

# Antibacterial potency set to lift honey bee industry

A team of scientists exploring the medicinal potency of manuka honey from Australian trees has the potential to substantially increase the profitability of the national honey bee industry.

## SOURCE

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The team hopes to help meet global demand for a bacteria-resistant alternative to antibiotics through their research at the University of Technology Sydney (UTS), the University of Sydney and the University of the Sunshine Coast.

Leader of the RIRDC-funded research, UTS Professor Liz Harry, says measuring the antibacterial properties of honey from manuka (*Leptospermum*) trees - commonly known as tea trees - across the country could enable Australian beekeepers to achieve price parity with their New Zealand (NZ) counterparts.

Research highlighting the antibacterial potency of honey from manuka trees in NZ helped the nation's beekeepers attract a price premium up to \$20 per a kilogram for standard honey and \$250/kg for manuka honey, Professor Harry says.

These high prices also reflect New Zealand's stronghold on the global export market for medical grade manuka honey used in wound dressings and gels to treat infections, caused by pathogens, such as 'golden staph' and other antibiotic-resistant superbugs.



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In Australia, the average prices for standard and manuka honeys were only about \$4/kg and \$15/kg respectively, Professor Harry says.

Most of the world's medical-grade honey is sourced from NZ where two native species of manuka trees supply an industry worth an estimated \$75 million a year.

This figure is projected to increase to \$1 billion by 2025 as part of an ambitious research program that aims to deliver a 16-fold increase in market returns from manuka honey.

In contrast with the limited manuka resources in NZ, Australia has more than 80 manuka tree species widely distributed across the continent, especially in coastal areas. Yet the total

Australian honey bee industry is said to be worth on average \$87 million a year, only \$12 million more than NZ's manuka honey industry alone.

Professor Harry says the new research in partnership with RIRDC, Horticulture Innovation Australia Limited, Capilano Honey and Comvita is set to close the commodity price gap between Australian and NZ manuka honey.

"Increasing worldwide demand, combined with new knowledge of the antibacterial activity in Australian manuka honey, could lift the overall profitability of the Australian honey bee sector by 50 per cent," Professor Harry says.

A pilot study that provided a snapshot of the antibacterial potency of manuka honey sourced

from the Northern Rivers region of New South Wales supports this possibility.

Professor Harry says these preliminary findings confirmed that Australian manuka honey contains high levels of antibacterial activity and a natural compound called methylglyoxal (MGO), which is linked to the antimicrobial activity of NZ manuka honey. All honeys have some level of antibacterial activity, usually due to their hydrogen peroxide content.

However, MGO is exclusive to manuka honey and is potent in killing a wide range of bacteria, while being safe to use on wounds.

"The pilot study also showed that Australian manuka honey has antibacterial properties that match those of NZ manuka honey," Professor Harry says.

In the first phase of the five-year study that commenced in July 2014, researchers plan to collect samples from as many of Australia's 83 manuka tree species as possible to determine which of them yield nectar and honey with the highest levels of antibacterial activity.

For Professor Harry and her investigative team, which includes Dr Shona Blair from the Wheen Bee Foundation, Dr Dee Carter from the University of Sydney and Dr Peter Brooks from the University of the Sunshine Coast, the next three years will involve collecting and identifying the nectar and honey derived from each tree species, testing these samples using chemical and microbiological techniques, and mapping areas that produce potent medical-grade honey across Australia.

The final two years of the project will involve in-depth analysis of the findings from the survey work, and further exploration of the complex connection between the chemistry of Australian manuka honey and its ability to kill deadly pathogens while promoting wound healing.

More information: visit [www.rirdc.gov.au](http://www.rirdc.gov.au) or contact Professor Liz Harry, 02 9514 4173, [liz.harry@uts.edu.au](mailto:liz.harry@uts.edu.au)