

Research Seminar

Chemical Diversity of Manuka and
Kanuka Grown in NZ-potential benefits
in product formulation

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Manuka–*Leptospermum scoparium* (Kahikatoa, red manuka, tea tree)

Kanuka –*Kunzea ericoides* (white or tree manuka)

There are significant differences in
habitat and constituents





Manuka
Leptospermum
scoparium



Kanuka *Kunzea ericoides* SI/ *kunzea*
ambigua (aust)

	M. alterni folia	Manuka NZ NI	Manuka West coast SI	Manuka S.I (top)	Manuka Otago	Kanuka NZ NI	Kanuka NZ SI
terpinene 4-ol	>30	-		-	-	-	-
viridifloro l	0	-		-	-	>4	?
alpha terpineol	1.5-8	-		-	-	<1	0
1,8 cineole	<15	-	4.6	-	2.72	6	5.1
α-pinene	1-6	-	10.10	2.9	6.59	61.6	72.6
α- terpinene	5-13	-		-	-	-	
beta triketones	-	>30	1	<5	-	-	-
sesquiterp enes		<40	>20	>65	>20	<5	>7

Waiheke island

Great Barrier Island

Tasman Sea

East Coast*

Westcoast

NEW ZEALAND

North Island

Cook Strait

Auckland

Manukau

Waikato

Hamilton

Rotorua

Gisborne

Napier

Palmerston North

wendy

WELLINGTON

Nelson

Westport

Blenheim

Greymouth

Christchurch

SOUTHERN ALPS

Mt. Cook

South Island

Timaru

Dunedin

Invercargill

Arapawa island,
marlborough
sounds,

Chatham Is.

South
Pacific
Ocean

St Arnaud Nelson Lakes

Estate aromatics



Auckland Is.

Campbell I.

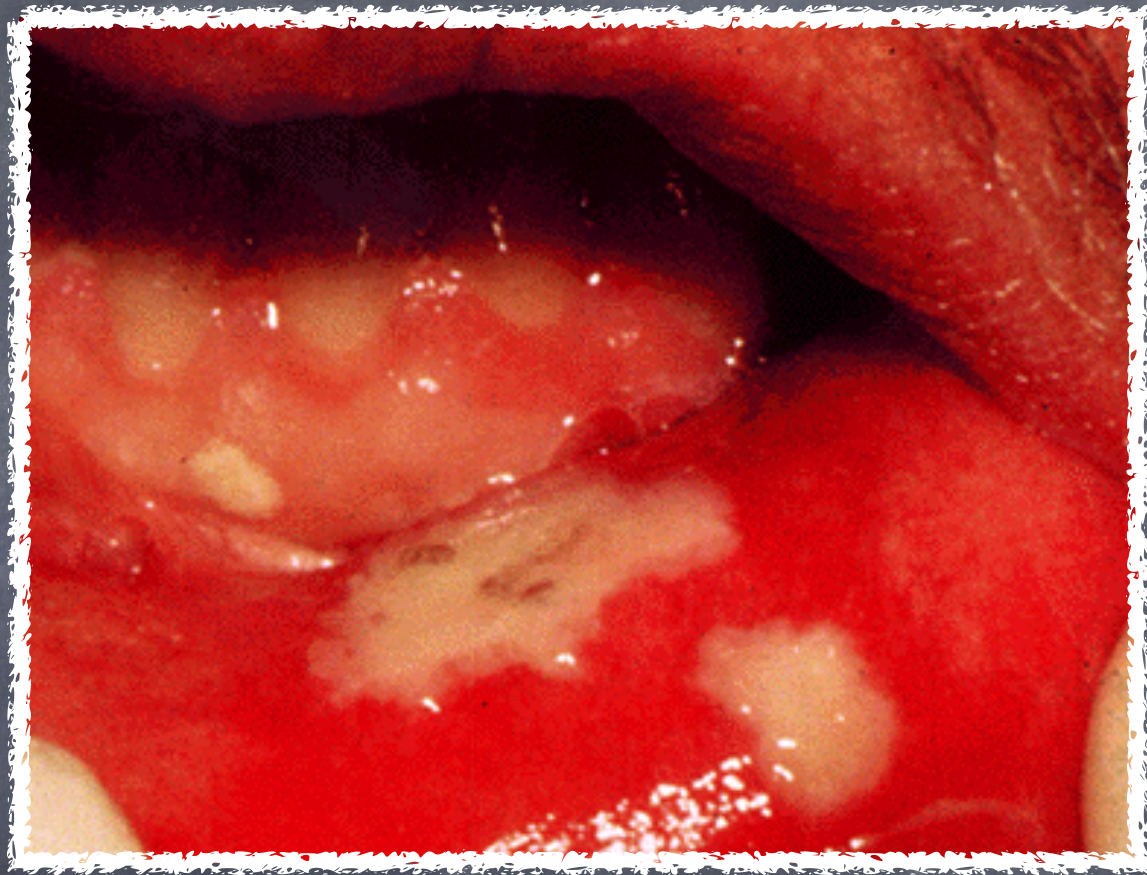


Stewart I.

Good Gargling

an investigation into the effects of an essential oil mouthwash on radiation induced mucositis (RIM) for head and neck (HAN)

- RIM- expected in 80-100% of patients-
Definite point in treatment where reaction occurs (pain)
- RIM affects QOL, treatment due to pain, poor nutrition, stress, fatigue etc
- Based on literature review needed



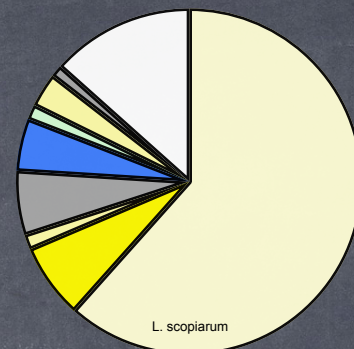
Radiation Induced Mucositis



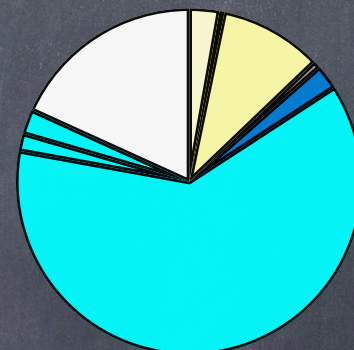
Arapawa
Island

Motueka south island

Kanuka ericoides- Kanuka SI
 Kanuka viridifloral- radioprotective



Manuka-Leptopsermum scoparium -
 analgesic + anti-inflammatory



Neither oil ever researched in this way so
 was 'ground breaking'-both oils from
 same SI distiller who had the best
 chemotype needed (not interested in beta
 triketones from NI oils)



Manuka and kanuka gargle

Key Findings-RIM

	Active	Placebo	Control
cGy 1st RIM	3120 (SD1136)	2136 (SD=907)	1450 (SD=661)
Treatment days	15.6	10.68	7.25

- All patients developed RIM to some degree (1-3/5)
- The Active group went the LONGEST time until first reaction occurred ($p=0.05$). Verified using TUKEY's post hoc test for Honest Significant Difference. The accepted threshold for RIM is 1500-2000 cGy (7.5-10 treatment days)

Initial research into
Kanuka hydrosol home
based distillation

Project Aim

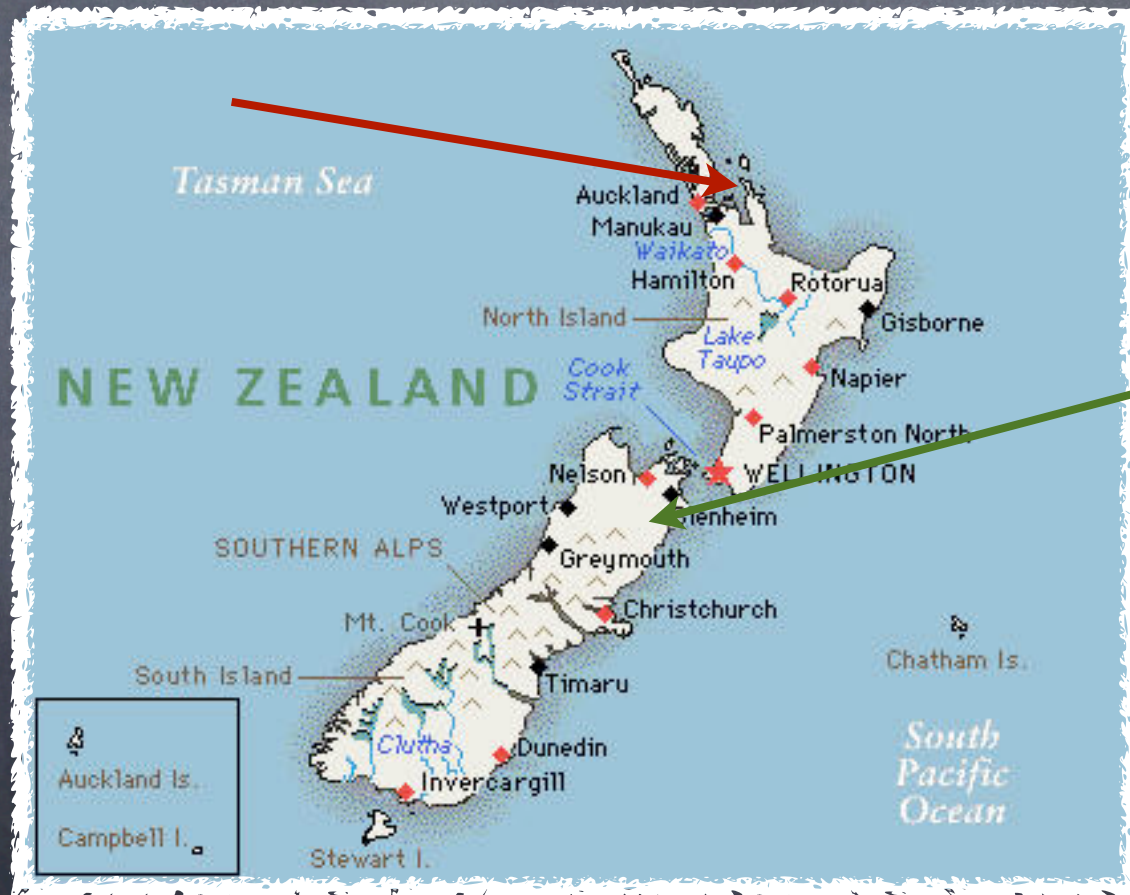
To analyse samples of manuka and kanuka hydrosols gathered and distilled by craft distillers using copper alembic stills with nil extraction of essential oils

Due to cost of samples (NZ\$150 per sample) tried to get crowd funding from aromatic community- managed to raise \$135 (thank you)-rest self funded

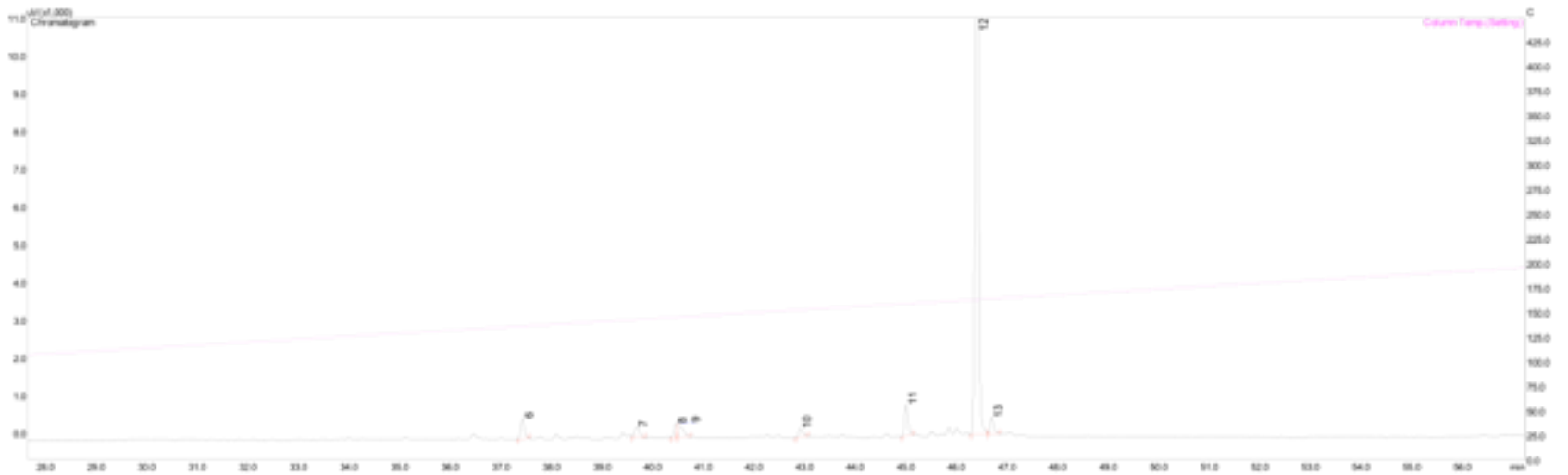
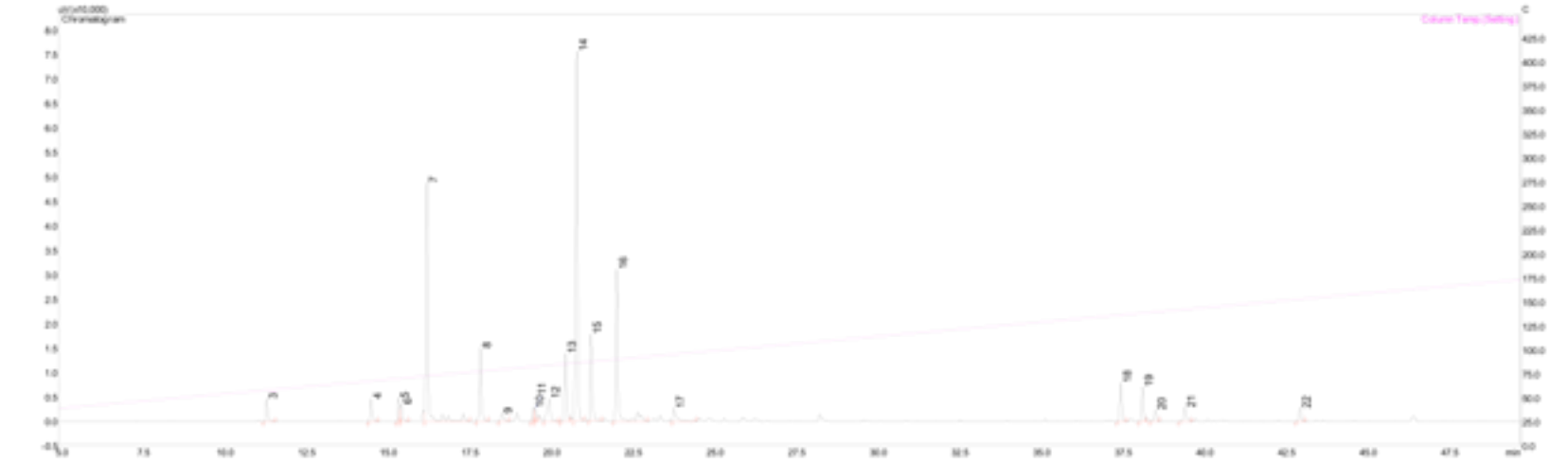


results

2 samples - 1 from Waiheke Island (North island) and one from Mt Arnaud (South Island)



N.I Kanuka Hydrosol



S.I. kanuka

So what does this mean?

Nil pinene seen- expected as this is
insoluble in water

N.I linalol 17.9%, terpineol 28.4%,
verbenone 6.6%, carveol 11.6%,
spathulenol 3%, viridiflorol 2.6%

S.I.-fewer components identified 67.9%
eudesmol

Other NZ Native Medicinal/ Therapeutic uses

Kawakawa- bitter herb (herbal medicine-
leaves harvested, trees stay alive)

Horopito- anti fungal (plantation grown)

Totara resin- skin care- preservative
totarol (from dead trees, fence posts, -
Totara are not felled)

Mamaku-black tree fern used in skincare-
emollient

What needs to happen

- Work with local NZ producers to assist with analysis of constituents to further map our geographical variations of both Manuka and kanuka essential oils and hydrosols
- Utilise this knowledge to develop products 'branded' with something to differentiate regional variations
- Potential to be used not just in personal care products—cleaning, insect control, pet care

Iwi based enterprises

- Hikurangi bioactive (East Coast NZ)
 - Erosion free harvesting
 - Extracting bioactives, research
(www.hikurangi.enterprises)
- Funding by MBIE to various other IWI based enterprises



And any
questions??