

BRIDGING KNOWLEDGES: MICROBIOLOGY AND INDIGENOUS PLANT MEDICINE IN SCIENCE ENABLING EDUCATION

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SUB-THEME: Elevating First Nations Australians and Torres Strait Islander's Sciences

PROBLEM:

The inclusion of Aboriginal and Torres Strait Islander knowledges in science curricula remains inconsistent across Australian higher education and enabling. Despite national strategies encouraging integration, many enabling programs, designed to support students from underrepresented backgrounds, present science through a Western-centric lens. At Edith Cowan University (ECU), the UniPrep Science unit, delivered on Whadjuk Noongar boodja and Wardandi boodja, lacked meaningful engagement with Indigenous scientific knowledge, despite being a foundational STEM unit for 300–400 students each semester.

PLAN

To address this, a new module was designed to embed Aboriginal and Torres Strait Islander scientific perspectives into the curriculum, as a central component of scientific learning. Learning perspective were informed by decolonising pedagogies and Indigenous-led frameworks (Ah Chee et al., 2024; AIATSIS, 2022; Fogarty et al., 2018), and the work of Noongar Elder Vivienne Hansen (2020). The module focused on the medicinal properties of native Western Australian plants. Students would test plant extracts from moorngan (tea tree), eucalyptus (mixed species), and uilarac (sandalwood), and two Western Australian honeys through microbiological experimentation, on nutrient agar plates inoculated with *Escherichia coli* and *Staphylococcus epidermidis*.

ACTION

The module was launched in 2024, delivered over two weeks and positioned Indigenous scientific perspectives alongside Western scientific methods. Students conducted laboratory experiments and observed bacterial and inhibition zones to assess the antibacterial properties of plant extracts. These hands-on activities were scaffolded by a lecture introducing Noongar bush medicine, the impact of Aboriginal and Torres Strait health, and the seasonal knowledge that guided sustainable plant use.

REFLECTION

The module's impact was gauged through anonymous feedback surveys (~100 responses), laboratory discussions, and tutor observations. Students expressed respect for Indigenous bush medicine, valued testing traditional knowledge scientifically, and showed greater awareness of Aboriginal and Torres Strait scientific contributions. Tutors noted increased engagement and critical thinking. Although the evaluation was qualitative and self-reported, the findings suggest the module enhanced cultural awareness and engagement, with more formal evaluation planned.

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