

Portable chemistry kit allows on-site bush food sweetness testing

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Equipment in chemistry toolkit. Credit: Coopers Plains Labs June 2021

Indigenous communities can now assess the quality and sweetness of their wild-harvested native bush fruits in the field, rather than sending samples off to food science laboratories.

A prototype digital and portable bush fruits chemistry toolkit has been developed by University of Queensland researchers for communities to use on site, to measure key market attributes of popular bush fruits like Kakadu, Green and Burdekin plums.

ARC Training Centre for Uniquely Australian Foods Director at UQ, Professor Yasmina Sultanbawa, said the kit would help support the knowledge already present in communities by providing scientific measurements to support their own observations.

"For instance, people in the community know which trees have the sweetest fruit—but now with help of the toolkit, they can measure the sugar levels of fruit on the tree to get an external measure of its sweetness.

"Indigenous enterprises and interested buyers need to know product supply logistical measurements like the weight and size of the fruit (its pulp to seed ratio); how much sugar and salt content and acidity levels are in the fruit; and moisture levels."

Professor Sultanbawa said this type of information was required to help understand the stability of the product, its suitability to be processed into a dehydrated powder, and to determine the type of packaging required.



Native bushfoods and seeds. Credit: M. Puls

"The toolkit has been designed to address these questions and will be tailored according to the needs of each Indigenous enterprise, depending on their current activities along the value chain.

"By ensuring consistently high-quality products, these enterprises are likely to get repeat, increased and new business, resulting in greater economic and social benefits delivered back into communities.

"Plus, the tool kit can be used to provide information on seasonality, growing conditions and plant physiology for Indigenous enterprises to own and share with future generations."

The toolkit, developed by UQ's Dr. Anh Phan, was also supported by funding from the Cooperative Research Centre for Developing Northern Australia as part of the Australian Government's CRC program, and can be used with any native bush fruit.

Djungan Paul Neal, Community Enterprise Developer at the Yarrabah Aboriginal Shire Council, whose community will house one of two chemistry test kits, said the kit empowered communities.



Dr Anh Phan uses callipers to measure fruit to seed ratio with equipment from the kit. Credit: UQ

"We are interested in developing a commercially viable native foods industry, in partnership with industry and research organizations, that utilizes [traditional knowledge](#) and science, and is led by Aboriginal people with governing intellectual property principles in place," Mr Neal said.

All the intellectual property generated in these projects will be owned by

Indigenous partners.

Professor Sultanbawa said the research team was investigating different sensing technologies communities could use on site to measure other key properties of their [fruit](#), such as vitamin levels, traceability, and provenance.

Provided by University of Queensland

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