



Mamaku (tree fern) – Research Overview

Mamaku Whakaoraora Principal Investigator – **Dr John Monro, Plant & Food Research**

Industry partners: Nga Uri o te Ngahere Trust (NUOTN), Te Rangitahi o te Whenua Trust (ROTW)

Other collaborators: Massey University (MU)

Food: Mamaku (*Cyathia medullaris*, tree fern)

Total research investment: \$895,000

The programme titled ‘Mamaku Whakaoraora’ is a research partnership driven by the principles of whakakotahitanga that will provide an evidence-based foundation for establishing Mamaku (*Cyathia medullaris*, tree fern) as a highly functional natural food, with an indigenous whakapapa, and a strong capacity to improve a range of metabolic and gut health conditions.

The research will validate the Mana o Mamaku, and its traditional Rongoa Rakau healing practices, by scientifically evaluating the effects of Mamaku consumption on appetite, metabolic biomarkers and gut health, in a Mātauranga Māori / modern science collaboration.

The modern science will scientifically establish the efficacy of Mamaku as a health and wellbeing food and inform further development and marketing of Mamaku to support growth of a Mātauranga Māori-based economy.

The project exemplifies the HVN strategy of supporting Māori through working with Māori businesses on the development and validation of high-value foods, which will lead to economic growth. An important aim of the research is to form a bi-cultural research collaboration that address the needs of Māori (and by extension non Māori), and communicates the value of a research partnership that is of relevance to Māori.

The research team will be co-led by Garry Watson from Nga Uri o te Ngahere Trust and Dr John Monro from Plant & Food Research, in collaboration with Te Rangitahi o te Whenua Trust (ROTW) and Dr Lara Matia-Merino and Associate Professor Kelvin Goh from the School of Food and Advanced Technology at Massey University. The project will determine processes for food safe preparation of Mamaku products and assess the properties of Mamaku under simulated *in vitro* gut conditions. Clinical trials with Mamaku products will be conducted to establish their safety and blood cholesterol-lowering potential as well as the effects on the colonic microbiota.

The research will provide a basis for larger clinical studies to establish the value of Mamaku to health, to Māori business, to New Zealand as a whole, and to export (particularly Asian) markets suffering the global burden of metabolic syndrome.

This unique research collaboration addresses the need to unlock under-developed potential of Mātauranga Māori. The programme will provide scientific knowledge to supplement Māori knowledge that Mamaku has numerous health attributes making it a potentially valuable crop.

With extensive native plantings taking place within Aotearoa to meet obligations under the Paris Climate Accord, large areas of post-pioneering Manuka ecosystems can be created. Mamaku is likely to become an increasingly abundant resource as the current plantings become established, providing an additional income stream with local and export potential. Mamaku stabilises wetlands, stream edges, and marginal [slip prone] landscapes. It has a highly valuable ecological footprint.

NUOTN specialises in ethnoecology, ethnobiology and traditional medicine validated over years of intergenerational application, in which probabilities are established and tested as traditional knowledge, which parallels modern experimental science. It is important to acknowledge the plants Mauri, Whakapapa and Mana as part of the existing science of Mamaku. In pre-European Aotearoa, New Zealand Mamaku was used to treat gastrointestinal disorders, as an appetite suppressant in times of hardship, or as a safely consumed vegetable, with functional effects depending on the form and processing of the Mamaku.