



UPM
UNIVERSITI PUTRA MALAYSIA
BERILMU BERBAKTI

Hydrochemistry and Geochemistry Laboratory

Faculty of Environmental Studies

H₂O

Hydrochemistry



<http://www.hydrochemistry.upm.edu.my/>



About Us



Hydrochemistry and Geochemistry Laboratory focusses on analysis, interpretation and evaluation of complex environmental issues using environmental forensics approach for better understanding on the release histories of pollutants, sources of contamination, exposure pathways, and associated risks to the ecosystems and humans.

SINCE



2009

RESEARCHERS



7

ALUMNI



13

STUDENTS



14

POST-DOCTORAL
RESEARCHERS



3

GRANTS



50 PROJECTS

*Worth RM 5.5 Million
*International (7)
*National (18)

PUBLICATIONS



280

*50% in Q1 & Q2

INTELLECTUAL
PROPERTIES



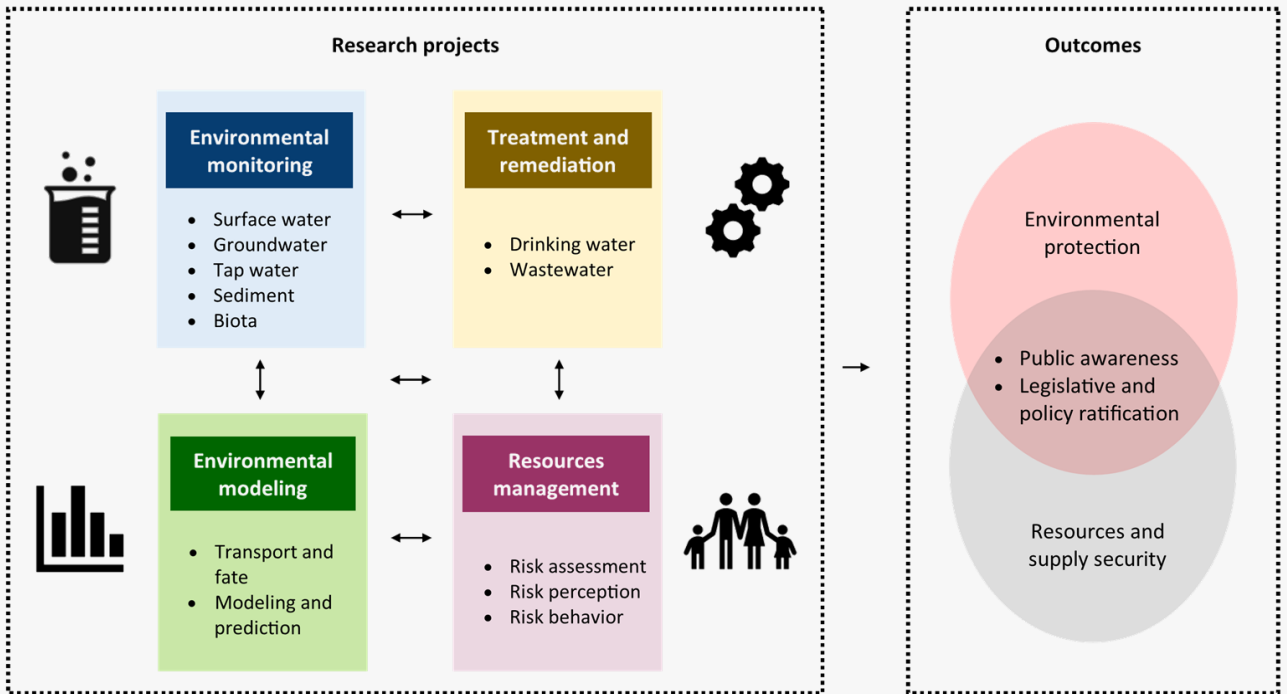
5

BY THE NUMBER

*As of August 23, 2019



Research Scope

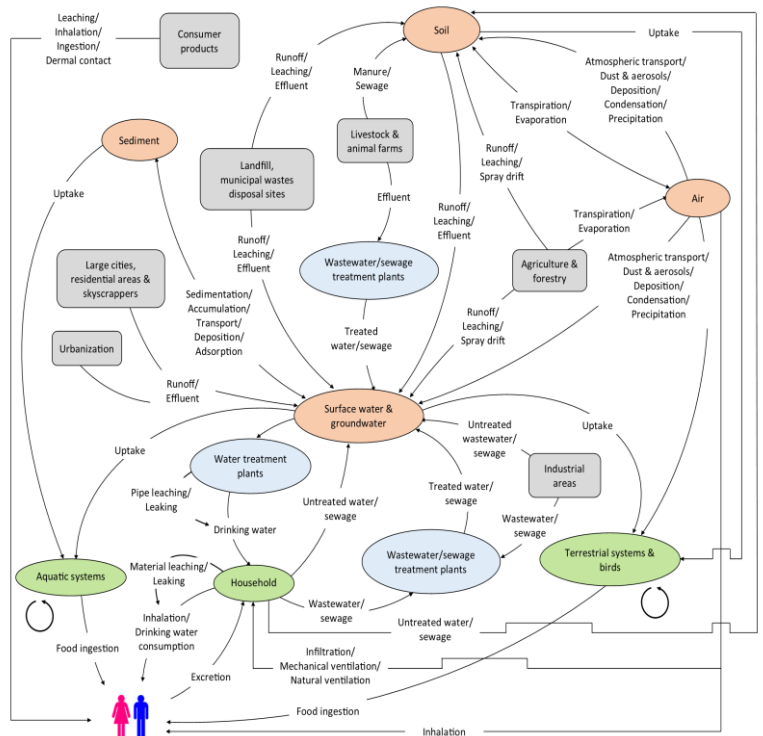


Source: Wee and Aris (2017)

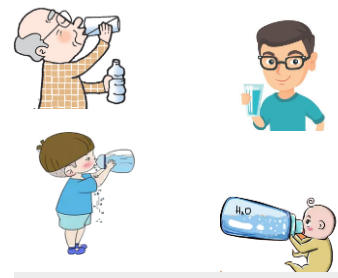
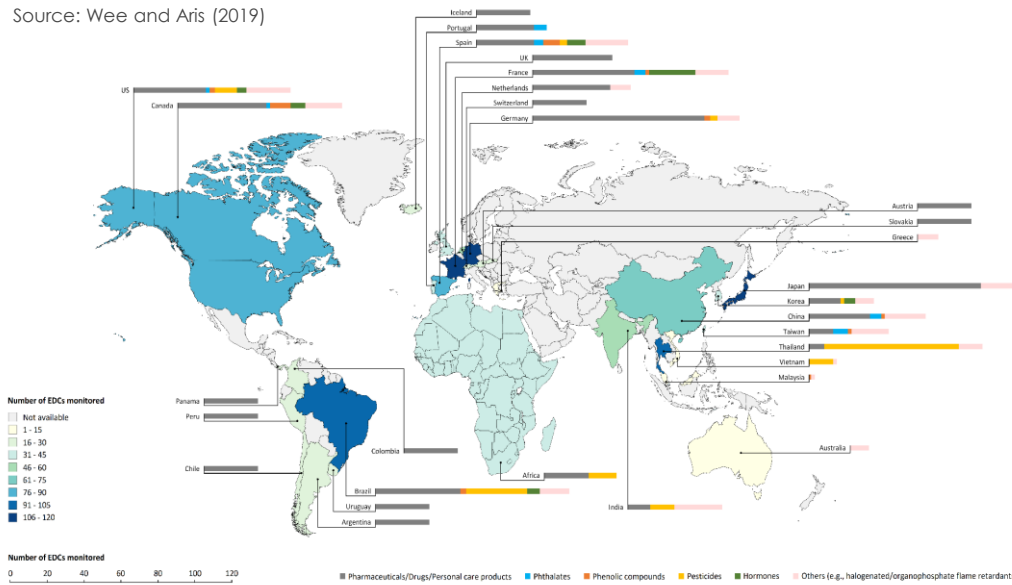
Currently, we focus on environmental monitoring, risk assessment, and development of endocrine disrupting compounds (EDCs) pollution index for riverine and coastal ecosystem health, involved of a variety of scales such as surface water, sediment, food web, and drinking water.

The increased occurrence of EDCs impacts the organisms (i.e., terrestrial, aquatic, and micro-organisms) and humans with the altered exposure and risk. At the same time, we scrutinize our research to human health and public perceived risk.

Also, we are deeply committed in developing cost-effective water treatment that is beneficial in attenuation of EDCs.



Source: Wee and Aris (2019)



Countries that monitor EDCs in the drinking water supply. Global EDC monitoring revealed multiclass EDCs in the treated drinking water supply, particularly in tap water, in the range of 0.2 ng/L to 5510.0 ng/L.

Apparently, the relatively incomplete removal has been due to the broad behaviors of varying EDC loadings, and even advanced treatments and remediation may have been ineffective.

Thus, the public is inadvertently exposed to EDCs via drinking water consumption; moreover, the associated risks may have been underestimated and unknown and remain to be investigated.

SOMETHING IN THE DRINKING WATER

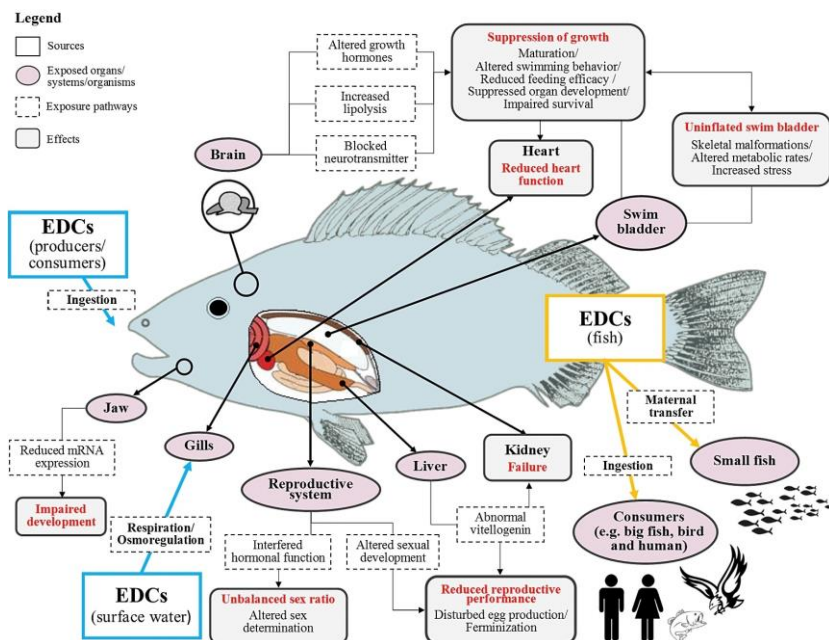
SOMETHING IN THE FOOD

To support the increasing demand, there are many aquaculture practices (freshwater, marine, and brackish water) have developed globally.

Because EDCs have been introduced into aquatic ecosystems, the exposure of humans and animals that depend on aquatic foods, especially fishes, should be seriously considered.

Human and animal exposure to EDCs occurs via ingestion of contaminated matrices, especially aquatic foodstuffs.

Source: Ismail et al. (2017)



Aquaculture is one of the fastest-growing activities globally and fishes are a primary source of protein for humans. Asia had the highest fish production (more than 5 million tons in 2012) compared to others countries in the world.



Advisor



Professor Dr. Ahmad Zaharin Aris

Ahmad Zaharin Aris, CEnv, MRSC, FGS
Professor of Hydrochemistry



<i>h</i> Index	25	32	23
Citation	2392	4164	2059

*As of August 23, 2019

Editorial Board



ELSEVIER

*As of June 15, 2019

Education

- 2005 - 2009 Ph.D, Universiti Malaysia Sabah, Sabah, Malaysia (Joint Supervision: Gwangju Institute of Science and Technology, Republic of Korea)
- 2002 - 2005 B.Sc. (Hons.), Universiti Malaysia Sabah, Sabah, Malaysia

Work Experience

- Jan 2017 - present **Professor**, Department of Environmental Sciences, Faculty of Environmental Studies, Universiti Putra Malaysia
- July 2013 - Dis 2016 **Associate Professor**, Department of Environmental Sciences, Faculty of Environmental Studies, Universiti Putra Malaysia
- May 2009 - June 2013 **Senior Lecturer**, Department of Environmental Sciences, Faculty of Environmental Studies, Universiti Putra Malaysia
- December 2006 - May 2009 **Tutor**, Department of Environmental Sciences, Faculty of Environmental Studies, Universiti Putra Malaysia



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Ahmad Zaharin Aris



Review article

Endocrine disrupting compounds in drinking water supply system and human health risk implication

Sze Yee Wee, Ahmad Zaharin Aris*



Review

Occurrence of 17 α -ethynylestradiol (EE2) in the environment and effect on exposed biota: a review

Ahmad Zaharin Aris^{A,B,*}, Aida Soraya Shamsuddin^A, Sarva Mangala Praveena^C



Endocrine disrupting compounds (EDCs) in environmental matrices: Review of analytical strategies for pharmaceuticals, estrogenic hormones, and alkylphenol compounds

Tuan Fauzan Tuan Omar^A, Azrilawani Ahmad^B, Ahmad Zaharin Aris^{A,C,*}, Fatimah Md Yusoff^D



The long-term impacts of anthropogenic and natural processes on groundwater deterioration in a multilayered aquifer

Taheera Sheikhy Narany^A, Anuar Sefie^{A,B}, Ahmad Zaharin Aris^{A,*}



Expo Health
DOI 10.1007/s12403-016-0214-x



ORIGINAL PAPER

Surface Water Organophosphorus Pesticides Concentration and Distribution in the Langat River, Selangor, Malaysia

Sze Yee Wee¹ · Tuan Fauzan Tuan Omar¹ · Ahmad Zaharin Aris^{1,2} · Yunho Lee³



Ecological risk estimation of organophosphorus pesticides in riverine ecosystems

Sze Yee Wee, Ahmad Zaharin Aris*



Review

Multi-class of endocrine disrupting compounds in aquaculture ecosystems and health impacts in exposed biota

Nur Affah Hanun Ismail, Sze Yee Wee, Ahmad Zaharin Aris*



Bioaccumulation of heavy metals in maricultured fish, *Lates calcarifer* (Barramudi), *Lutjanus campechanus* (red snapper) and *Lutjanus griseus* (grey snapper)

Nasri Nasyitah Sobihah^A, Aris Ahmad Zaharin^{A,B,*}, Mohammad Khairul Nizam^A, Looi Ley Juen^A, Kim Kyoung-Woong^B



An improved SPE-LC-MS/MS method for multiclass endocrine disrupting compound determination in tropical estuarine sediments

Tuan Fauzan Tuan Omar^A, Ahmad Zaharin Aris^{A,C,*}, Fatimah Md. Yusoff^B, Shuhaimi Mustafa^D



Baseline

Occurrence, distribution, and sources of emerging organic contaminants in tropical coastal sediments of anthropogenically impacted Klang River estuary, Malaysia

Tuan Fauzan Tuan Omar^A, Ahmad Zaharin Aris^{A,C,*}, Fatimah Md. Yusoff^B, Shuhaimi Mustafa^D



Baseline

Bisphenol A and alkylphenols concentrations in selected mariculture fish species from Pulau Kupup, Johor, Malaysia

Nur Affah Hanun Ismail, Sze Yee Wee, Ahmad Zaharin Aris*



Environ Geochem Health
<https://doi.org/10.1007/s10653-018-0157-1>



ORIGINAL PAPER

Risk assessment of pharmaceutically active compounds (PhACs) in the Klang River estuary, Malaysia

Tuan Fauzan Tuan Omar · Ahmad Zaharin Aris^A · Fatimah M. Yusoff · Shuhaimi Mustafa

npj | Clean Water

www.nature.com/npjcleanwater

REVIEW ARTICLE OPEN

Occurrence and public-perceived risk of endocrine disrupting compounds in drinking water

Sze Yee Wee¹ and Ahmad Zaharin Aris²*

*Selected publications

Approaches



Life Science



Chemistry



Environmental
Forensic



Material
Science



Earth Science &
Monitoring



Analytical
Science



Health
Science



Modelling



Funders



Selected Grants Received

1. Seasonal variation and risk assessment of endocrine disruptors in drinking water system
2. Fabrication of calcium based Metal-Organic Frameworks (MOFs) incorporated with titanium and iron for the removal of contaminants of emerging concern from aqueous solution
3. Monitoring of pharmaceuticals and hormones in drinking water system using holistic environmental forensics approach
4. Application of holistic and dynamic environmental forensics approach in tracing simvastatin, ciprofloxacin and atorvastatin in urban drinking water system
5. Occurrence, fate and risks assessment of pharmaceuticals and hormones in urban river Malaysia
6. Pathway and Risk Assessment of Endocrine Disrupting Compounds (EDCs) in Riverine Ecosystems of Langat and Klang River Basins, Malaysia
7. Environmental Forensics Investigation on the detection of Endocrine Disrupting Compounds in Riverine Waters of Langat River Basin, Malaysia
8. Adsorption of 17 α -Ethinylestradiol (EE2) as Endocrine Disrupting Compounds (EDCs) from Aqueous Solution TiO₂ Photocatalysts Incorporated with Dead Calcareous Skeleton
9. Removal of Endocrine Disrupting Compounds (EDCs) from Aqueous Solution using Marine Carbonate Residues to be Applied in Water Supply Treatment Facilities
10. Risk assessment for selected organic contaminants in Malaysian Riverine and Estuarine Ecosystems

*Selected from 2017



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