

# Australian *Leptospermum* Honeys

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# Manuka Honey:

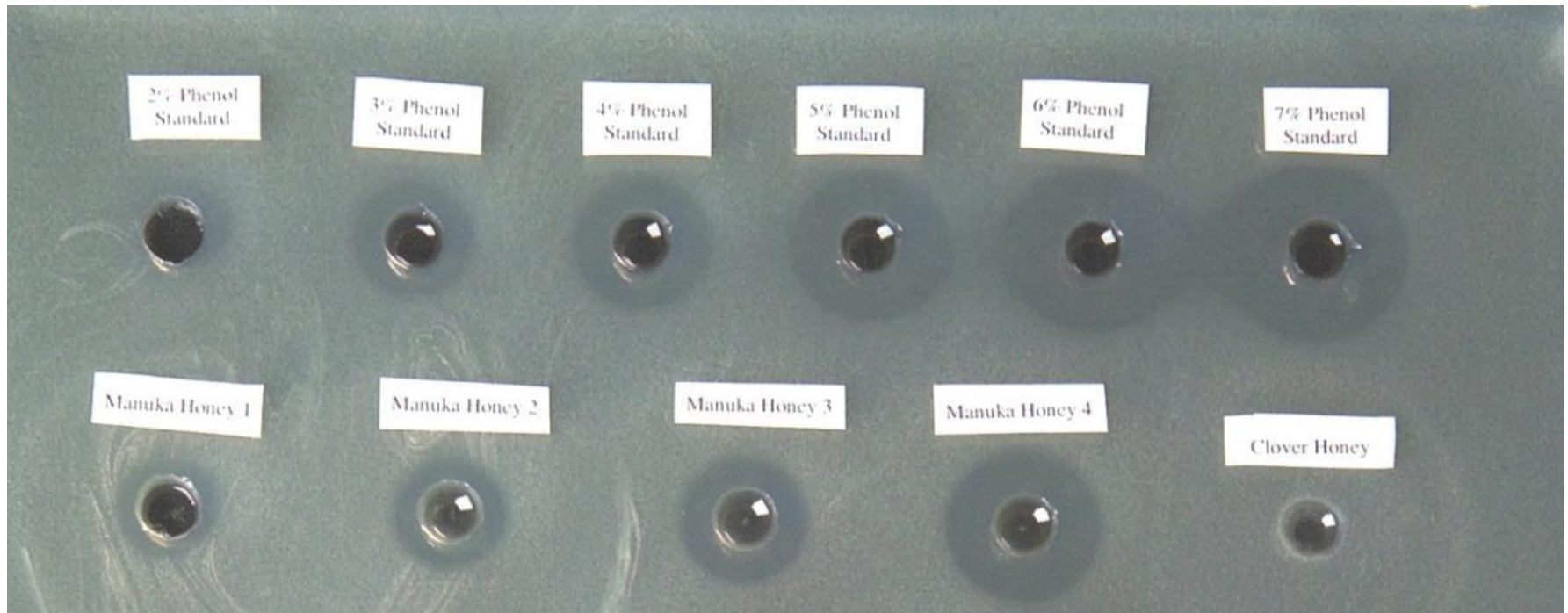
- \* is Anti-bacterial
- promotes Tissue Regeneration
- has Anti-Inflammatory Properties
- has Anti-Oxidant Properties
- supports the Immune System



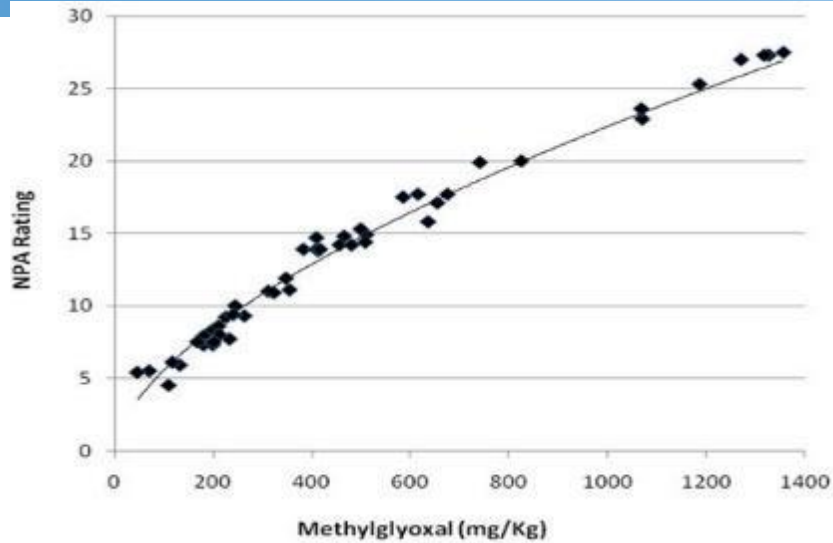
Sloughing wound before and  
After 13 days with Manuka honey  
Ostomy Wound Management 2015 63

# The Unique Manuka Factor Rating

Upper row: Phenol chemical standards  
Lower row: 25% honey solutions

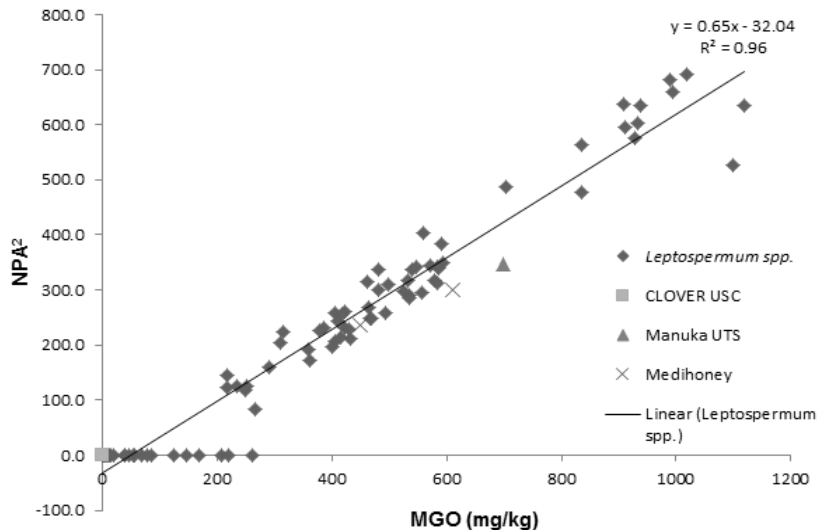


# MGO Conversions to UMF or NPA



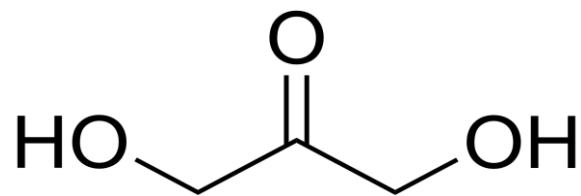
NZ data, NPA/UMF vs MGO

The anti-bacterial activity  
is due to MGO

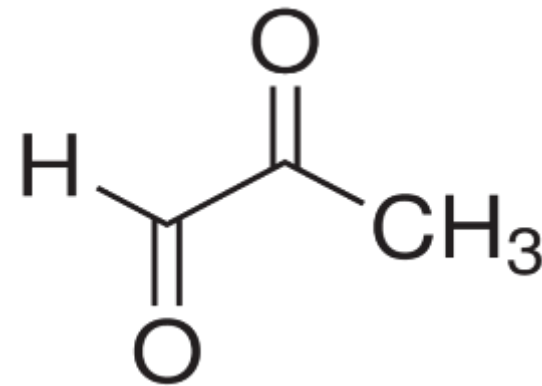


Aust. Data, NPA squared vs MGO

The MGO in Honeys is  
derived from DHA in Nectar.  
Young Honeys have high  
DHA and low MGO

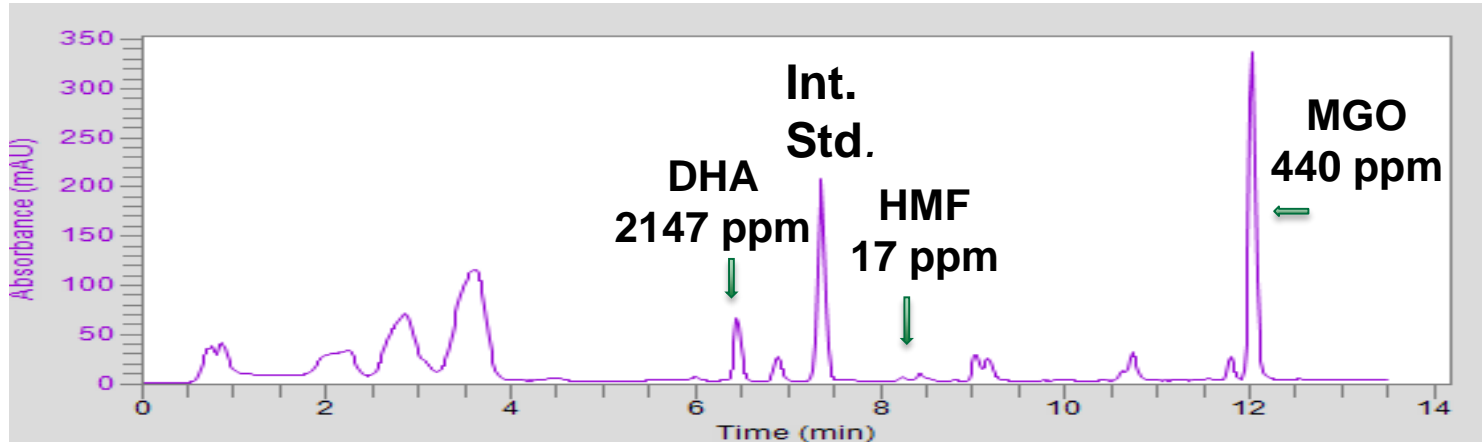


Dihydroxyacetone

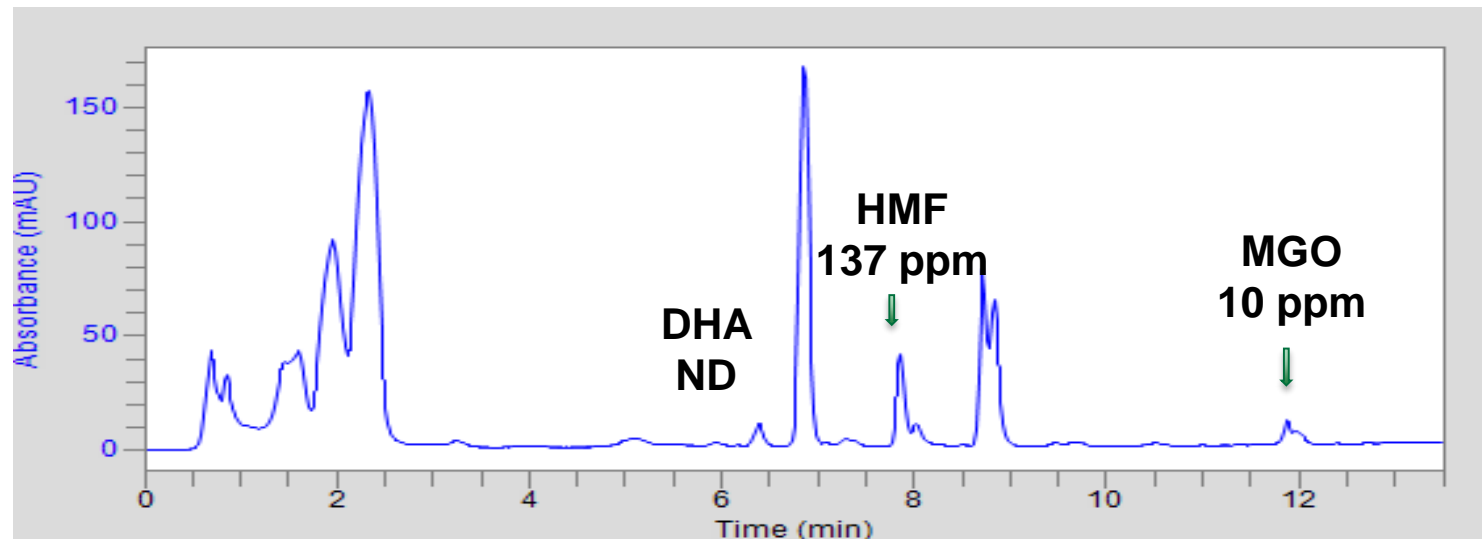


Methylglyoxal (MGO)

# DHA, HMF & MGO in Honeys



Active,  
NPA 13



Inactive,  
NPA zero

# Maturing *Leptospermum* Honeys.1.



University of the  
Sunshine Coast

**What will my honey go in 6 – 12 months?**

**Ten young honeys;**

**Average: 1760 ppm DHA & 260 ppm MGO  
Stored 12 months @ 22oC**

**Average DHA loss 44% (range 33-52%)**

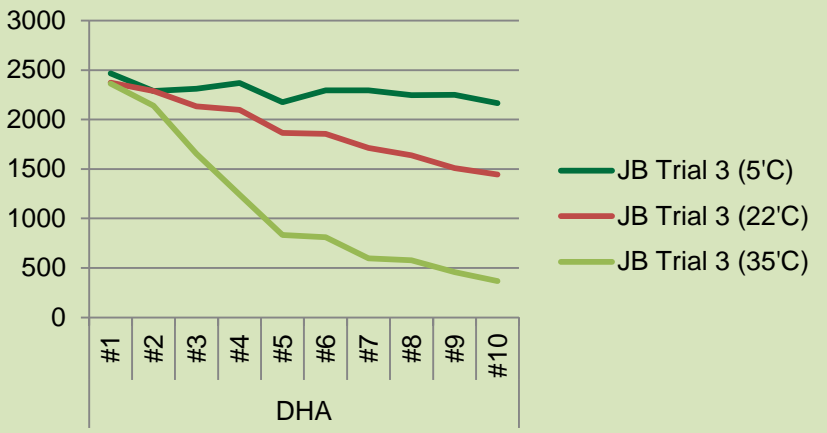
**Average MGO Conversion 40% (range 34-61%)**

**Final Average: 988 ppm DHA & 561 ppm MGO**

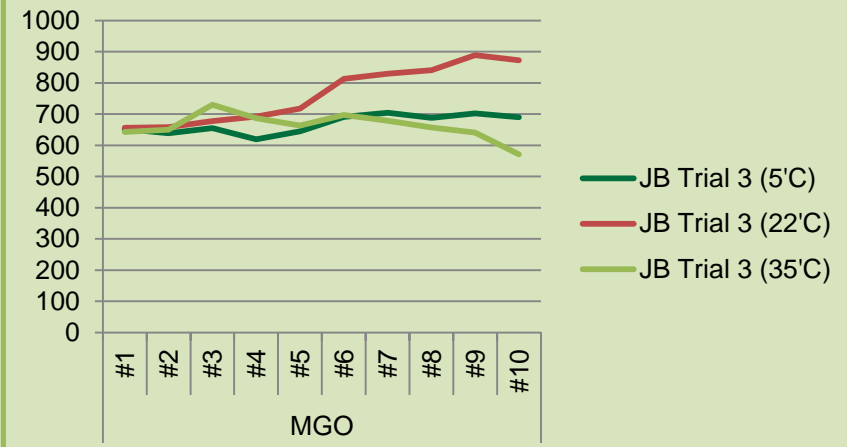
Capilano Honey & Univ. Sunshine Coast

# Maturing *Leptospermum* Honeys. 2

## DHA



## MGO



## HMF

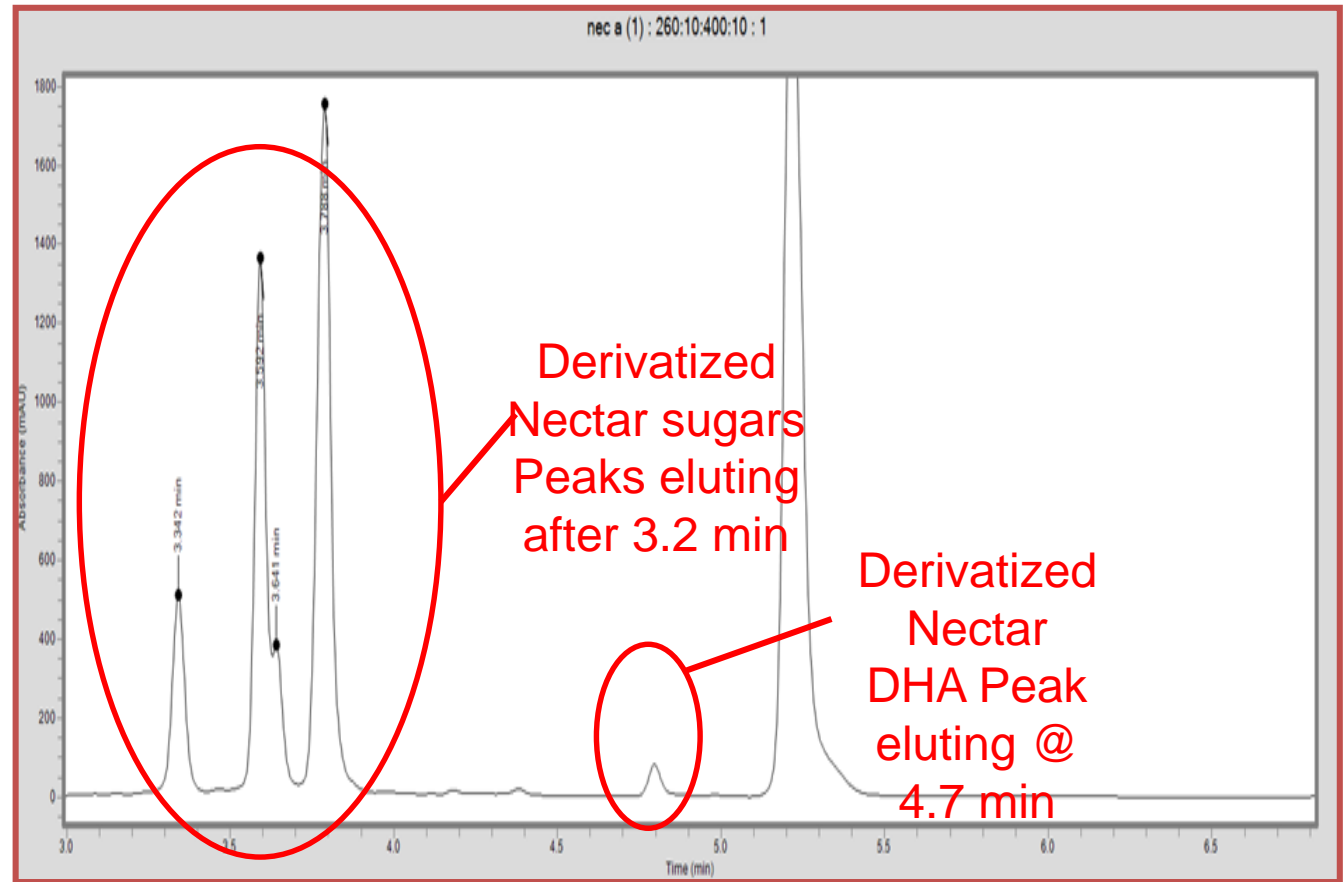
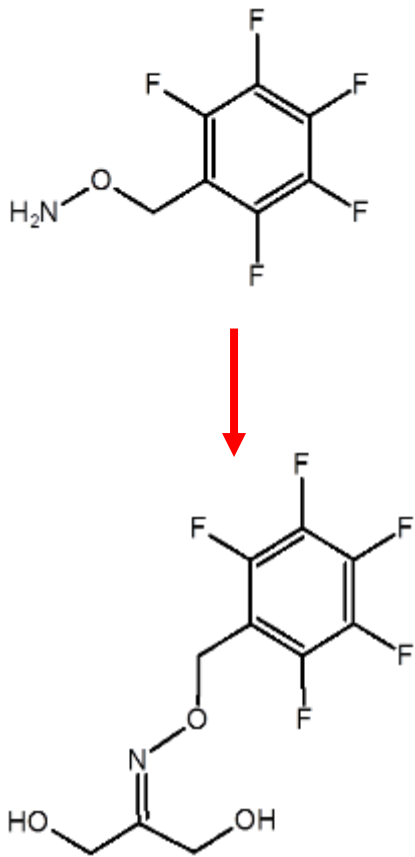


Capilano Honey &  
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# Testing the DHA activity in Nectar

## Derivatisation of DHA



# Not all *Leptospermum* are equal

Leptospermum spp. tested	No detectable DHA	Low DHA	Medium DHA	High DHA
<i>L. arachnoides</i>		815		
<i>L. glaucescens</i>	ND			
<i>L. juniperium</i>		903		
<i>L. laevigatum</i>	ND			
<i>L. lanigerum</i>		1,057		
<i>L. liversidgei</i>			7,484	
<i>L. petersonei</i>			7,326	
<i>L. polygalifolium</i>				10,104
<i>L. riparium</i>			6,451	
<i>L. scoparium</i>			3,130	
<i>L. speciosum</i>				17,850
<i>L. trinervium</i>	ND			
<i>L. whitei</i>				13,159
<i>S. collina</i>			4,863	

# *L. laevigatum*



***L. laevigatum*,**  
**a large round bush, 3-4m**  
**large oval leaves,**  
**Flowers Aug – Sept.**



# *L. polygalifolium*



***L. polygalifolium*,  
Spindly bush, 2-3m  
Small pointy leaves,  
Flowers Sept – Nov.**



# *L. liversidgei*



***L. liversidgei*, slender shrub, 2-3m, likes wet feet  
Dense small leaves, lemon scented, pinkish flowers,  
Flowers Christmas - March**



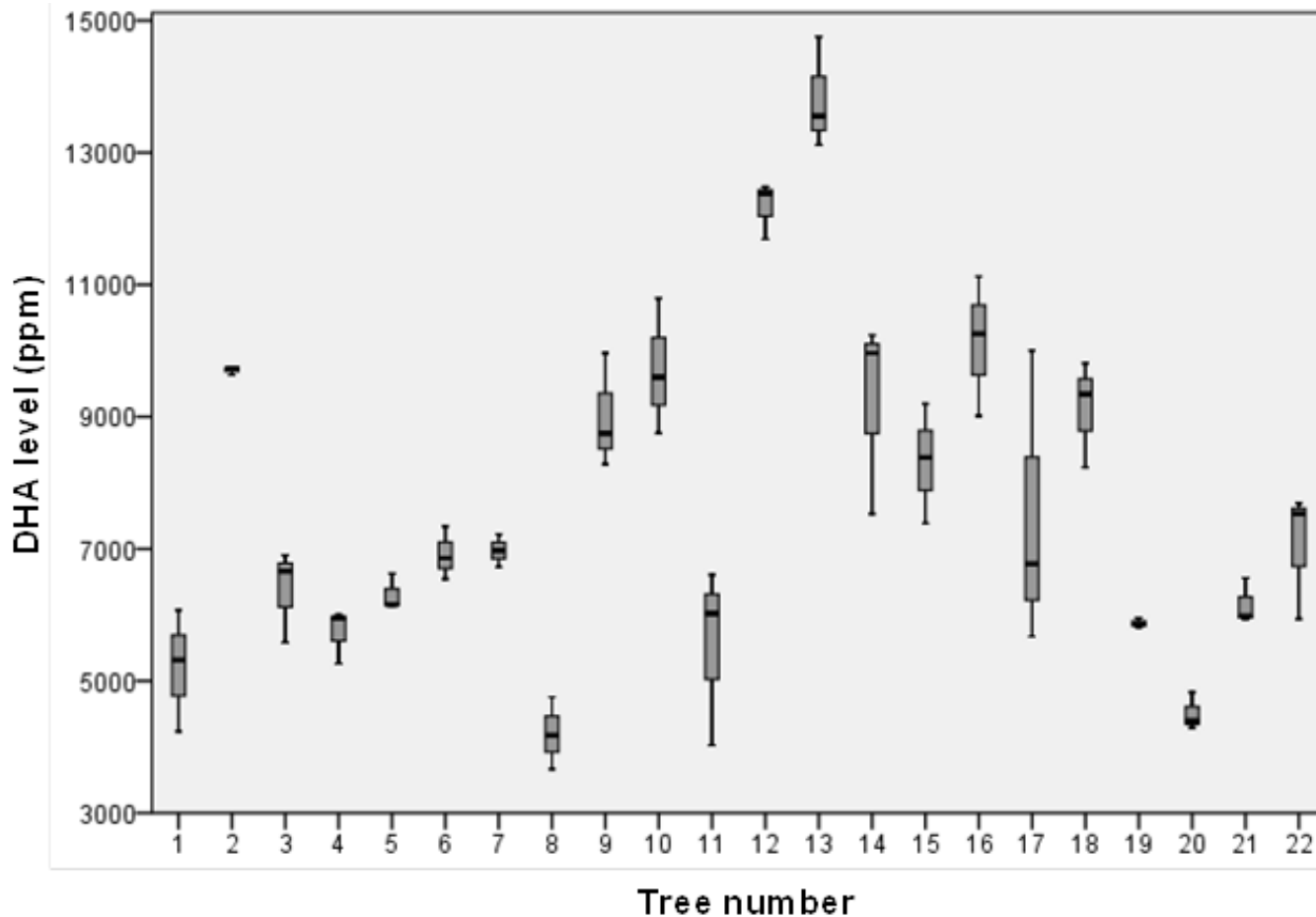
# *L. whitei*



***L. whitei*, tree 3-5m,  
Umbrella like canopy,  
Long 20-25 mm leaves,  
Flowers Nov - Dec**

# *L. livesidgei* tree activity

## Individual tree genetics influences DHA production



## “New Sources and Bioactivities of Australian *Leptospermum* Honeys”

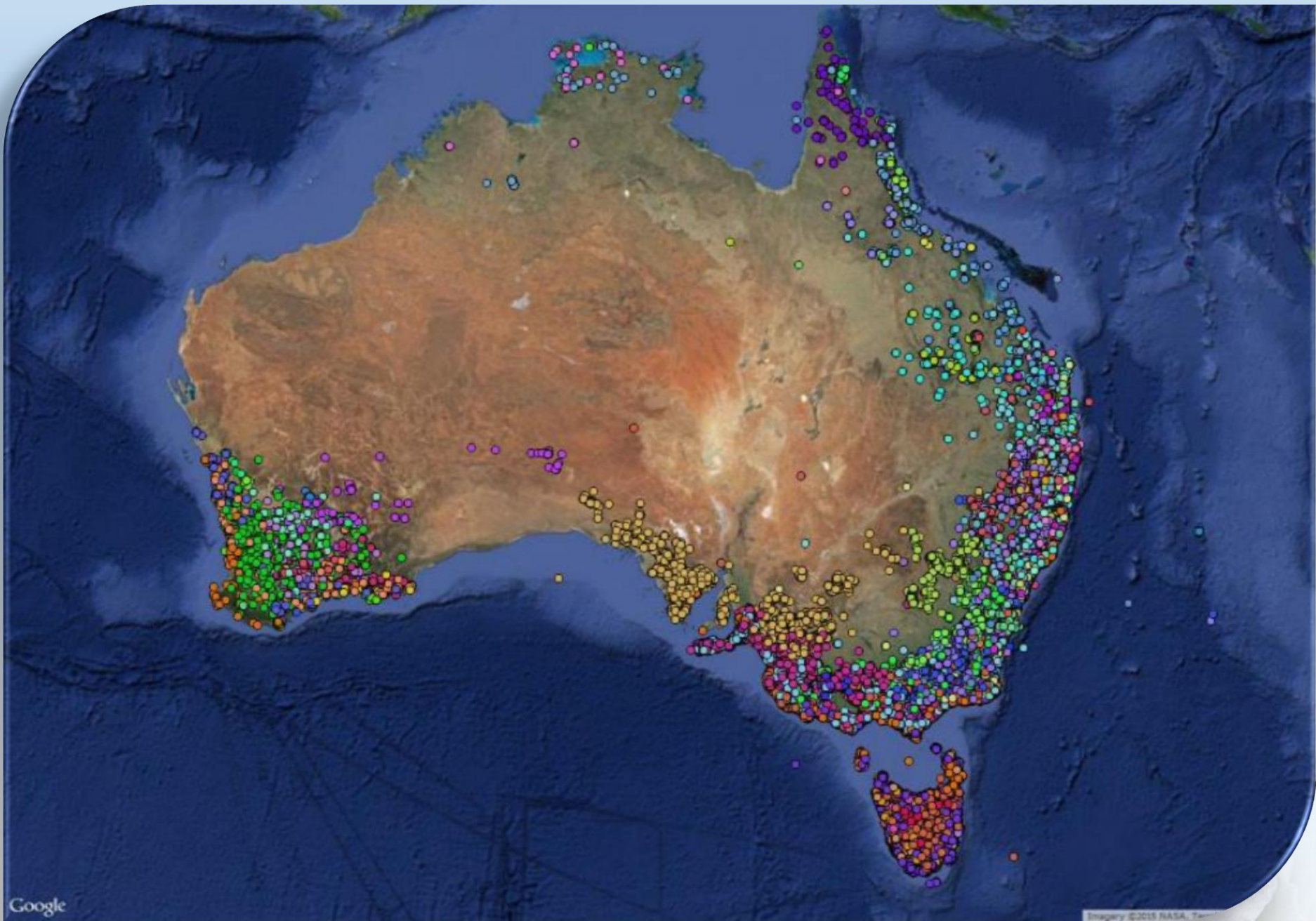
**Collaborators:**      **Univ. Tech. Sydney**  
                                 **Univ. Sydney**  
                                 **Univ. of the Sunshine Coast**  
                                 **Capilano Honey**  
                                 **Comvita NZ Ltd**

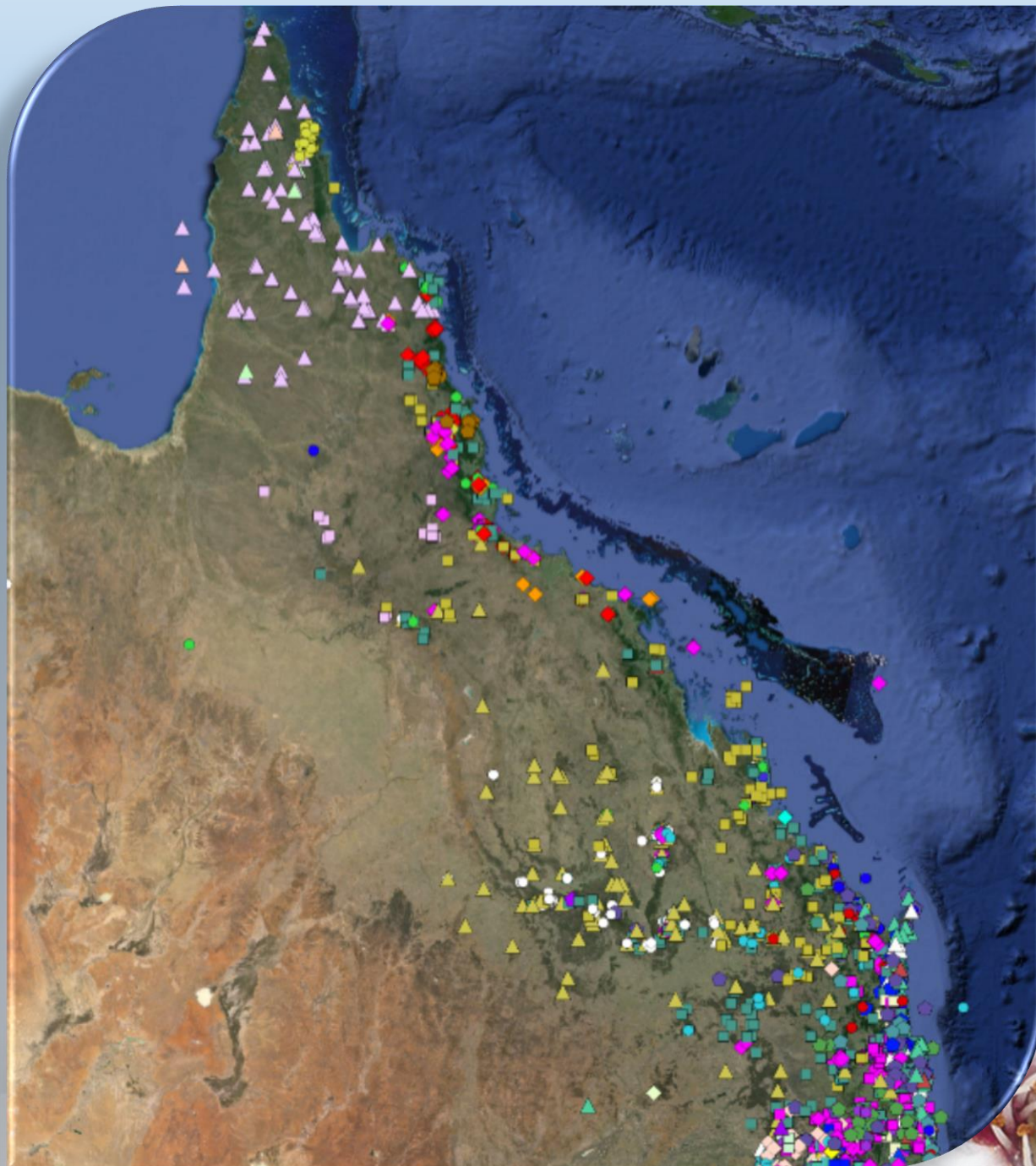
**PhD candidate: Mr Simon Williams**

**Tel: 0459336779**

**Email: [Simon.Williams@research.usc.edu.au](mailto:Simon.Williams@research.usc.edu.au)**







### Leptospermum Species

- ◆ *Leptospermum amboinense*
- ◆ *Leptospermum anfractum*
- ◆ *Leptospermum arachnoides*
- ◆ *Leptospermum barneyense*
- ◆ *Leptospermum benwellii*
- ◆ *Leptospermum brachyandrum*
- ◆ *Leptospermum brevipes*
- ◆ *Leptospermum continentale*
- ◆ *Leptospermum coriaceum*
- ◆ *Leptospermum divaricatum*
- ◆ *Leptospermum emarginatum*
- ◆ *Leptospermum grandiflorum*
- ◆ *Leptospermum grandifolium*
- ◆ *Leptospermum gregarium*
- ◆ *Leptospermum juniperinum*
- ◆ *Leptospermum laevigatum*
- ◆ *Leptospermum lamellatum*
- ◆ *Leptospermum lanigerum*
- ◆ *Leptospermum liversidgei*
- ◆ *Leptospermum luehmannii*
- ◆ *Leptospermum madidum*
- ◆ *Leptospermum madidum* subsp. *madidum*
- ◆ *Leptospermum madidum* subsp. *sativum*
- ◆ *Leptospermum microcarpum*
- ◆ *Leptospermum minutifolium*
- ◆ *Leptospermum morrisonii*
- ◆ *Leptospermum myrtifolium*
- ◆ *Leptospermum neglectum*
- ◆ *Leptospermum novae-angliae*
- ◆ *Leptospermum obovatum*
- ◆ *Leptospermum oreophilum*
- ◆ *Leptospermum pallidum*
- ◆ *Leptospermum parvifolium*
- ◆ *Leptospermum petersonii*
- ◆ *Leptospermum polyanthum*
- ◆ *Leptospermum polygalifolium*
- ◆ *Leptospermum polygalifolium* subsp. *cismontanum*
- ◆ *Leptospermum polygalifolium* subsp. *montanum*
- ◆ *Leptospermum polygalifolium* subsp. *polygalifolium*
- ◆ *Leptospermum polygalifolium* subsp. *transmontanum*
- ◆ *Leptospermum polygalifolium* subsp. *tropicum*
- ◆ *Leptospermum purpurascens*
- ◆ *Leptospermum scoparium*
- ◆ *Leptospermum semibaccatum*
- ◆ *Leptospermum sericatum*
- ◆ *Leptospermum* sp. *nov.*
- ◆ *Leptospermum speciosum*
- ◆ *Leptospermum trinervium*
- ◆ *Leptospermum variabile*
- ◆ *Leptospermum venustum*
- ◆ *Leptospermum whitei*
- ◆ *Leptospermum woocoooran*

# Honey Sampling

200g to 500g of Honey

Where possible a plant sample 20cm long with flowers, leaves and seeds

Along with some information about the apiary site

**! All Site Information will be Coded and Restricted to the Researchers Involved in the Project!**

**For Publications Data will be Averaged Over a Regions**

All donated honeys will have their MGO, DHA and HMF values tested and numbers supplied to the Bee Keepers at no cost.



# Information sheets available from us

## Looking for sources of active Australian *Leptospermum* honey Sample information sheet

Thank you for supplying honey for the research project looking for sources of active Australian *Leptospermum* honey.

Please return this information sheet with your 100 - 500g **honey sample**.

- If you are supplying more than one honey sample, please fill in a [separate sheet for each one](#) and [label](#) the different samples.

If possible, please also include **plant sample(s)** of the *Leptospermum* that the bees collected the nectar from (branch with bark, leaves, flowers and/or nuts), and a **nectar sample**.

- If you are supplying more than one sample, please label the different samples.

### Our postal address

Attn: Nural Cokcetin  
ithree institute  
University of Technology Sydney  
PO Box 123  
Broadway NSW 2007

### Beekeeper contact details

Name	
Phone number	
Address	
Email address	

*Note: When we report on our findings, the data we generate will be pooled without identifying specifics of your sample(s). All of the information you supply will be in confidence and will not be available to anyone outside of our research group without your permission.*

### Sample information

Sample number (if more than one supplied)	
Floral source	
Scientific name (if known)	
Location of the floral source (please be as specific as you can)	
Approximate date of collection from hives	
Has the honey been sitting in storage since extraction, and if so under what conditions e.g. temperature and in what sort of containers?	
Any other information you feel might be relevant e.g. Were other <i>Leptospermums</i> flowering in the area? Was there significant flowering from other species in the area, and if so which ones? Any exposure to chemicals (insecticides, pesticides etc.) or antibiotics (e.g. OTC)?	

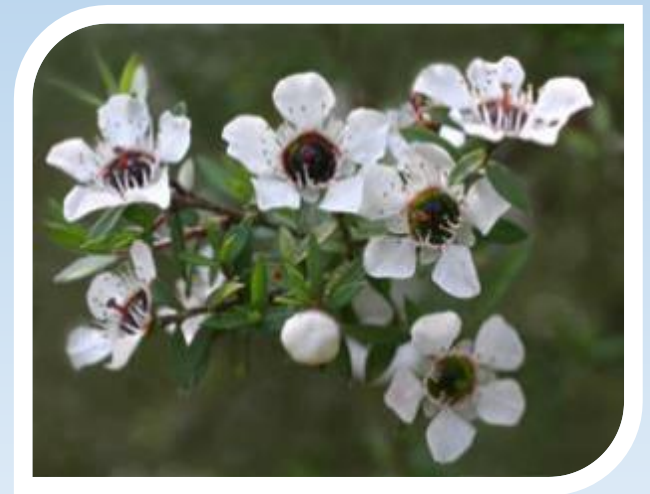
Please phone or email us if you have any queries, and thank you once again for your help.

**Project coordinator – Nural Cokcetin**  
Email [Nural.Cokcetin@uts.edu.au](mailto:Nural.Cokcetin@uts.edu.au)

**Principle Investigator – Professor Liz Harry**  
Email [Elizabeth.Harry@uts.edu.au](mailto:Elizabeth.Harry@uts.edu.au)

# Nectar Sampling

- Nectar samples collected by washing flowers
- DHA and sugar measured, to determine species activity



# End Goals

- To determine the Activity of the Queensland Leptospermum Species
- Identify new Areas for Active honey production
- Create a Guide to allow Beekeepers to identify active Leptospermum species
- Identify Leptospermum Species Suitable for Plantation Plantings
- To tell the Story of Australian Active Leptospermum Honeys



# Questions



This project is supported by:



Australian Government  
Rural Industries Research and  
Development Corporation



University of the  
Sunshine Coast  
Honey Laboratory



CAPILANO  
HONEY LIMITED



University of the  
Sunshine Coast



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