LEADING THE WAY
KHALIFAH • AMANAH • IQRA' • RAHMATAN LIL ALAMIN

AN INTERNATIONAL AWARD-WINNING INSTITUTION FOR SUSTAINABILITY

1ST INTERNATIONAL CONFERENCE ON RIVER SUSTAINABILITY (ICRS)

IN CONJUNCTION WITH WORLD WATER DAY

WORKING TOGETHER FOR CLEANER RIVERS

zoom

Keynote | Presentations | Roundtable Discussion

7th - 8th MARCH 22

SAVE THE DATE

KEYNOTE SPEAKERS

PROF. DATO' SERI IR. PROF. DR. ZAINI UJANG
Secretary General, Ministry of Environment and Water, Malaysia

PROF. EMERITUS TAN SRI DATO' DZULKIFLI ABDUL RAZAK
Rector of the International Islamic University Malaysia

DR. TARIQ RANA
Assistant Director, Murray–Darling Basin Authority, Australia

DR. HIROKO SIBAKAWA
Assistant Professor, Faculty of Education Graduate School of Education, Okayama University Japan

SPEAKERS

DR. K. KALITHASAN
River Care Programme Manager Global Environment Center, Malaysia

DR JAMIE CHONG LI YEAN
Director, Asia Pacific Environmental Consultants (ASPEC)9, Malaysia

ASSOC. PROF. DR. ZAINAL ABIDIN BIN SANUSI
Director, Sejahtera Centre for Sustainability and Humanity International Islamic University Malaysia

MR. KENNEDY MICHAEL
FoSK TMR3 Founder

PROF. DR. HAMZA FAROOQ GABRIEL
Director Regional Centre for Water Technologies & Trans-Boundary Issues (RCWTTI)

ASSOCIATE PROFESSOR DR. ZEEDA FATIMAH MOHAMAD
UM Eco-Campus Leader (Water Management - Water Warriors) University of Malaya, Malaysia

PROF. DR. NAZRI BIN MOHD. YUSOF
Professor, Kulliyyah of Medicine International Islamic University Malaysia

DR. AZAIMA BINTI RAZALI
Assistant Professor, Kulliyyah of Science International Islamic University Malaysia

CONFERENCE CONCEPT THEME

- Water Resource Management
- Climate Change and Global Warming
- Biodiversity Conservation and River Protection
- Social Values and Community Engagement
- Industry and Economic Impact
- River Restoration
- River in Education System

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https://conference.iium.edu.my/icrs/

CONFERENCE TENTATIVE

DAY 1 - 7th MARCH 2022 | DAY 2 - 8th MARCH 2022

TIME	ACTIVITY
08:30 - 09:00	Attendance of the presenters / participants via ICRS 2022 virtual platform
09:00 - 09:30	ICRS'22 Opening Ceremony (Video Montage) Welcoming Remarks Opening Address by ICRS'22 Chairman **PROF. DR. MA'AN FAHMI RASHID AL-KHATIB**
09:30 - 10:30	**Keynote Speaker 1** **PROF. DATO' SERI IR. DR. ZAINI UJANG** (SECRETARY GENERAL, MINISTRY OF ENVIRONMENT AND WATER)
10:30 - 10:45	Photo Session via Virtual Platform Break
10:45 - 11:15	**Speaker 1** **DR. K. KALITHASAN** (MANAGER OF RIVER CARE PROGRAMME, GLOBAL ENVIRONMENT CENTRE, MALAYSIA)
11:15 - 11:45	**Speaker 2** **DR. IRINA SAFITRI ZEN** (INTERNATIONAL ISLAMIC UNIVERSITY MALAYSIA) **Articulating Primary Students Awareness Through Art In Educating River Sustainability**
11:45 - 12:30	**Keynote Speaker 2** **PROF. EMERITUS TAN SRI DATO' DZULKIFLI ABDUL RAZAK** (RECTOR OF IIUM) **River of Life - The Whole (Pandemic) Approach**
12:30 - 14:00	LUNCH BREAK
14:00 - 15:00	**Keynote Speaker 3** **DR. TARIQ RANA** (MURRAY–DARLING BASIN AUTHORITY, AUSTRALIA) **River Basin Governance and Maintaining Sustainability- Example from the Murray- Darling Basin Australia**
15:00 - 15:15	BREAK
15:15 - 15:45	**Speaker 3** **DR. JAMIE CHONG LI YEAN** (DIRECTOR, ASIA PACIFIC ENVIRONMENTAL CONSULTANTS (ASPEC))
15:45 - 16:15	**Speaker 4** **PROF. DR. NAZRI MOHD. YUSOF** (CHAIRMAN, KUANTAN CHAPTER RIVER OF LIFE, IIUM)
16:15 - 16:45	**Speaker 5** **MR. KENNEDY MICHAEL** (FOSK TMR3 FOUNDER)
16:45 - 17:00	End of 1st Day

CONFERENCE TENTATIVE

DAY 1 - 7th MARCH 2022 | DAY 2 - 8th MARCH 2022

TIME	ACTIVITY
09:00 - 10:30	**Roundtable Discussion** **Challenges & Mitigation Strategies for River Care & Sustainability** Moderator: PROF. DR. MA'AN FAHMI RASHID AL-KHATIB Rapporteur: ASSOC. PROF. DR. TANVEER SALEH Speakers: **1. DR. ZAINAL ABIDIN SANUSI - DIRECTOR, SEJAHTERA CENTRE FOR SUSTAINABILITY AND HUMANITY, IIUM** **2. DR. K. KALITHASAN - MANAGER OF RIVER CARE PROGRAMME, GLOBAL ENVIRONMENT CENTRE, MALAYSIA** **3. PROF. DR. NAZRI MOHD YUSOF - CHAIRMAN, KUANTAN CHAPTER- RIVER OF LIFE (KCROL), IIUM** **4. MR. AFFAN NASARUDDIN - UM WATER WARRIORS** **5. MR. KENNEDY MICHAEL - FOUNDER OF FRIENDS OF SUNGAI KLANG TAMAN MELAWATI RIVER THREE** **6. DR. JAMIE CHONG LI YEAN - DIRECTOR OF ASIA PASIFIC ENVIRONMENTAL CONSULTANTS (ASPEC), MALAYSIA** **7. DR. TARIQ RANA - ASSISTANT DIRECTOR OF MURRAY-DARLING BASIN, AUSTRALIA** **8. DR. HIROKO SHIBAKAWA - ASSISTANT PROFESSOR OF EDUCATION FOR SUSTAINABLE DEVELOPMENT (ESD) PROMOTION CENTRE, GRADUATE SCHOOL OF EDUCATION, OKAYAMA UNIVERSITY** **9. PROF. DR. HAMZA FAROOQ GABRIEL - DIRECTOR OF REGIONAL CENTRE FOR WATER TECHNOLOGIES & TRANS-BOUNDARY ISSUES (RCWTTI)**
10:30 - 10:45	BREAK
10:45 - 11:45	**Keynote Speaker 4** **DR. HIROKO SHIBAKAWA** (ASSISTANT PROFESSOR, FACULTY OF EDUCATION, GRADUATE SCHOOL OF EDUCATION, OKAYAMA UNIVERSITY, JAPAN) **The Education for Sustainable Development, ESD application for river care - the Experience of Okayama City, Japan**
11:45 - 12:00	Photo Session via Virtual Platform Break
12:00 - 12:30	**Speaker 6** **PROF. DR. HAMZA FAROOQ GABRIEL** (DIRECTOR REGIONAL CENTRE FOR WATER TECHNOLOGIES & TRANS-BOUNDARY ISSUES (RCWTTI) **Towards Sustainable Development – Case Study of River Ravi, Pakistan**
12:30 - 14:00	LUNCH BREAK
14:00 - 14:30	**Speaker 7** **ASSOC. PROF. DR. ZEEDA FATIMAH MOHAMAD** (UM ECO-CAMPUS LEADER (WATER MANAGEMENT - WATER WARRIORS)
14:30 - 15:00	**Speaker 8** **ASSOC. PROF. DR. ZAINAL ABIDIN BIN SANUSI** (DIRECTOR, SEJAHTERA CENTRE FOR SUSTAINABILITY AND HUMANITY, IIUM)
15:00 - 15:30	**Speaker 9** **ASST. PROF. DR. AZAIMA RAZALI** (DEPARTMENT OF CHEMISTRY, KULLIYYAH OF SCIENCE, IIUM) **The Evaluation of Amine-Functionalized Iron Oxide Nanoparticles as Potential Dye Removal from Aqueous Medium**
15:30 - 16:00	Closing Session

ORGANIZED BY

ICRS 2021 Conference Secretariat,
IIUM River of Life (ROL), Kulliyyah of Engineering, International Islamic University Malaysia,
53100, Gombak, Selangor Darul Ehsan, Malaysia

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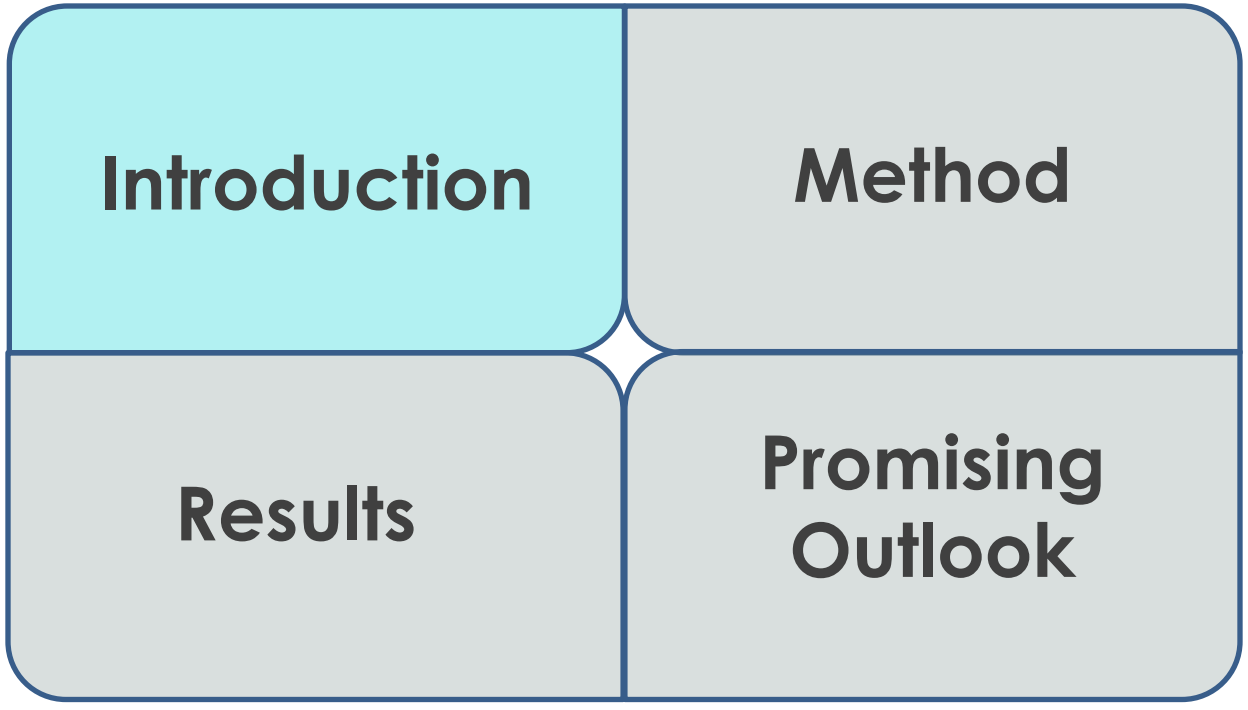
The Evaluation of Amine-Functionalized Iron Oxide Nanoparticles as Potential Dye Removal from Aqueous Medium

Azaima Razali
Department of Chemistry,
Kulliyyah of Science, IIUM

IIUM RIVER OF LIFE CONFERENCE

Outline



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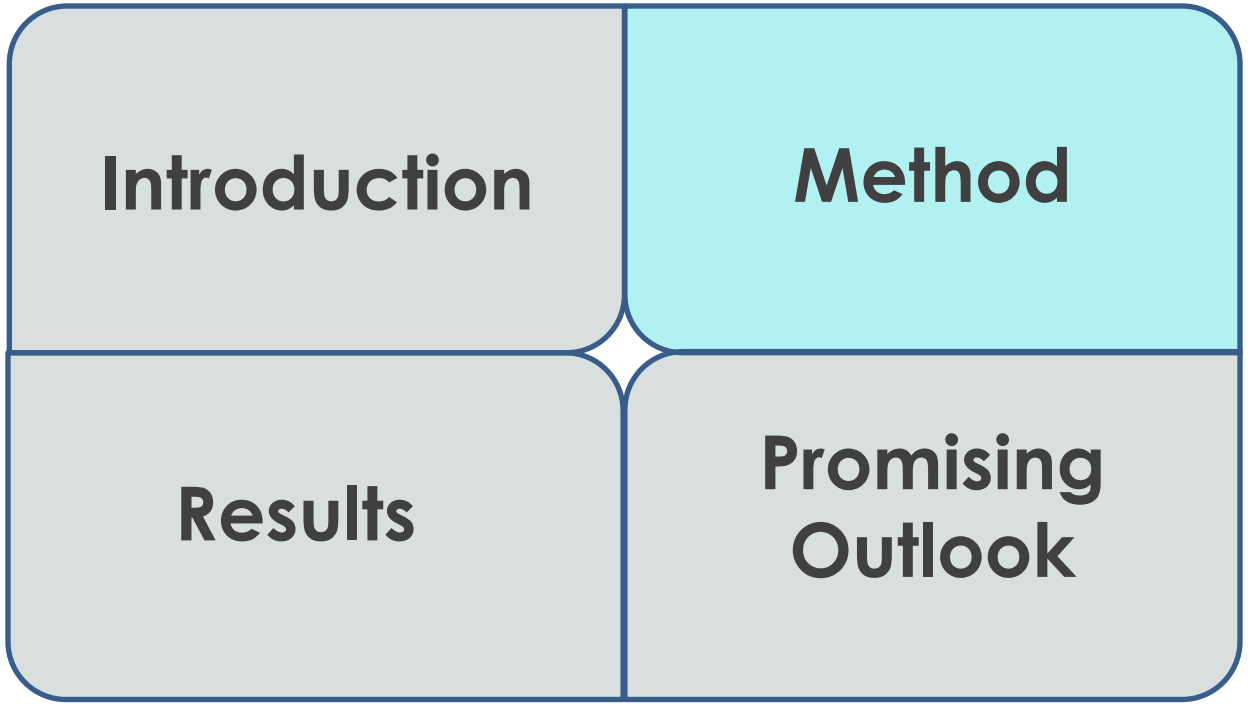

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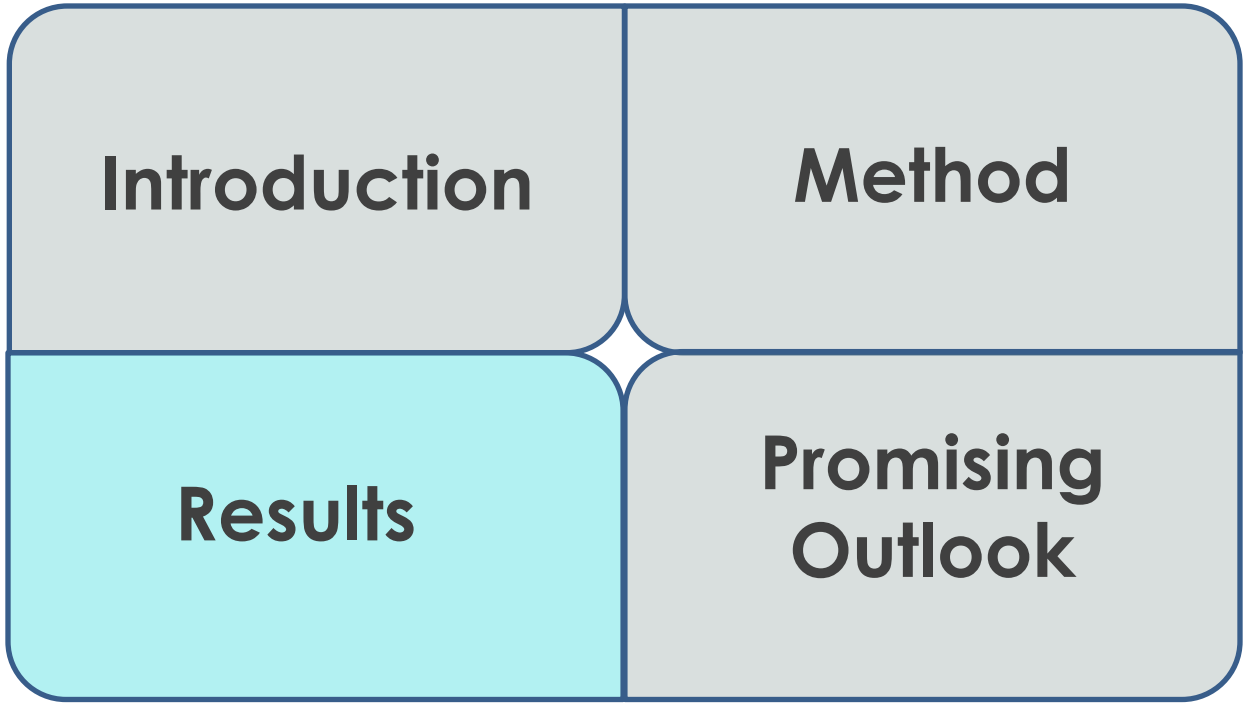

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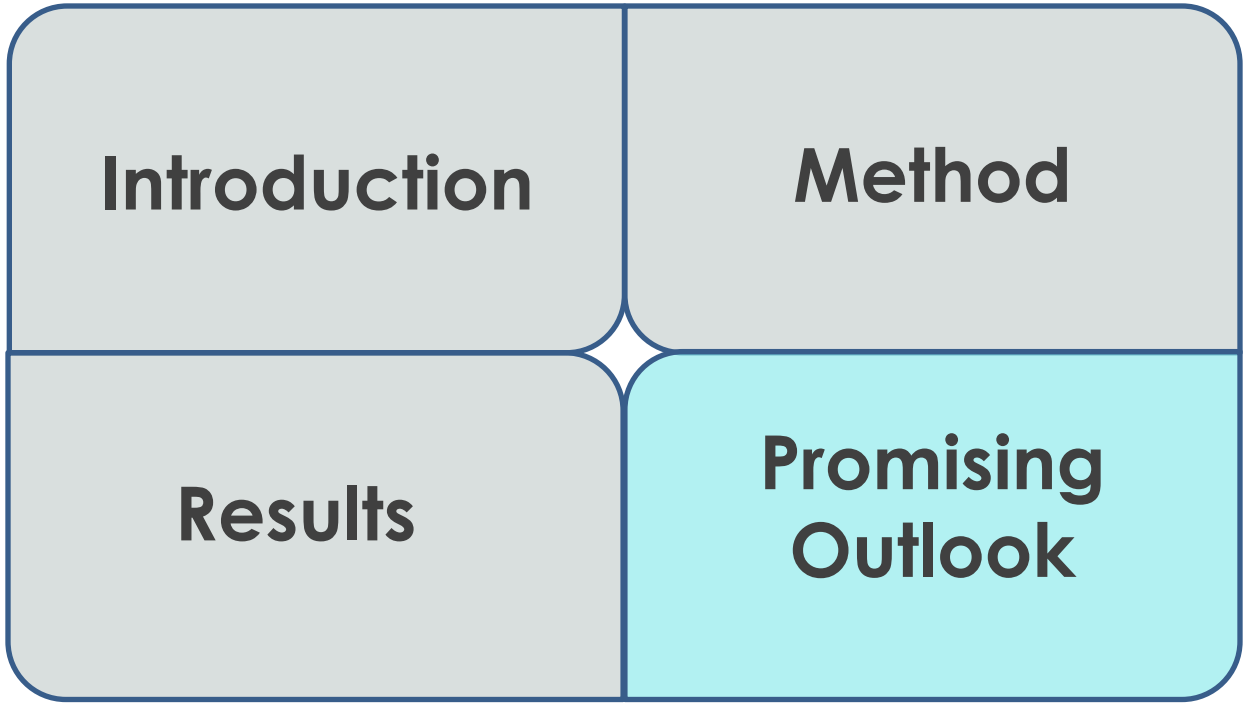
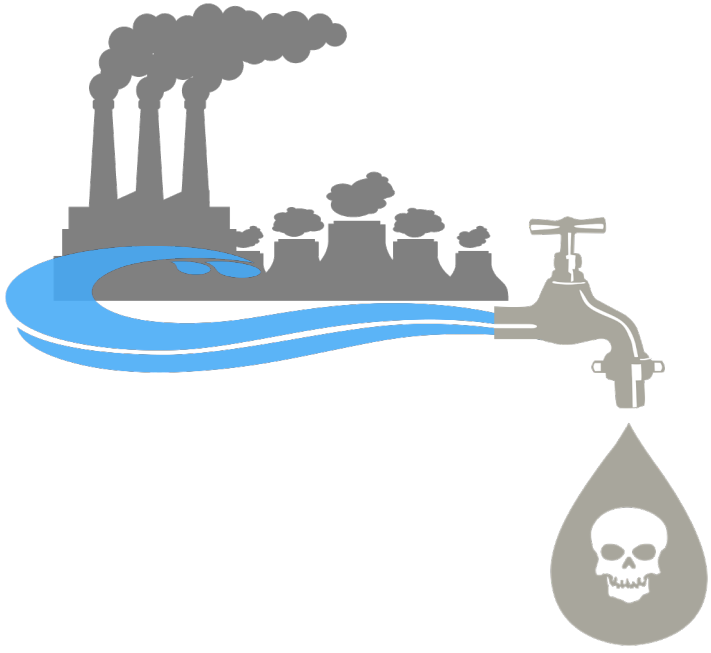


Introduction

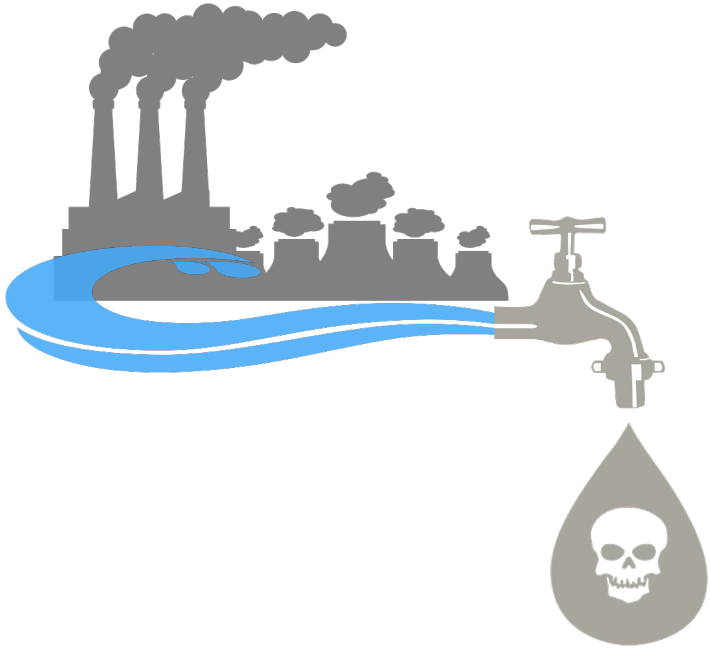
Issues | **Goals** | **So far …**



Sources: Hantoro et al. (2019), Food Addit Contam Part A Chem Anal Control Expo Risk Assess, 674-711; Lusher et al. (2020), Appl. Spectrosc., 1049-1065.

Introduction

Issues



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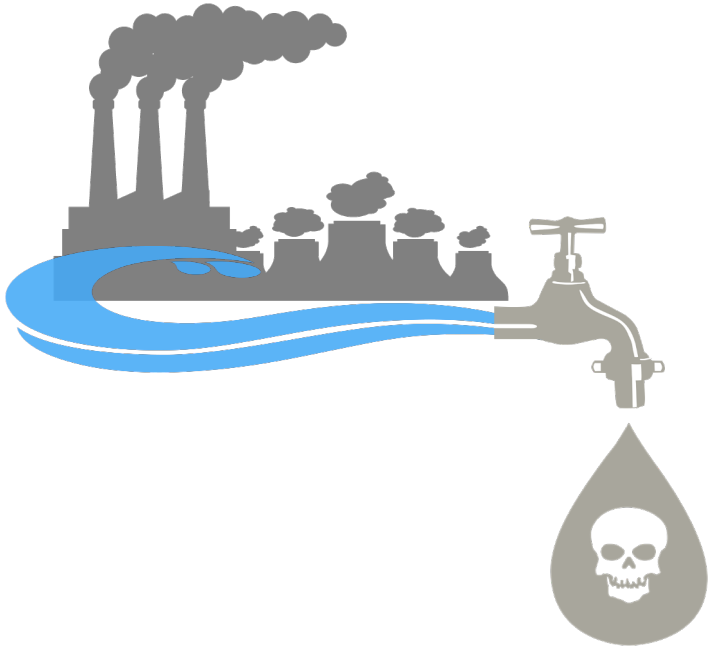

Goals

So far …

- chemical precipitation
- bioremediation

Sources: Hantoro et al. (2019), Food Addit Contam Part A Chem Anal Control Expo Risk Assess, 674-711; Lusher et al. (2020), Appl. Spectrosc., 1049-1065.

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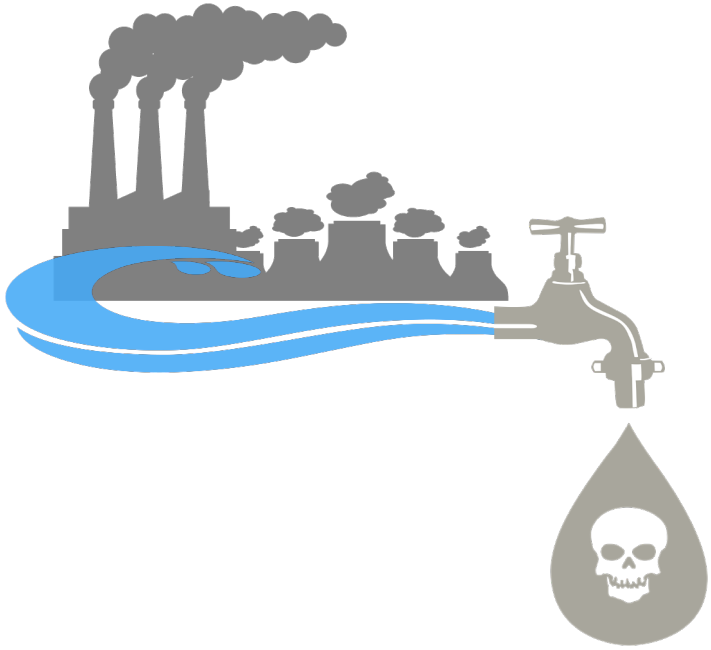
Issues



Goals

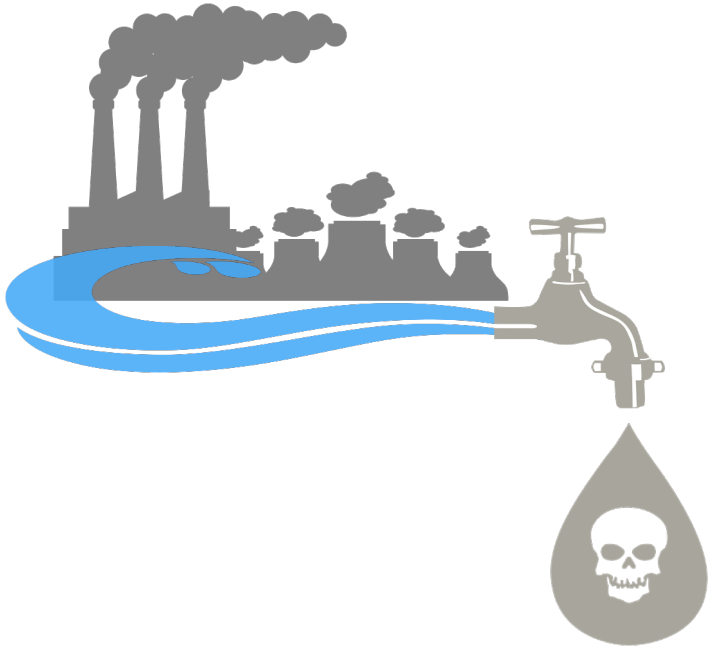
So far …

- chemical precipitation
- bioremediation

Solid Phase Extraction

Introduction

Issues



Goals

So far …

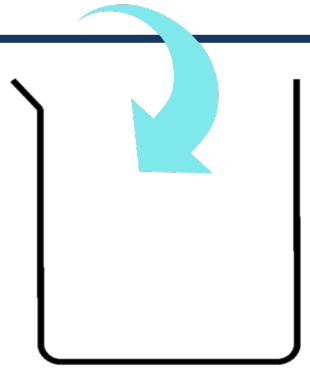
- chemical precipitation
- bioremediation

Solid Phase Extraction

Method

Synthesis | **Characterizations** | **Removal**

$FeCl_3.6H_2O$ + EG + NaOAc + hexane diamine



T_A = 150 °C

T_B = 200 °C

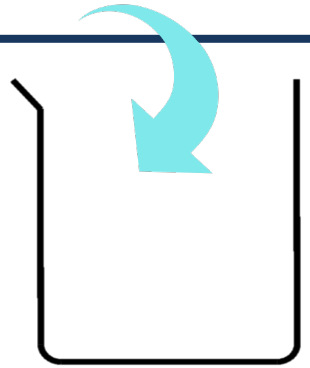
One-pot synthesis

Source: Huang et. al (2010). Environmental Science and Technology, 7908–7913.

Method

Synthesis

$FeCl_3.6H_2O$ + EG + NaOAc + hexane diamine



T_A = 150 °C

T_B = 200 °C

One-pot synthesis

Characterizations

FTIR

TEM

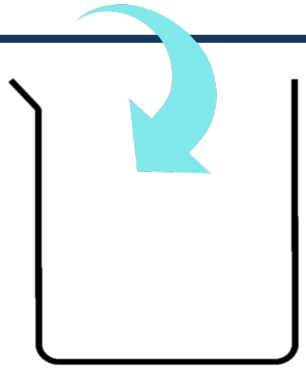
Removal

Source: Huang et. al (2010). Environmental Science and Technology, 7908–7913.

Method

Synthesis

$FeCl_3.6H_2O$ + EG + NaOAc + hexane diamine



T_A = 150 °C

T_B = 200 °C

One-pot synthesis

Characterizations

FTIR

TEM

Removal

UV-Vis Spectophotometer

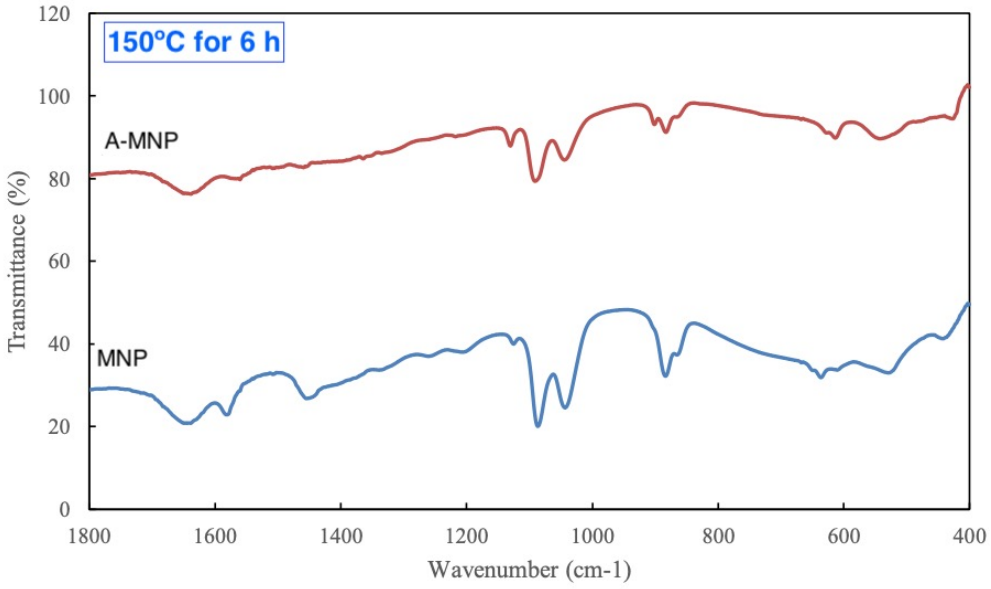
A-MNP + Methylene blue

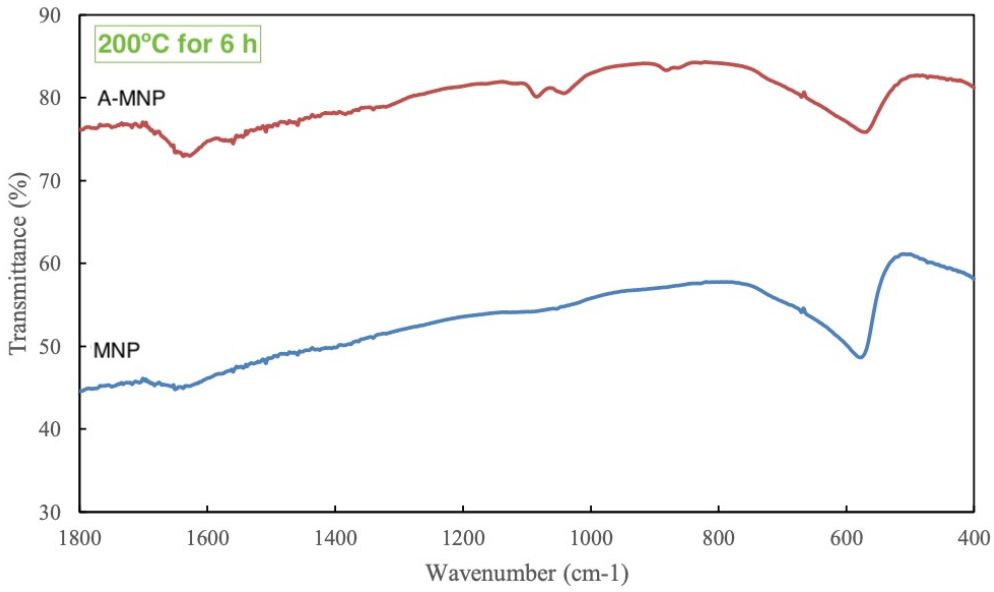
Source: Huang et. al (2010). Environmental Science and Technology, 7908–7913.

Results

Characterizations

FTIR

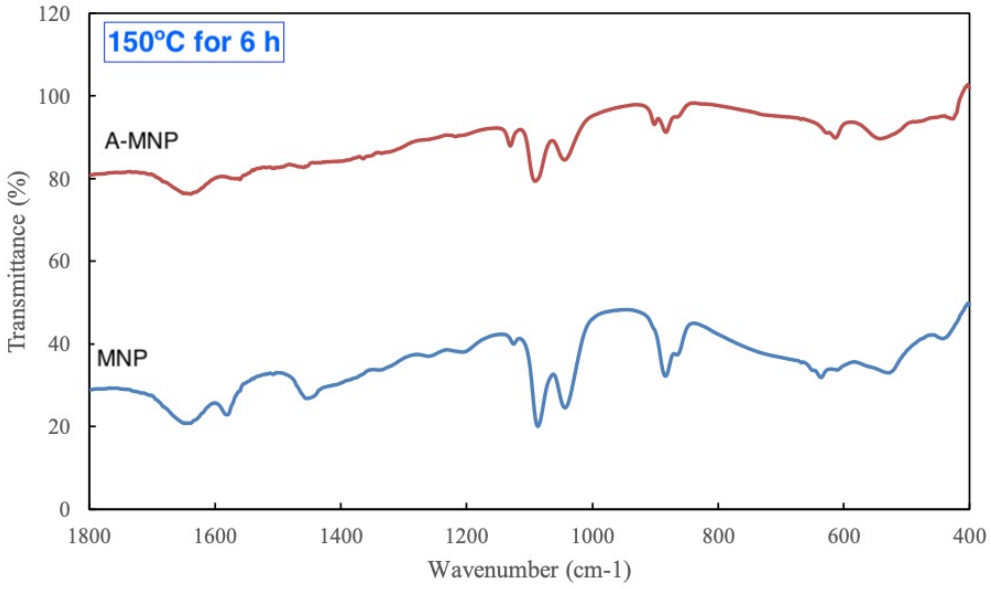


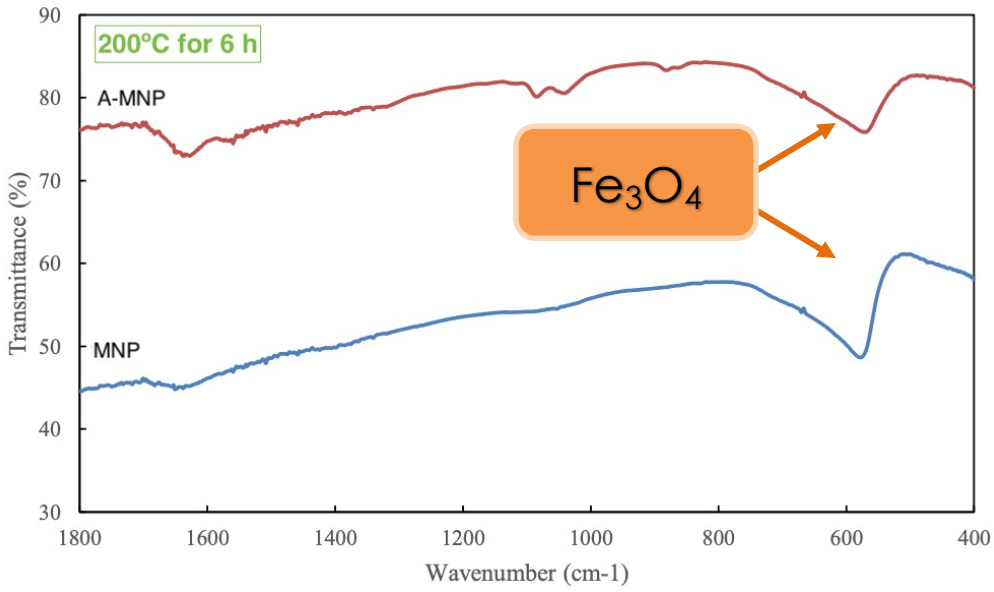


Results

Characterizations

FTIR



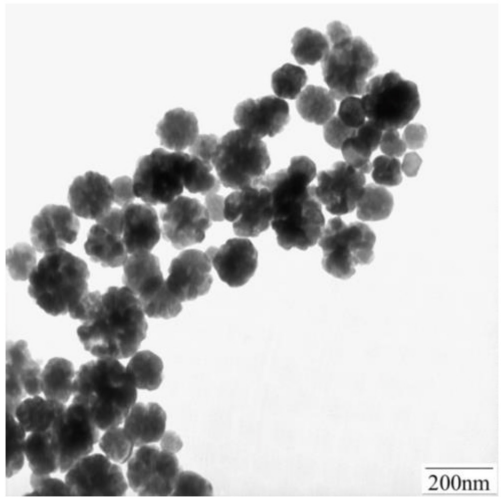


Results

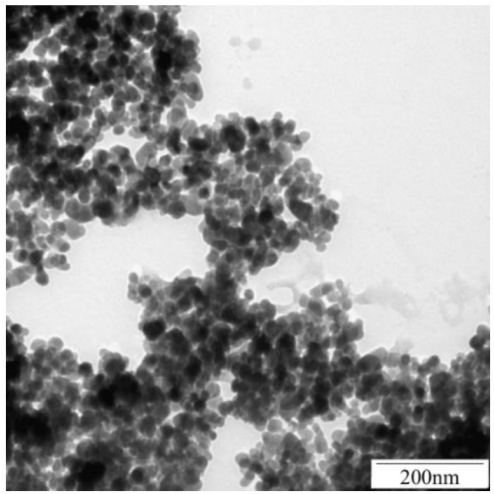
Characterizations

TEM

MNP without functionalization



Amine functionalized MNP



Size Distribution

MNP	Size (nm)
MNP	52 – 200
A-MNP	23 – 34

Results

Removal

UV-Vis Spectrophotometer

Before

10 mg A-MNP
+ 20 mL MB

UV-Vis Spectrophotometer

The absorbance of methylene blue measured at 663 nm wavelength at different time intervals

After

After 1 hr mixing

Results

Removal

UV-Vis Spectrophotometer

UV-Vis Spectrophotometer

Before

10 mg A-MNP
+ 20 mL MB

After 24 hrs → 21 % of MB removed

After

After 1 hr mixing

Promising Outlook

Reduced graphene oxide functionalized MNP

rGO-MNP

Before

10 mg rGP-MNP + 20 mL MB

After 24 hrs → 93 % of MB removed

After

External magnet applied

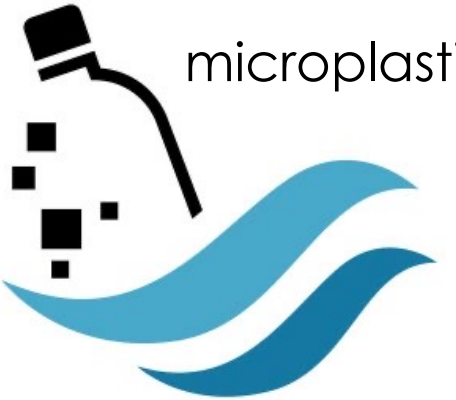
Promising Outlook

Reduced graphene oxide functionalized MNP

rGO-MNP

Broken plastics < 5mm

microplastics



Sources: Smith et al. (2019), Current Environmental Health Reports, 375-386.Chen et al. (2020), Science of the Total Environment, 135504.

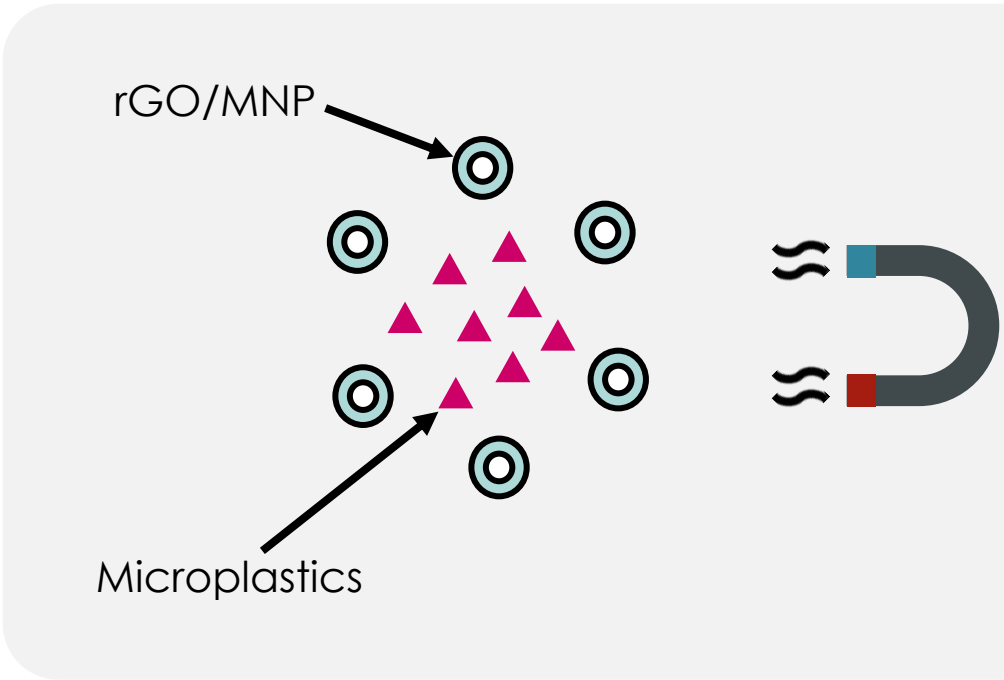
Promising Outlook

Reduced graphene oxide functionalized MNP

rGO-MNP

Broken plastics < 5mm

microplastics



Sources: Grbic et al. (2019), Environmental Science & Technology Letters Environmental Health Reports, 68-72.

Microplastics Removal using rGO-MNP

Azaima Razali, Dept. Chemistry, KOS, IIUM

Acknowledgement

TEAM

A-MNP: Azra Filzaira Khairil Azizi, Dr. Rosliza Salim and Prof. Dr. Shafida Abdul Hamid

rGO-MNP: Siti Nursyamsulbahria Che Nan, Dr. Mohd. Fuad Miskon and Dr. Wan Hazman Danial

FUNDING

RMCG20-026-0026 from IIUM

FRGS19-157-0766 from MOHE

Thank You !

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A-MNP: Azra Filzaira Khairil Azizi, Dr. Rosliza Salim and Prof. Dr. Shafida Abdul Hamid

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AZAIMA BINTI RAZALI

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on 7th and 8th of March 2022

ICRS 2022

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Chairman of ICRS 2022