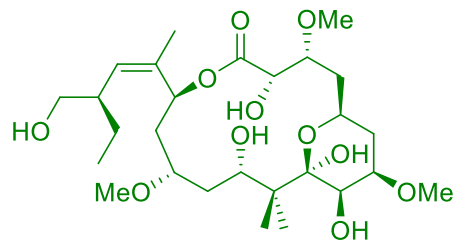


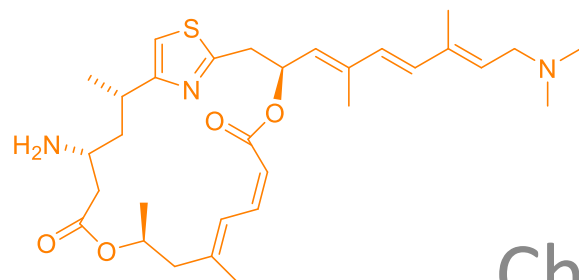
6-(2-Hydroxyethyl)azulene
(AzulE)



(+)-Peloruside A



Organic Synthesis and Drug Discovery Research



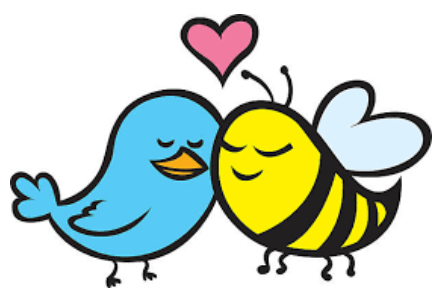
Pateamine

Joanne Harvey

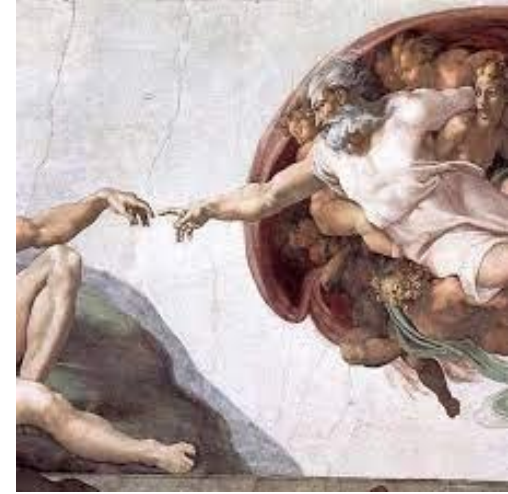
Chemistry Teachers' Day

2 December 2022



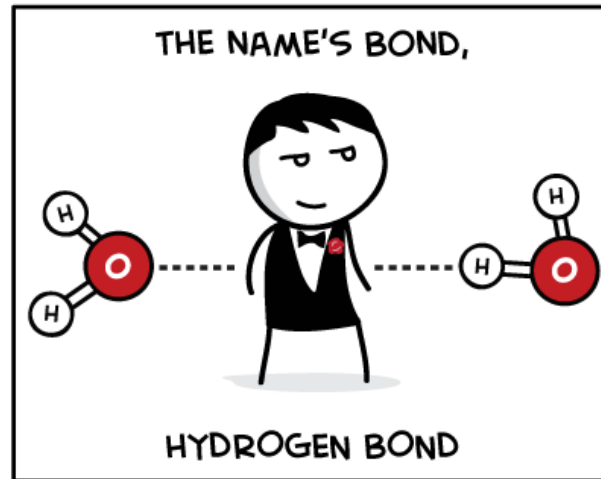
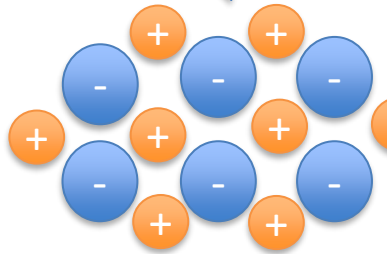


How did I get here?



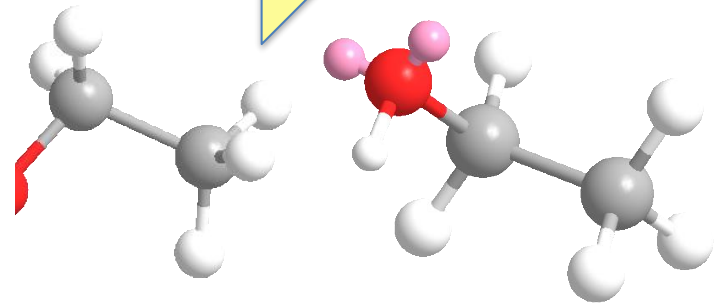
- Awesome teachers, lecturers 😊
- Chemical bonding, electronic structure, periodicity

IONIC



VICTIMS OF CIRCUMSOLAR

COVALENT



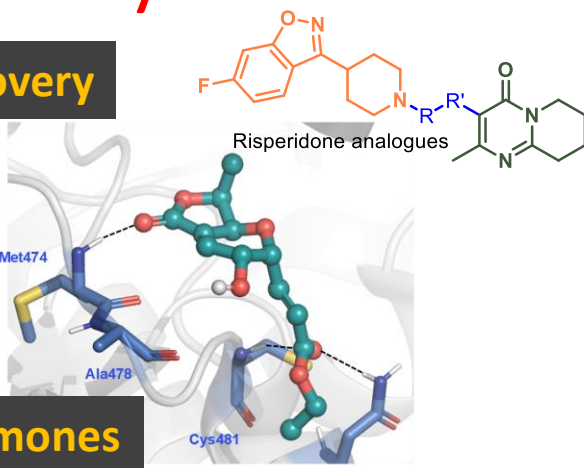
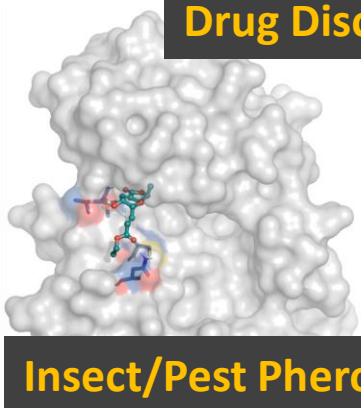
Why Organic Chemistry???

- Organic chemistry nomenclature
- Mechanism
- Spectroscopy
- Stereochemistry...

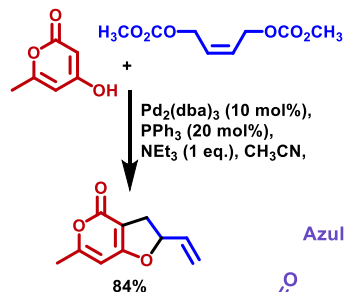
REALLY!?!?!?!?

Organic Synthesis --- Harvey Research Group

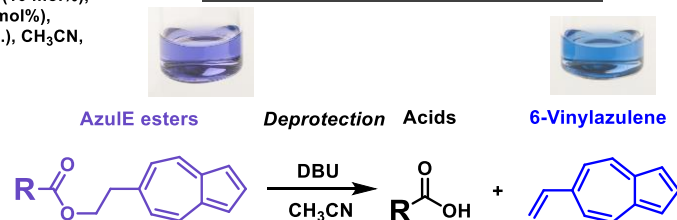
Drug Discovery



Organometallic Cascade



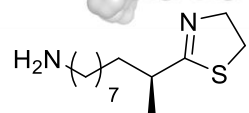
Protecting Groups



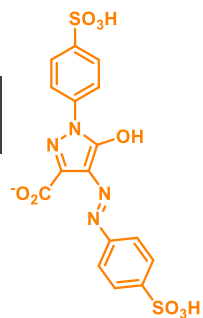
Insect/Pest Pheromones

Applications

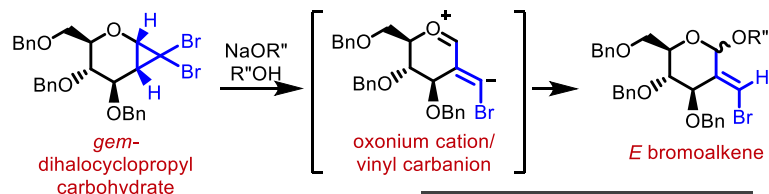
Chemical Methodology



Food Additives

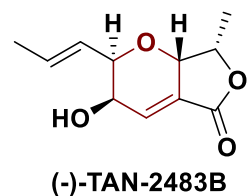


Total Synthesis

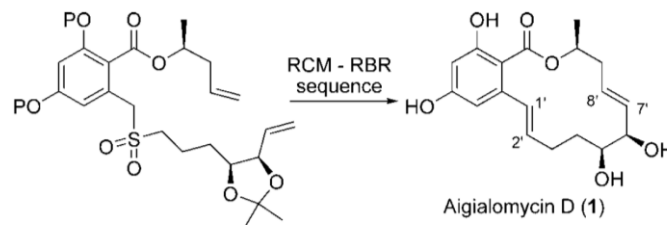


Cyclopropanes

Carbohydrate Derived

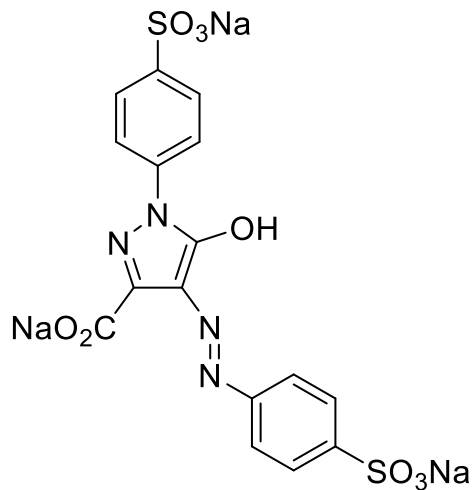


Macrocyclic NPs

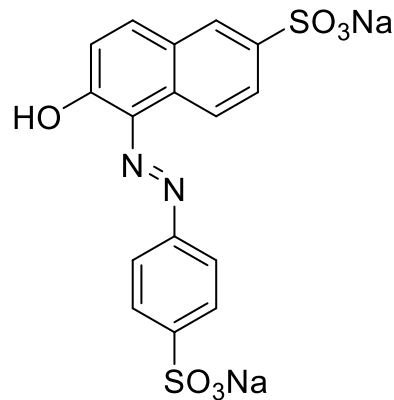


Toxicology of Tartrazine Metabolites

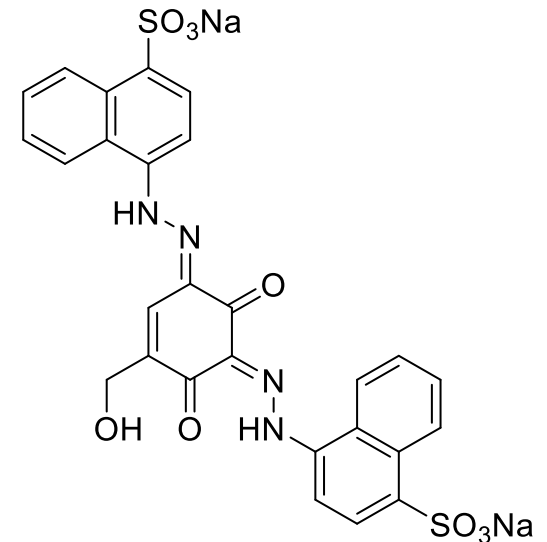
- Synthetic azo dyes are used in processed foods and textiles
- Toxicity of metabolites is important due to food applications (with Rob Keyzers, David Ackerley, David Josephy (Canada), Emma Allen-Vercoe (Canada), Ali Ryan (UK), Libusha Kelly (USA))
- Decolourisation and detoxification of dyes in waste streams are needed for environmental purposes (with Robin Fulton and Niall Malone)



E102 (tartrazine)



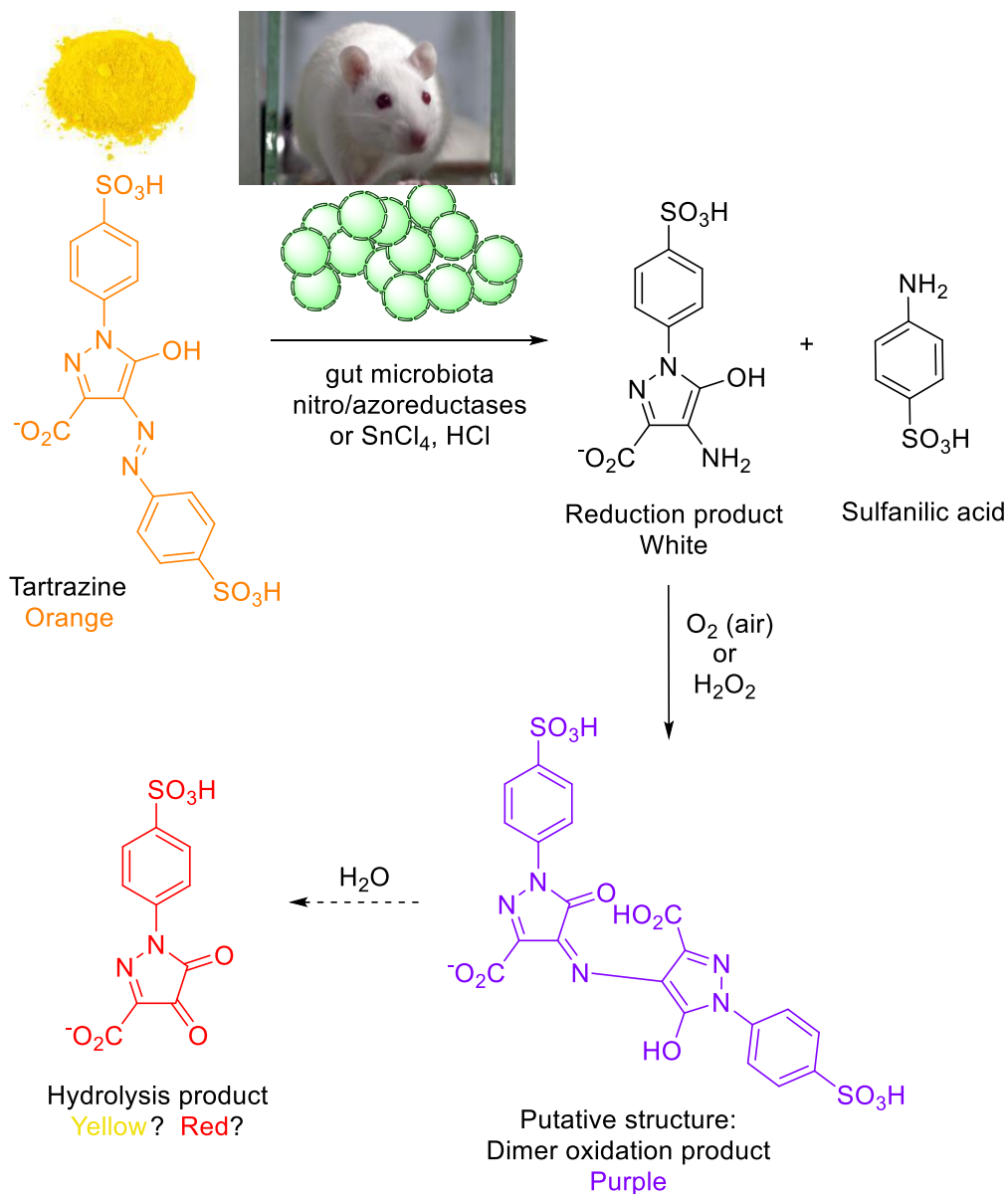
E110 (sunset yellow)



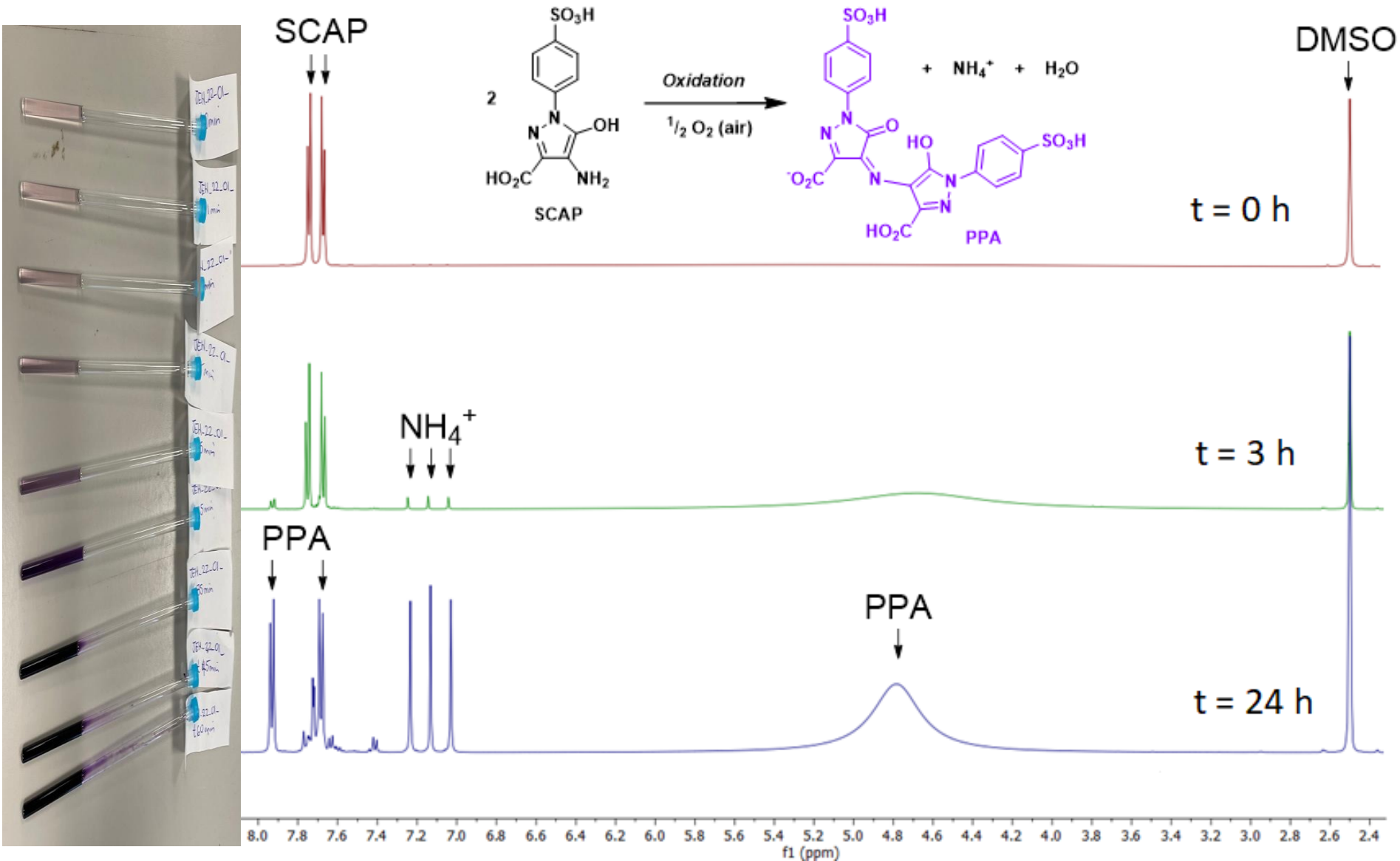
E155 (chocolate brown HT)

Toxicology of Tartrazine Metabolites

- Rats fed tartrazine had poos that turned **purple** in the air
(Westöö, *Acta Chem. Scand.* 1965, 19, 1309)
- Reduction of tartrazine by gut microbiota (or chemically in the lab) gives sulfanilic acid and another colourless compound that turns **purple** in air
- Investigation of the identity of this **purple** compound to confirm structure



Investigating Tartrazine Metabolites

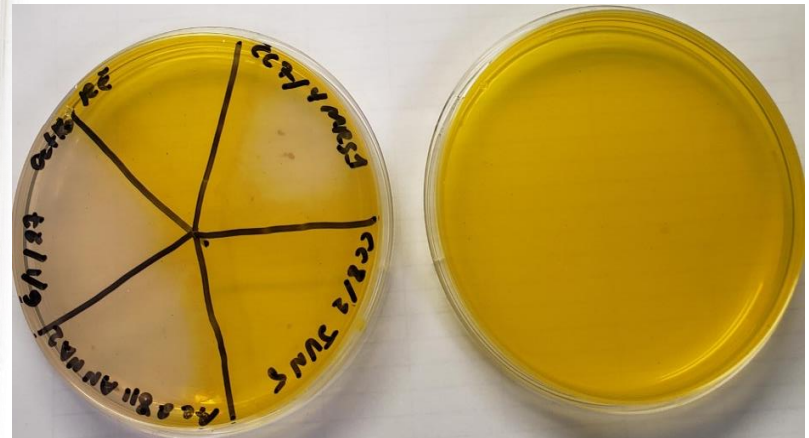
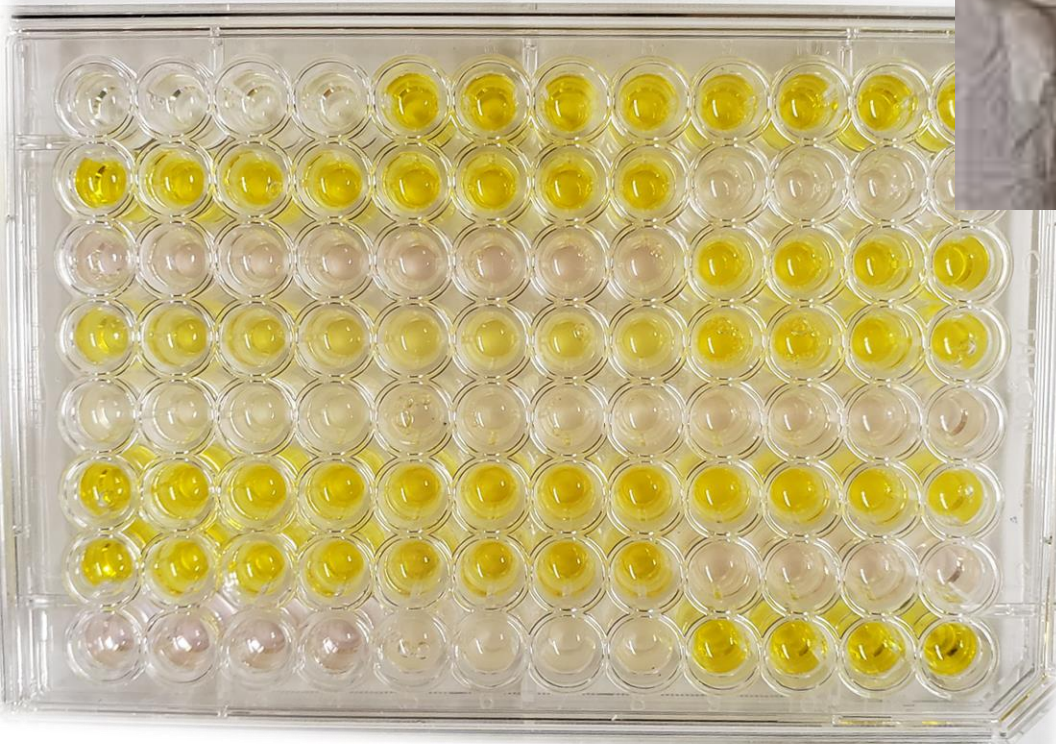


Toxicology of Tartrazine Metabolites

- Future studies on effects of tartrazine and metabolites on human microbiome
- Learn which gut biota are causing reduction, and how.

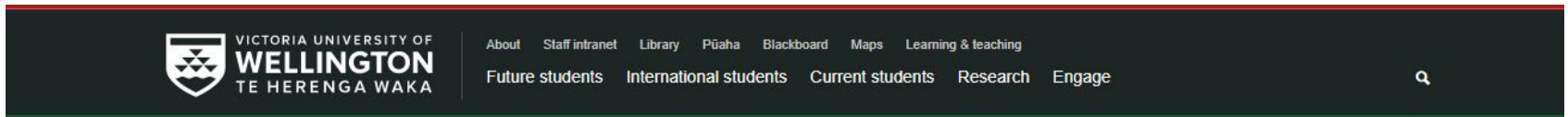


'Robogut' – University of Guelph, Canada



My Advice to Students

- Do what you love/are interested in - the rest will follow
- You can change your mind!
- Travel



School-leaver scholarships
Apply by 1 September.

A banner for school-leaver scholarships. It features a stylized illustration of a young woman with dark hair, wearing a yellow and blue striped shirt, looking to the right. To her left is a large, abstract graphic consisting of a yellow and blue swirl. The text 'School-leaver scholarships' is written in white on a dark green background, with 'Apply by 1 September.' below it.

Study what you love
Explore our programmes and courses

A banner for 'Study what you love'. It features a photograph of a student in a white lab coat working with a piece of scientific equipment. The text 'Study what you love' is written in white on a dark green background, with 'Explore our programmes and courses' below it.

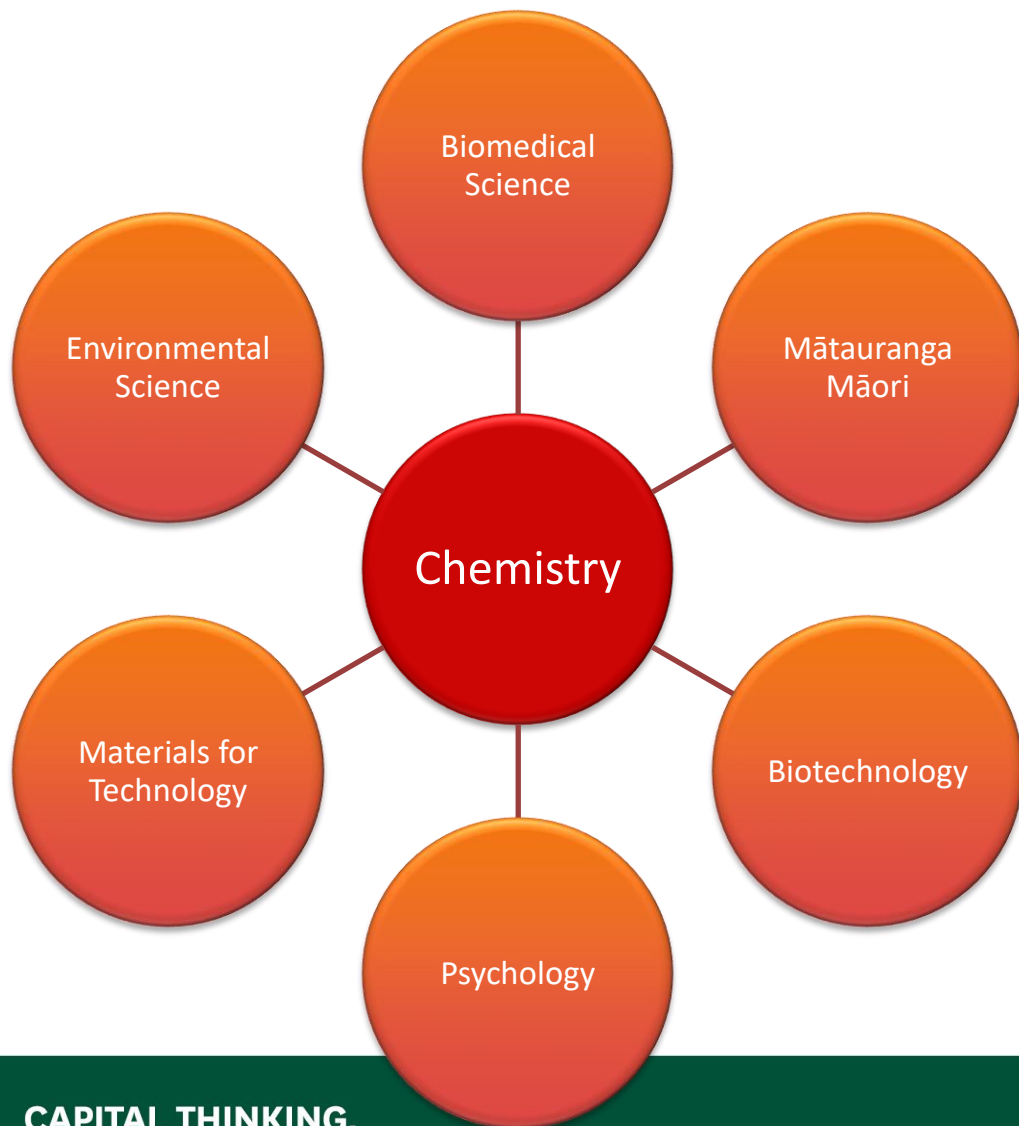
Open Day on Friday 26 August
Register to attend

A banner for an open day. It features a photograph of two students, a young woman in a blue shirt and a young man in a red and blue striped shirt, standing outdoors. The text 'Open Day on Friday 26 August' is written in white on a dark green background, with 'Register to attend' below it.

Mai i te iho ki te pae.
Capital thinking. Globally minded.
Discover our world-leading research >

A banner with a geometric pattern of grey triangles. The text 'Mai i te iho ki te pae.' is written in a dark green font. Below it, 'Capital thinking. Globally minded.' is written in a bold, dark green font. At the bottom, 'Discover our world-leading research >' is written in a dark green font. On the left and right sides, there are partial logos for 'CA GL MAI' and 'OF N KA' respectively.

Chemistry at University



- Bachelor degree retains breadth
- BSc major-minor combinations / double majors
- Chemistry as a central science
- Science is not done in a vacuum
- Cross-/inter-discipline study