



THE TREE OF SHELF-LIFE

A food scientist from UQ is working with Indigenous communities to unlock a lucrative industry – using Kakadu plum to extend the storage life of food.

Australia’s Indigenous population has long known the health benefits of native bush tucker – from wattle seeds to witchetty grubs, pencil yams to corkwood nectar. But these benefits have long been untapped by mainstream industry in Australia.

Only now are their beneficial properties rising to prominence as scientists put them through rigorous laboratory testing and confirm their worth in prestigious journals.

Bush tucker’s time to shine

Dr Yasmina Sultanbawa at the Queensland Alliance for Agriculture and Food Innovation, a UQ institute jointly supported by the Queensland Government, is one such scientist. Her research has provided the scientific grounding for an emerging industry that has brought together the funding, the science, the buyers and the Indigenous community.

This particular industry rests squarely on the Kakadu plum – a small green fruit about the size of an olive – which contains antimicrobial properties powerful enough to extend the storage life of food, particularly in one of Australia’s favourite seafoods – the prawn.

A fresh approach across industries

In 2010, with funding from the Rural Industries Research and Development Corporation, Dr Sultanbawa set out with the

goal of finding a way to commercialise native plants in a way that engaged Indigenous communities.

At the same time, the Australian Seafood Cooperative Research Centre and Aquaculture Prawn Farmers Association were looking for a way to extend the shelf-life of cooked chilled prawns, and to improve the colour and retain the fresh prawn flavour.

Dr Sultanbawa, in collaboration with scientists from the Queensland Department of Agriculture and Fisheries (DAF), screened a range of promising native plants for antioxidant and antimicrobial properties, and found that the Kakadu plum showed the greatest promise against spoilage microorganisms, thanks to high levels of ellagic acid.

DAF Senior Chemist Dr David Williams says the Kakadu plum has great potential in numerous sectors.

“It has a unique phytochemical profile that allows many and varied applications in the food ingredients, cosmetic and nutraceutical industries,” he says.

The team then backed up these findings with lab, pilot plant and farm trials, and delivered a major breakthrough for Queensland’s largest aquaculture sector, which contributes about \$80 million to the economy annually.

The Kakadu plum solution is now used by 15 per cent of the Queensland aquaculture industry, extending the shelf-life to 14 days.

Meal mileage

One Northern Territory catering company – Karen Sheldon Catering – is already adding the extract to pre-prepared frozen meals delivered primarily to communities in remote areas.

“Our intention was to offer healthy nutritious food to remote communities that didn’t contain any artificial preservatives or additives but that were able to hold their frozen shelf life,” Karen Sheldon says.

“We are now able to do this by adding Kakadu plum to our recipes, which extends the freezer shelf-life out to 12 months and makes our food much more attractive to those remote communities often inaccessible due to wet-season conditions for parts of the year.

“As we learn more about the nutritional value and functional properties of the Kakadu plum, more benefits will flow to rural and regional areas where the plants are sourced.”

An Indigenous industry

In 2014, the Palngun Wurnangat Association in the Northern Territory bought the technology for handling and processing Kakadu plums, with 148 pickers – including many women – registered in 2015.

Dr Sultanbawa is thrilled that the health, economic, employment and engagement benefits are flowing back to Indigenous communities and that intellectual property is shared equally.

She also has high hopes that the industry can be replicated elsewhere.

“I strongly believe empowerment of women for economic and social benefits in marginalised societies in developing and developed countries will be critical in creating a secure and prosperous global society in future,” she says.

Looking to the future

Because of the massive potential for mainstream agriculture and cross-industry applications, the Rural Industries Research and Development Corporation has extended funding for another two years for Kakadu plum research.

The harvesting and processing model has now also been adopted by the Mamabulanjin Aboriginal Corporation in Broome, the Minlingimbi Crocodile Islands Rangers from East Arnhem Land, and the Gundjeihmi Aboriginal Corporation from the top end of Australia’s Northern Territory.

Dr Sultanbawa says commercial production of ready-to-eat meals opens new markets and encourages the Indigenous communities to expand on the wild harvesting.

“We hope to engage more Indigenous communities in the Northern Territory through regional hubs and have other native foods added to the value chain.

“Australian native plant foods are currently under-valued and thus present an enormous opportunity,” she says.

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Progress to date:

2010: Rural Industries Research and Development Corporation funds the project to add value and improve the quality of Australian native plant foods while, at the same time, Australian Seafood Cooperative Research Centre and Aquaculture Prawn Farmers Association seek to extend the shelf-life of cooked chilled prawns

2012: The formulation and technology transfers to the Australian Aquaculture industry through an Australian Seafood Cooperative Research Centre grant, in collaboration with Department of Agriculture and Fisheries (Queensland) scientists

2013: On-farm prawn trials and commercial application of Kakadu plum formulation begin

2014: \$10 million worth of prawns are treated with the Kakadu plum extract formulation

2015: \$12.5 million worth of prawns are treated with the Kakadu plum extract formulation

2015: Innovation Connection enables Kakadu plum and other native plants to enter the market to improve the storage life of pre-prepared frozen meals

2016: 15 per cent of Queensland’s prawn farming industry is using Kakadu plum extract

2016: Karen Sheldon Catering begins commercial production of pre-prepared frozen meals by using Kakadu plum and other native plant foods

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