Advanced Materials
- ❑ Bacteria cellulose
- ❑ Silver Nanoparticles

CONSULTATION SERVICES

- ❑ Polymeric Materials
- ❑ Composite Materials
- ❑ Wood composite
- ❑ ESCR testing /degradation behaviour of polymer composites based product.
- ❑ Mechanical, Thermal, Physical, Morphological properties of nanocomposite materials.
- ❑ Biomedical

Synthesis of Silver Nanoparticle (Bonnia N.N)

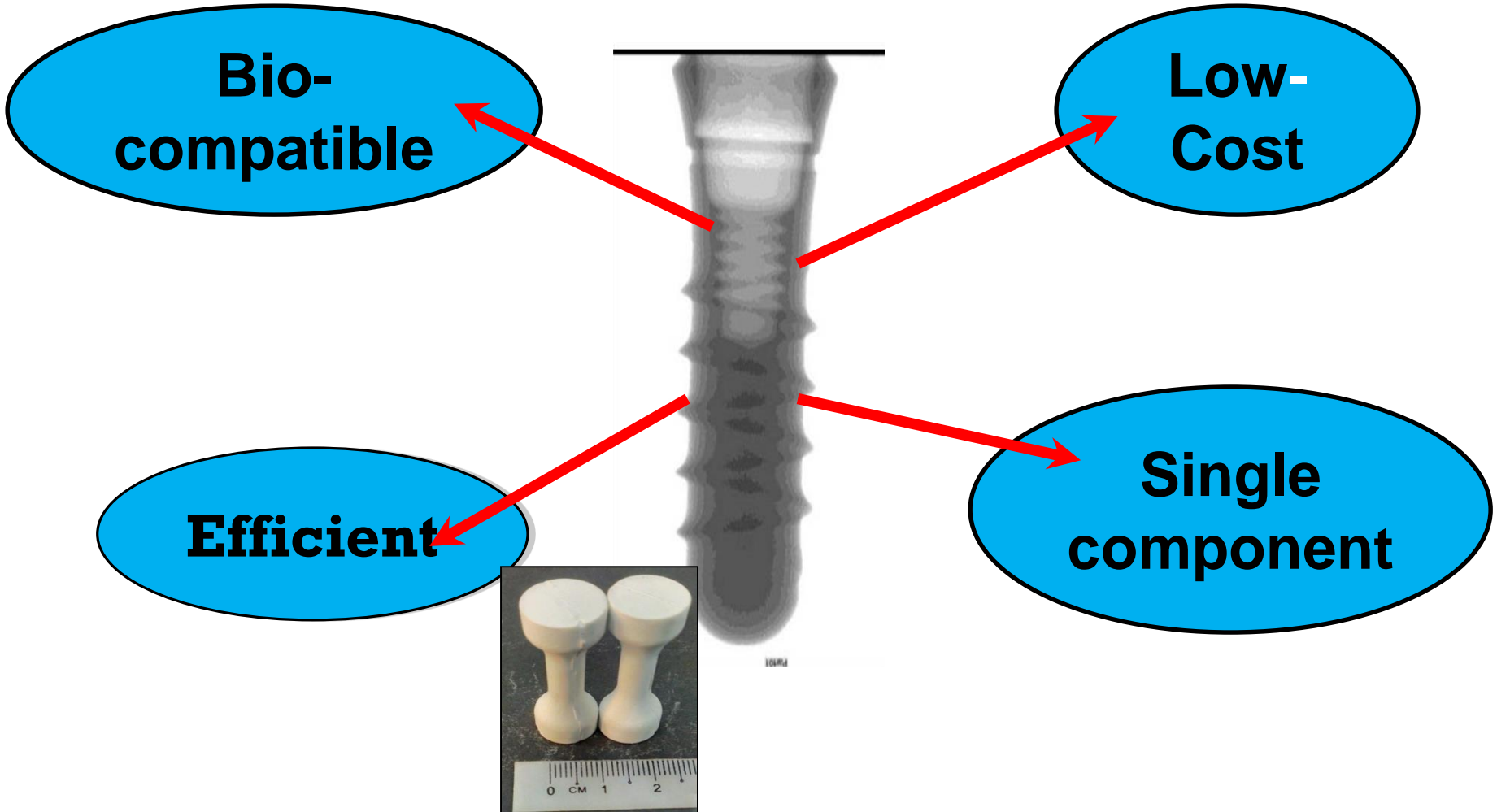
- Phase 1
 - Preparation of ALE
 - Optimization studies
- Phase 2
 - Synthesis of Ag NPs using alternatives reducing agents
- Phase 3
 - Characterization
 - Catalytic degradation study(water treatment application)



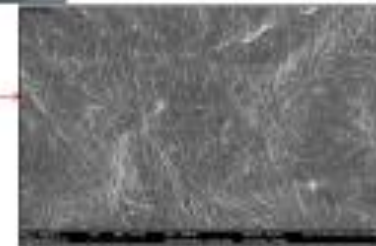
+ Rubber Toughened Composite (Bonnia N.N)



+Biocompatible Dental Screw (Assoc .Dr Mimi Azlina)



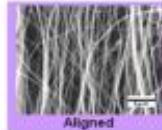
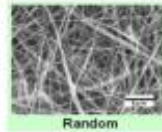
Bacterial nanocellulose membrane (Lead By:Dr Mohd Nazarudin Zakaria)



Electrospun nanofibers from Pineapple leaves fiber

(lead By: Dr Siti Norasmah Surip)

This study focus on producing nanosize of PALF/PET by using electrospinning machine and analyse its physical, thermal and chemical properties.



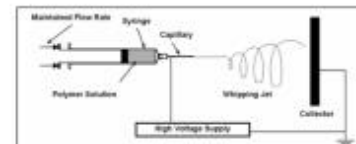
Electrospinning Of Pineapple Leaf Nanofibers (PALF)

(Lead by: Assoc. Prof. Dr Siti Norasmah Surip)

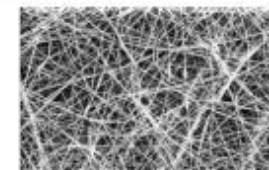
Electrospinning

Electrospinning technique provides a straightforward and highly versatile method for processing polymer solutions into continuous fibers with diameters ranging from a few micrometers to a few nanometers (R.P.O Santos et al., 2015).

In this study, mats of nanofibers were prepared via electrospinning method. Lignocellulosic pineapple leaf fibers (PALF) were dissolved in trifluoroacetic acid (TFA) solutions. Optimum ratio of PALF were studied.



PARAMETERS	VALUE
Capillary tube	ID 1.00 mm OD 1.60 mm
Voltage	15-20 kV
Needle Diameter	0.45 mm
Distance	14-20 cm
Flow Rate	0.5-0.7 μl min ⁻¹



Electrospun fibers

Isolation of lignin from biomass and its utilization in industry (Lead by: Assoc Prof Dr Mansur Ahmad)

