Mānuka and Kānuka
Always Something new

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www.aromatocadventures.com

aromaticadventures

aromatic.adventures.nz

AROMATIC ADVENTURES
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What I will cover…

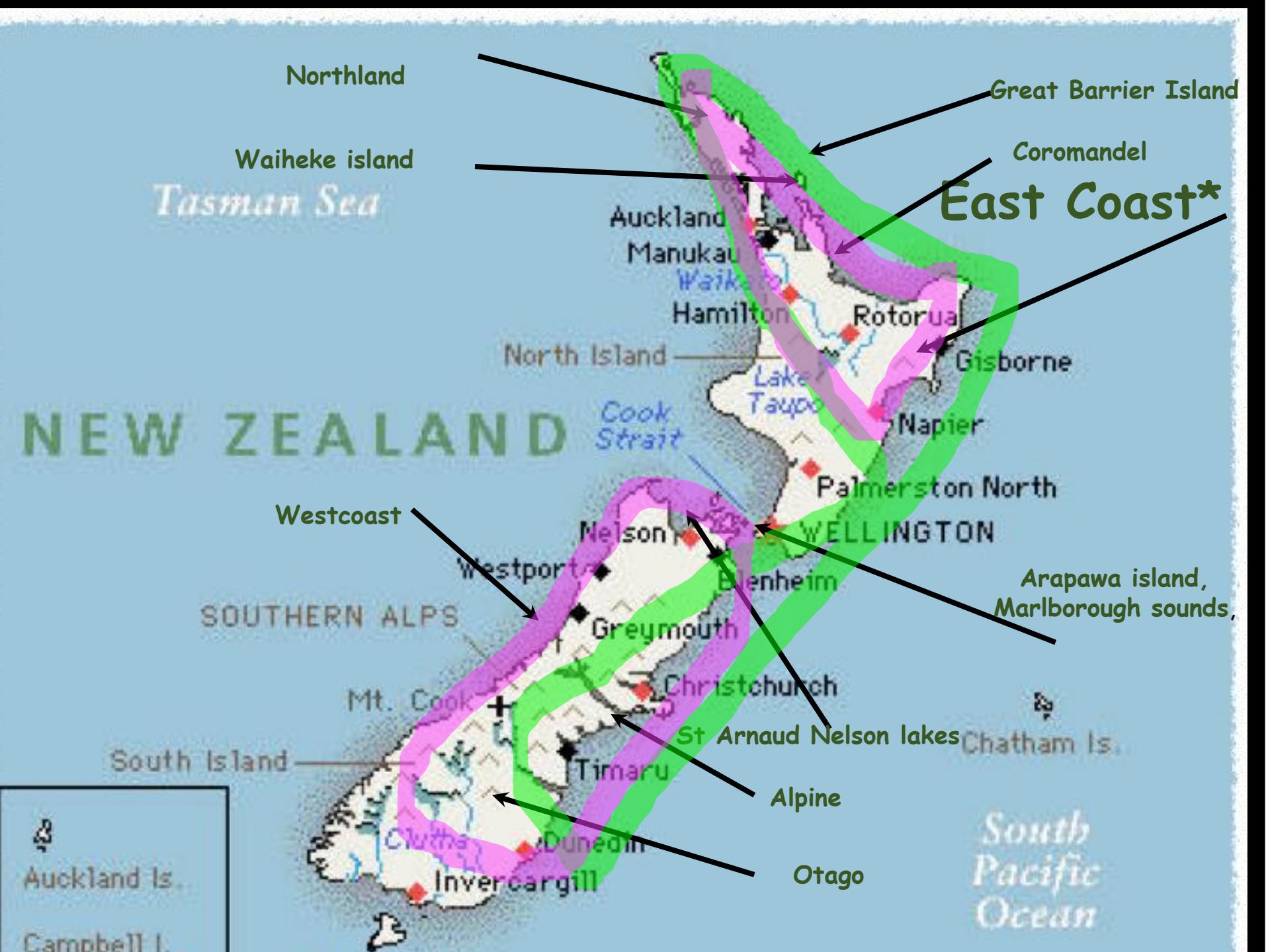
Update information on the two main NZ natives commercially produced for local and export

Mānuka (aka Kahikātoa) *Leptospermum scoparium* and **Kānuka** *Kunzea ericoides*

Current and emerging evidence

What the regional variations are

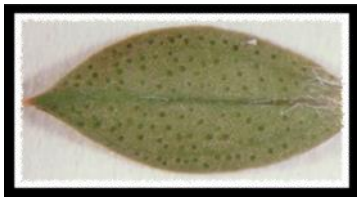
Your Samples


Northland
Great Barrier Island
Waiheke island
Coromandel
East Coast*
Tasman Sea
Auckland
Manukau
Hamilton
Rotorua
North Island
Gisborne
NEW ZEALAND
Cook Strait
Napier
Palmerston North
Westcoast
Nelson
WELLINGTON
Westport
Blenheim
Arapawa island, Marlborough sounds,
SOUTHERN ALPS
Greymouth
Christchurch
Mt. Cook
St Arnaud Nelson lakes
Chatham Is.
South Island
Timaru
Alpine
Clutha
Dunedin
Otago
Invercargill
South Pacific Ocean
Auckland Is.
Campbell I.

Kanuka leaves and seed capsules (left) are smaller than manuka's distinctive larger seed capsules and prickly leaves (right). Copper-coloured manuka seed is pictured here spilling out of split seed capsules.
© Dean Baigent-Mercer https://www.gbiet.org/en22-kanuka-and-manuka

Mānuka

Close up of manuka flowers.
Photo by Miranda Woodward



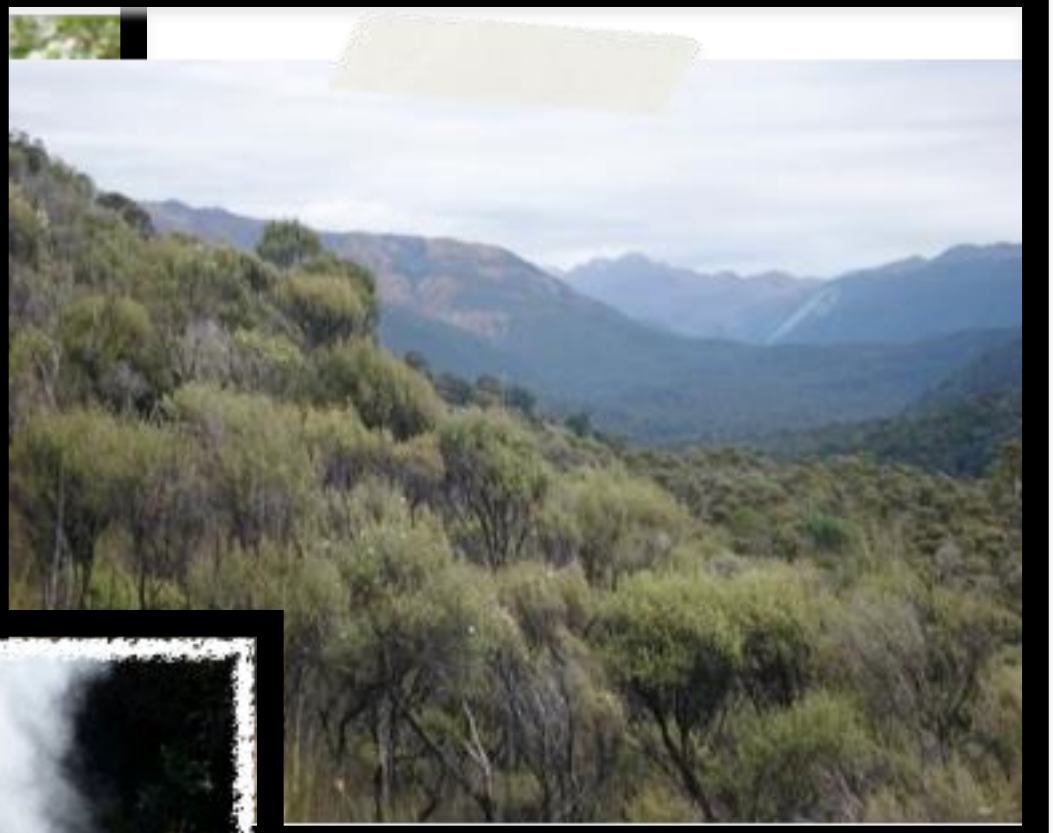
https://www.gbiet.org/en22-kanuka-and-manuka

- Manuka oil production 2022 <10 tonnes p/a (c/w 800 tons Aus. Teatree)
  $10 million NZD oil only (c/w TT >$35 mil)

1,000,000 trees planted 2020-21

Global EO $7.6 billion USD (46% personal care) Post covid predicted to rise to $11 bil

Manuka oil glands on leaf Photo: Miranda Woodward



Mānuka *leptospermum scoparium*

Images Wendy Maddocks

- Mānuka Oil Literature

Google Scholar 16/09/2025

Google Scholar search “manuka oil” >3000 since 2021 (increased by 3000 since 2022)

Some novel studies:

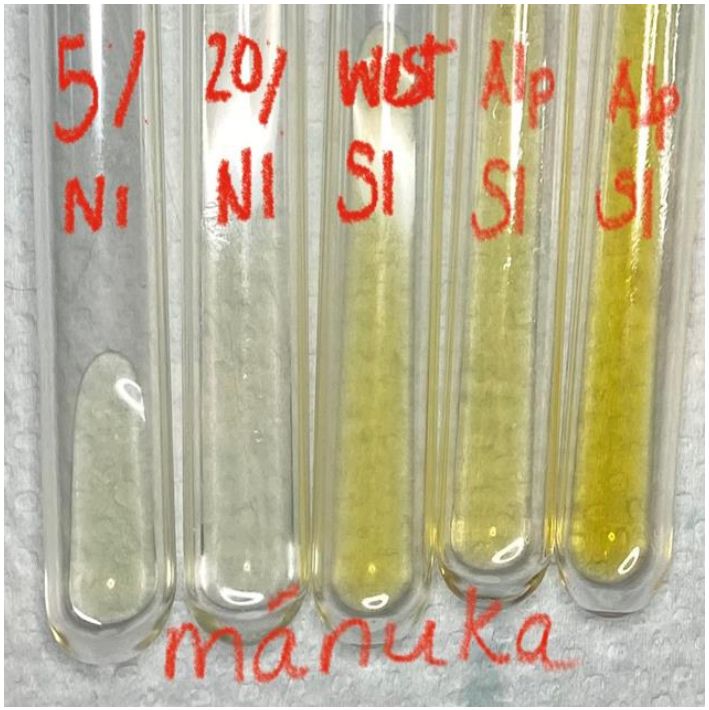
impregnating shoe leather

Most studies in vitro antimicrobial

Essential Oil Production

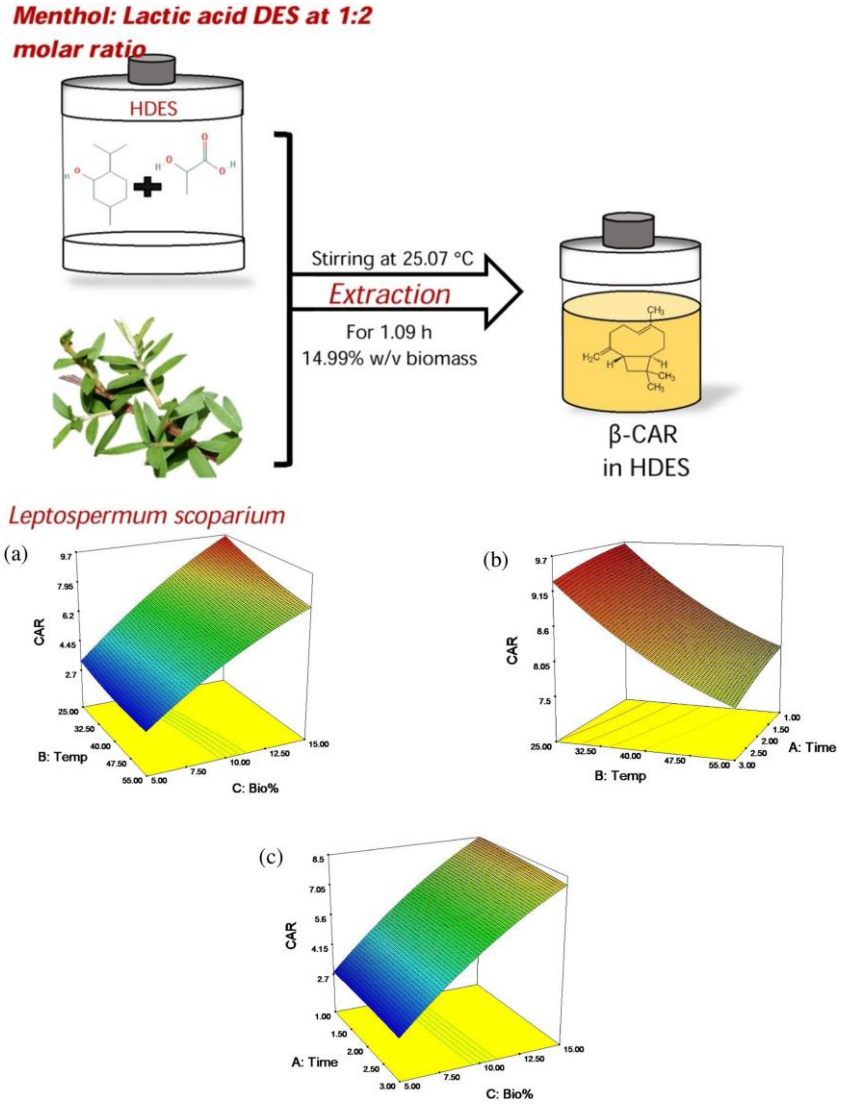
Most by steam distillation, increasing amount of vacuum distillation and now commerical $SCCO_2$, plus “green technologies”

Image © w.maddocks SCOO2 Mānuka



, , Mohammed Farid

Evaluation of deep eutectic solvents in the extraction of β-caryophyllene from New Zealand Manuka leaves (*Leptospermum scoparium*) Alsaud, N., Shahbaz, K., & Farid, M. (2021). Evaluation of deep eutectic solvents in the extraction of β-caryophyllene from New Zealand Manuka leaves (Leptospermum scoparium). Chemical



NZ Highest Alpine Mānuka oil

www.alpinus.co.nz

What is so special about this oil????

- All analyses have been conducted at a NZ accredited lab and different seasons and batches tested
- FlindersCook Technical Services
- www.flinderscook.co.nz

Now a small slide show to show the Alpinus production

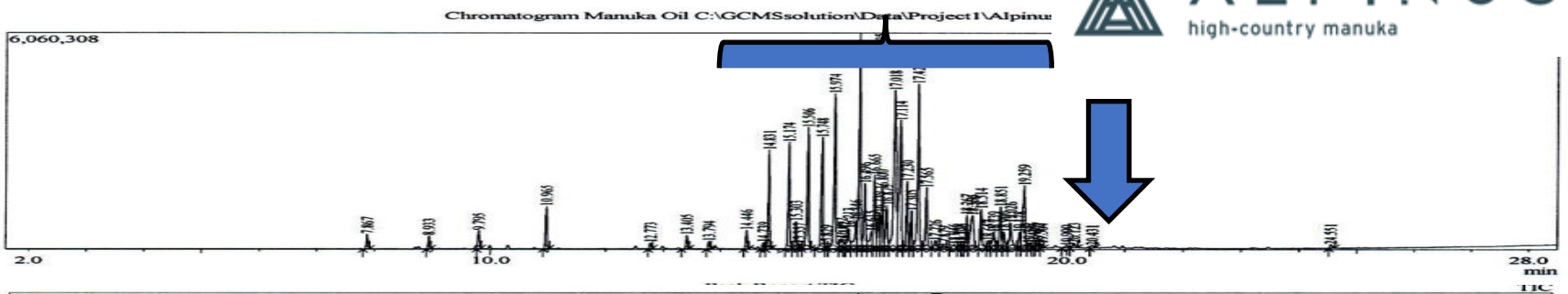
ALPINUS
high-country manuka

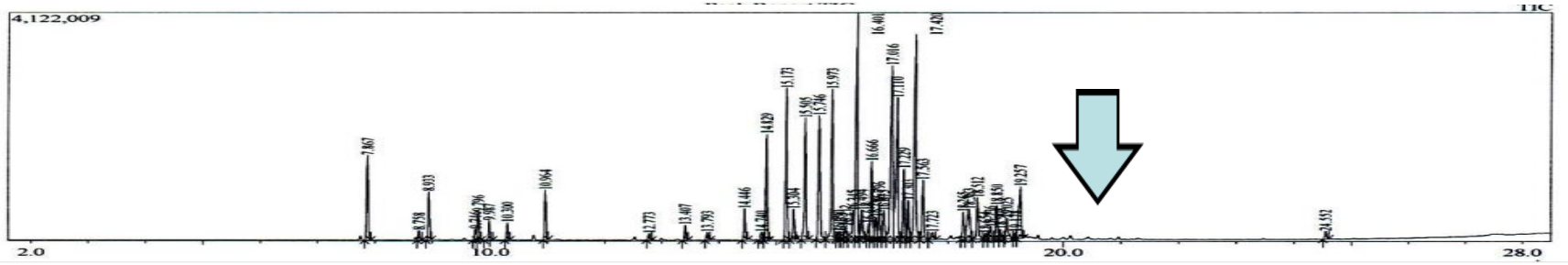
Batch 1	>2%	Batch 3	Chemical >2%	Batch 6	Chemical (>2%)	Batch 9	Chemical >2%
10.08	Geranyl acetate	9.03	b-selinene	10.08	Geranyl acetate	9.32	Geranyl acetate
8.27	cadinene	8.28	cadina-3,5-diene	8.27	cadinene	8.5	cis-Calamenene
7.46	cadina 3,5, diene	8.03	cis-Calamenene	7.46	cadina-3,5-diene	7.53	b-elemene
6.67	2-Propenoic acid, 3-phenyl-, methyl ester	6.84	a-selinene	6.67	methyl ester	7.12	methyl ester
6.48	Caryophyllene	5.95	Caryophyllene	6.48	Caryophyllene	6.85	Caryophyllene
5.69	calamenene	5.33	Geranyl acetate	5.69	calamenene	4.21	a-selinene
4.6	alpha selinene	4.94	methyl ester	4.6	a-selinene	3.4	Spathulenol
3.49	alpha eudesamol	4.53	b-elemene	3.49	a eudesmol	3.26	cadina-3,5-diene
3.2	beta elemene	3.66	a-Cubebene	3.2	b-elemene	3.17	2-Dodecen-1-yl(-) succinic anhydride
2.7	.alpha.-Cubebene	3.3	b-cadinene	2.7	a-cubinene	3.08	a-eudesamol
2.51	iso leptospermone	2.96	a-Pinene	2.51	isoleptospermone	2.97	trans-Geranic acid methyl ester
2.46	Linalool	2.91	Cryptomeridiol	2.46	Linalool	2.65	Linalool
2.21	trans-Geranic acid methyl ester	2.59	d-cadinine	2.21	trans-Geranic acid	2.59	b-elemene
2.13	beta cadinene	2.38	cadina-1,4-diene	2.13	b-cadinene	2.39	.alpha.-Cubebene
2.02	delta cadinene	2.02	isoleptospermone	2.02	d-cadinene	2.14	Humulene
						2.49	aromadendrene
69.97		**72.75**		**69.97**		**71.67**	
525MASL	<10yr post flowering	**550MASL**	flowering <10yr	**830MASL**	after flowering >10yr	**820MASL**	>10yr after flowering
	summer		Early summer		Mid summer		late summer

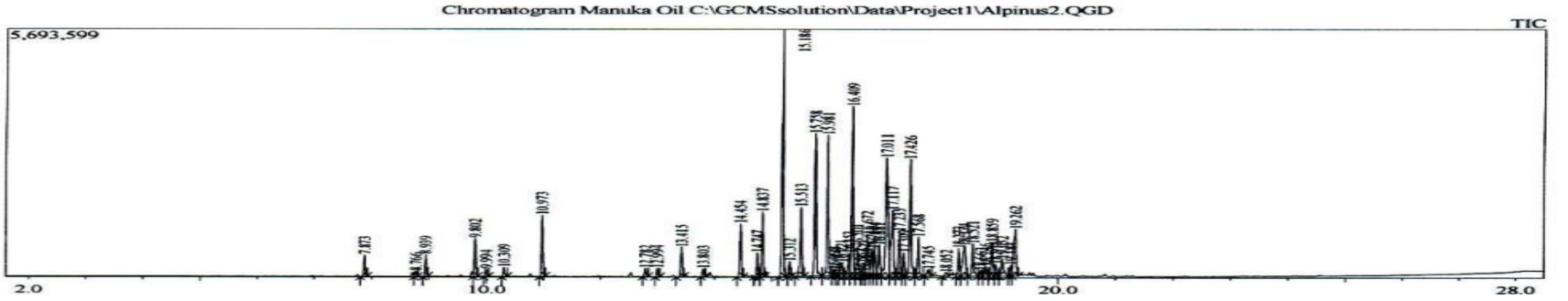
Analyzed : 2/27/2023 11:39:55 AM

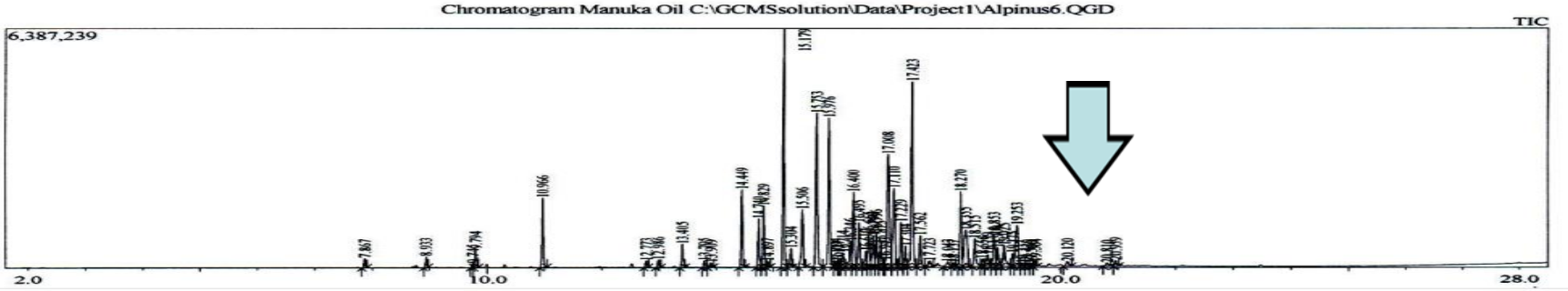
Sample Name : Manuka Oil
Sample ID : Batch #1/23

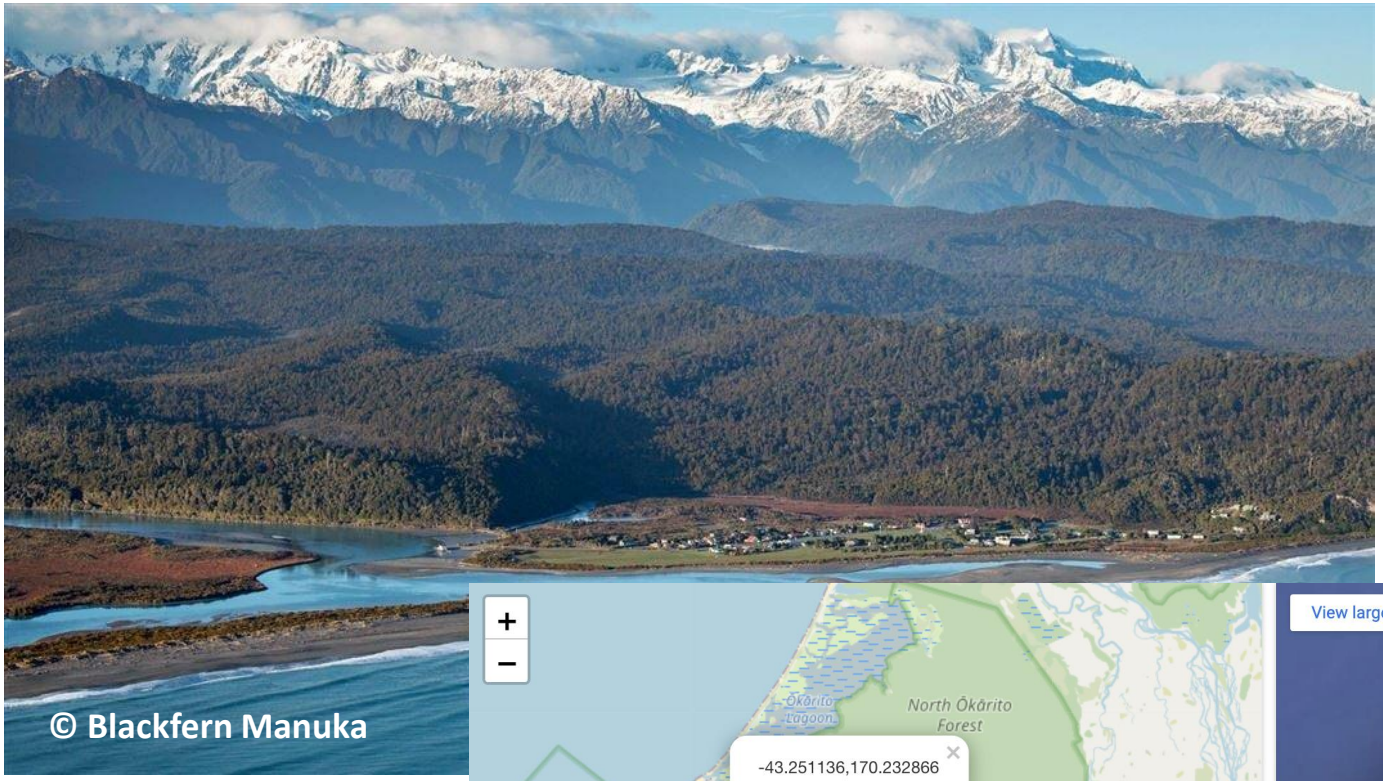
ALPINUS
high-country manuka

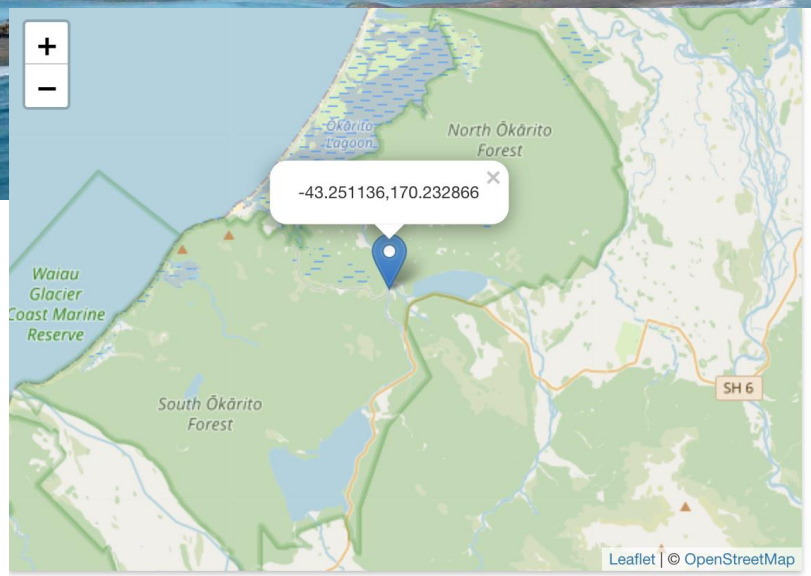


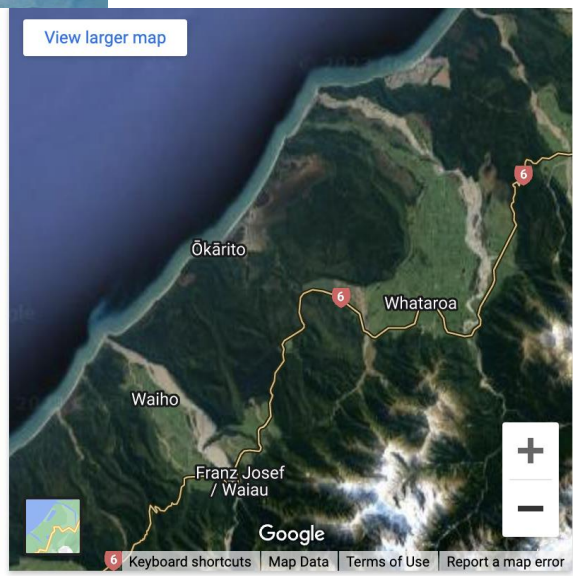








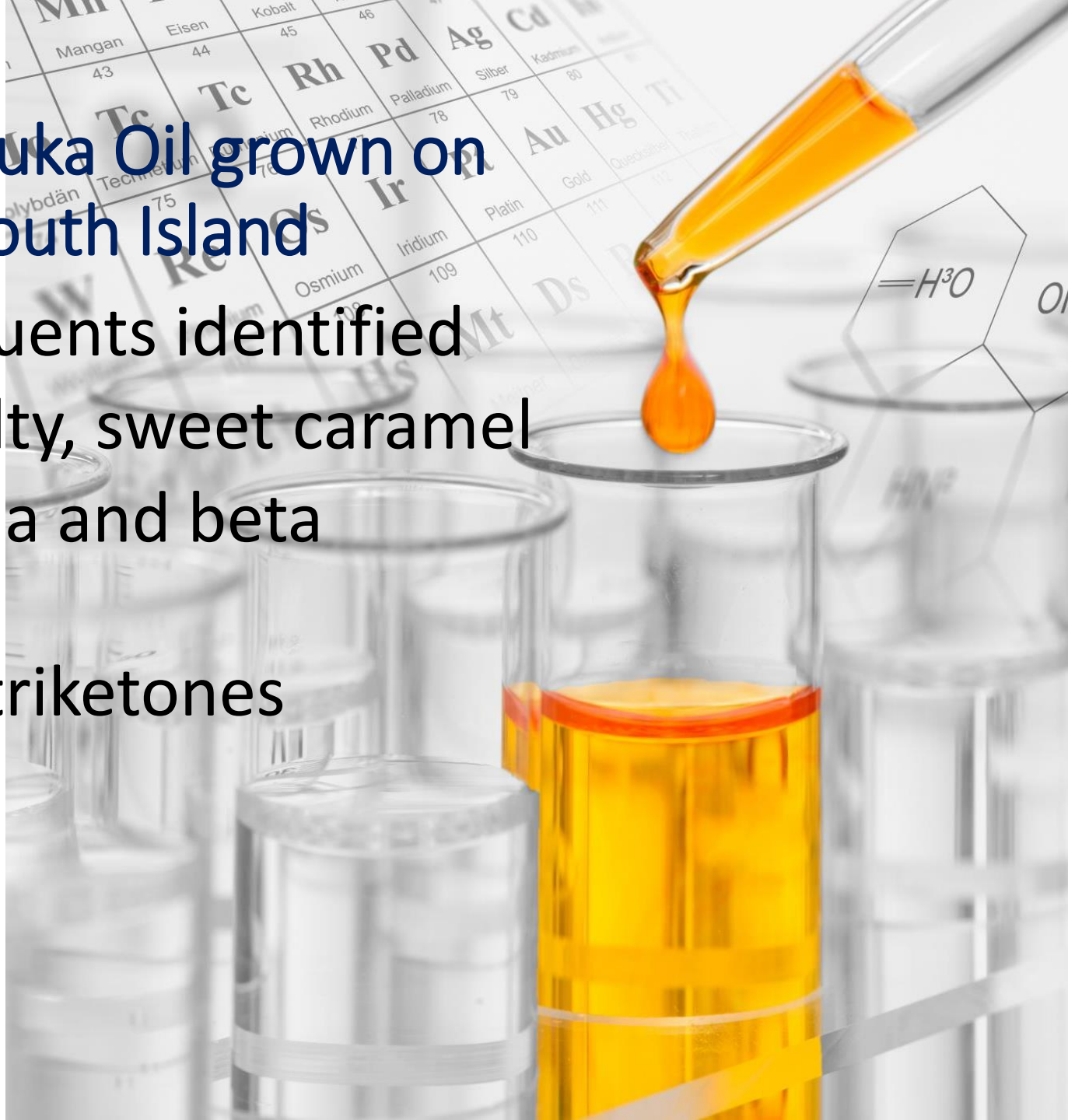




Lat Long	GPS Coordinates
(-43.251136, 170.232866)	43° 15' 4.0896'' S
© Blackfern Manuka	170° 13' 58.3176'' E

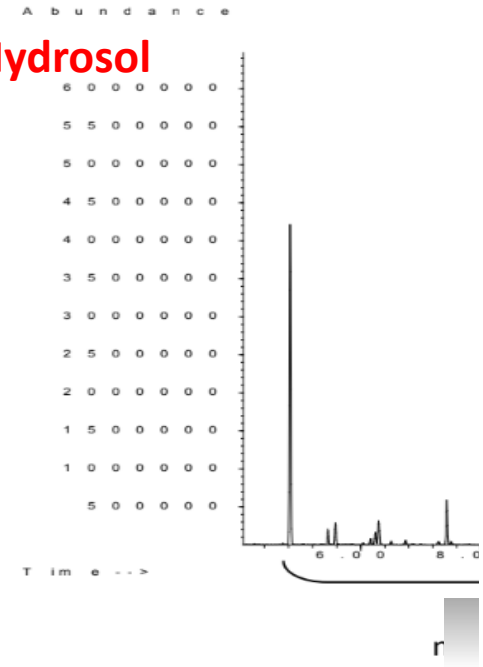
Coastal Mānuka Oil grown on Westcoast South Island

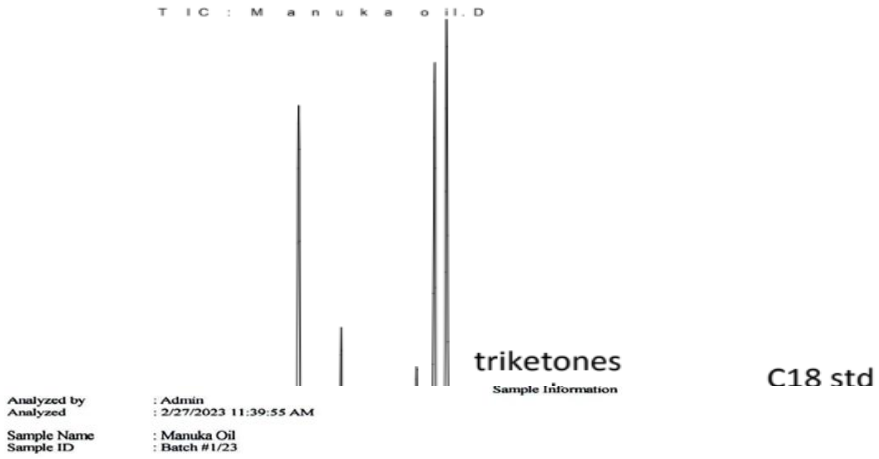
- **83** Constituents identified
- Aroma- salty, sweet caramel
- >**30%** Alpha and beta selinene
- <**1%** beta triketones

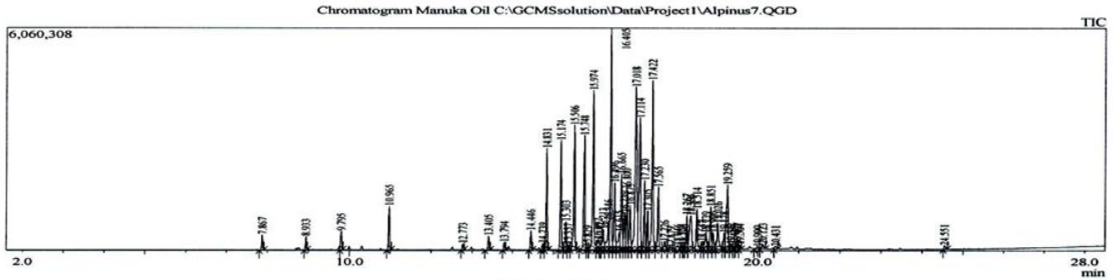


Total ion chromatogram for all compounds.

Hydrosol

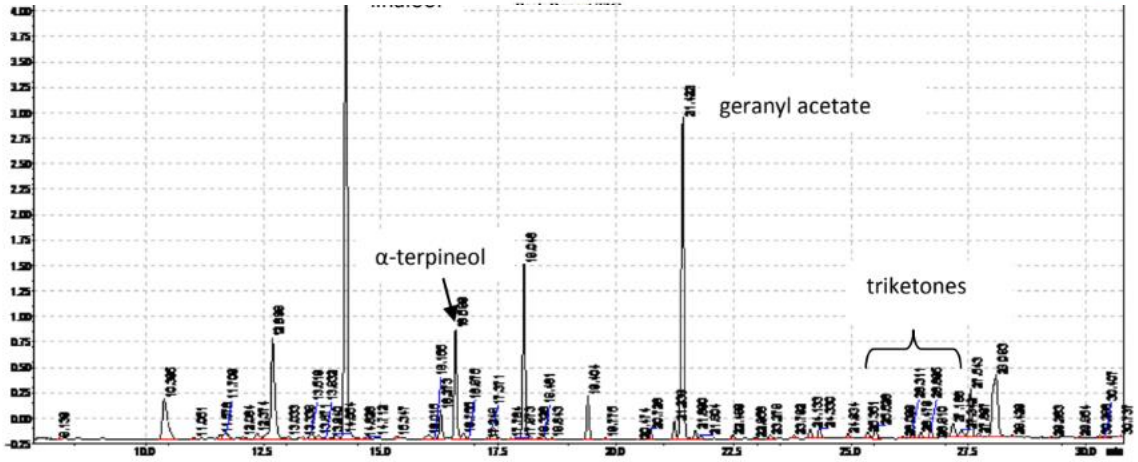






Robert Franich,
Chemipreneur Ltd
© Black Fern Manuka

Essential Oil



Mānuka hydrosol

Analysis: Gas chromatography with flame ionization detector (GCFID)

- Analysis showed>30% linalool >15% geranyl acetate
- Trace beta triketones
- “The composition of this ‘Southern’ manuka chemotype distillation hydrosol differs significantly from
- the composition of the East Cape manuka hydrosol.”
- Data obtained from oil producer

L. Scoparium Mānuka %	Far North (73)	SCCO2 Far North	SCCO2 Waipu	East Coast NI	Alpine SI	West Coast SI
1,8 cineole	11.85	0	0.14	-	-	<1
α-pinene	33.6	0	0.14	-	2.9	>5
α terpinene	-	0		-	-	<0.05
β triketones	0	0	14.02 +5 isolepto	>30	<5	<1
Sesquiterpenes	-	3-5	>11 inc. calamanene 5.09	<40	>65	>85
β pinene	2.28	0		0	<1	<0.05
β eudesamol	5.74	0		0	trace	0
δ cymene	7.17	0		0	?	0
α selinene	-	0	4.92	0	4-7	>15
β selinene	-	0	4.77	0	<0.1	>17
δ selinene	-	0		0	0	>5
flavones	-	>15	.7	0	0	0
Cis beta ocimene			13.12			
Cadinene 1-4, diene			4.07			

Mānuka SCOO2

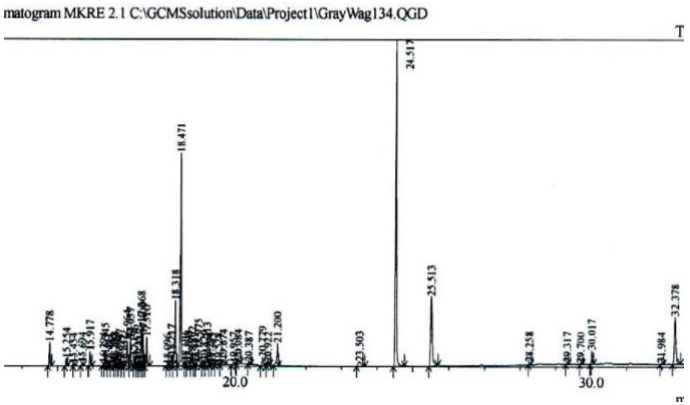
MKRE extract

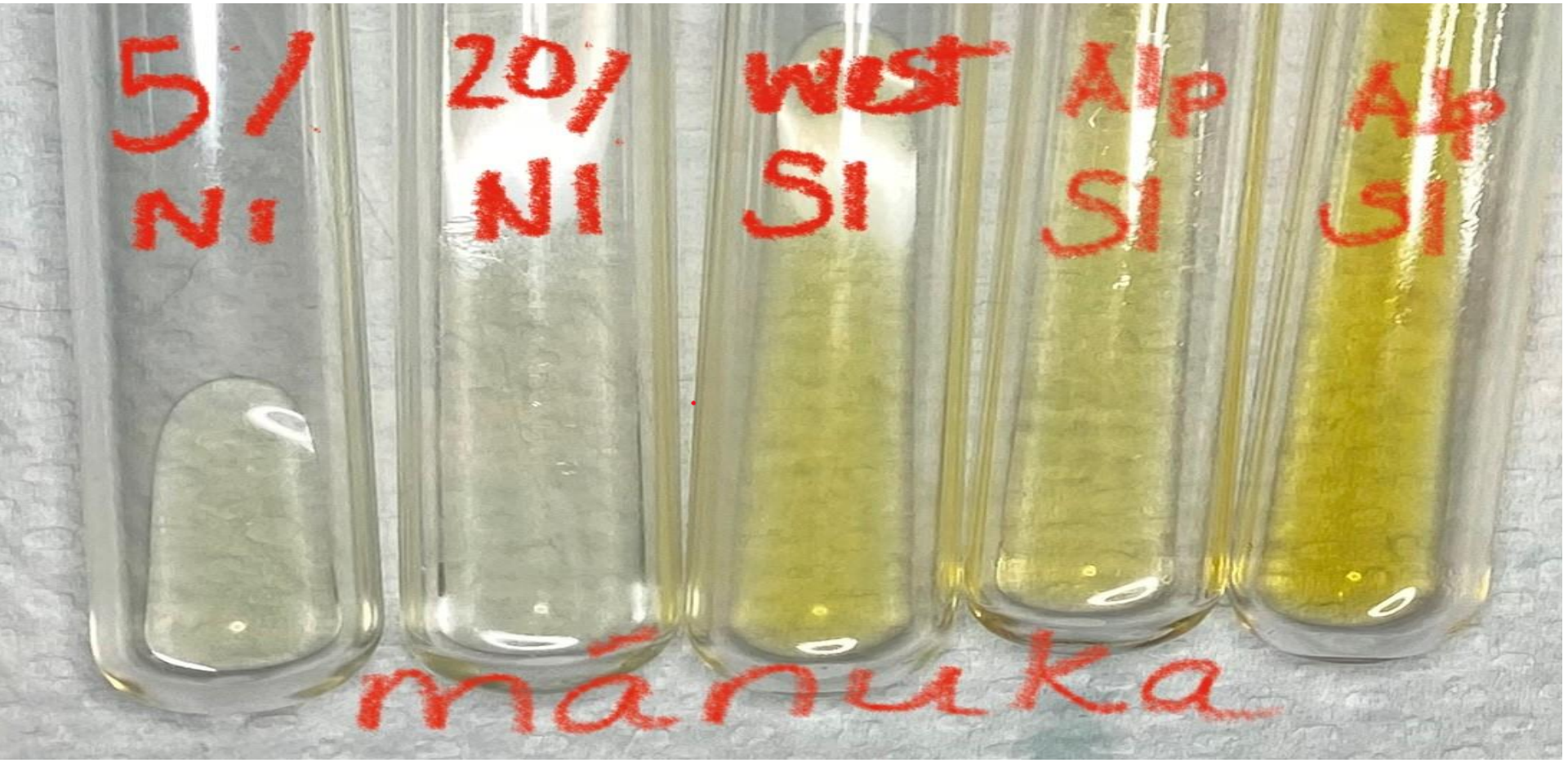
10.0 20.0 30.0 33 min

Peak Report TIC

Peak#	R.Time	I.Time	F.Time	Area	Area%	Name	CAS#
1	14.778	14.729	14.838	899792	1.77	.alpha.-Cubebene	17699-14-8
2	15.254	15.196	15.296	284058	0.56	Copaene	3856-25-5
3	15.454	15.433	15.496	93640	0.18	Cyclohexane, 1-ethenyl-1-methyl-2,4-bis(1-methylethenyl)-	110823-68-2
4	15.694	15.646	15.729	125784	0.25	1H-Cycloprop[e]azulene, 1a,2,3,4,4a,5,6,7b-octahydro-1,1,4,7-tetramethyl	489-40-7
5	15.917	15.863	15.979	590727	1.16	Bicyclo[7.2.0]undec-4-ene, 4,11,11-trimethyl-8-methylene-,[1R-(1R*,4Z,5	118-65-0
6	16.294	16.246	16.313	97562	0.19	Aromandendrene	489-39-4
7	16.345	16.313	16.400	472385	0.93	cis-muurola-3,5-diene	0-0-0
8	16.441	16.400	16.483	67604	0.13	Humulene	6753-98-6
9	16.566	16.483	16.587	67707	0.13	Aromandendrene	489-39-4
10	16.613	16.587	16.646	158140	0.31	1H-Cycloprop[e]azulene, 1a,2,3,4,4a,5,6,7b-octahydro-1,1,4,7-tetramethyl	489-40-7
11	16.675	16.646	16.708	120535	0.24	(S,1Z,6Z)-8-Isopropyl-1-methyl-5-methylenecyclodeca-1,6-diene	317819-80-0
12	16.747	16.708	16.796	240442	0.47	.alpha.-Farnesene	502-61-4
13	16.842	16.796	16.871	51956	0.10	Germacrene D	23986-74-5
14	16.964	16.871	17.017	1148782	2.26	Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-4a,8-dimethyl-2-(1-methylethen	473-13-2
15	17.057	17.017	17.137	1128701	2.23	Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-4a,8-dimethyl-2-(1-methylethen	473-13-2
16	17.176	17.137	17.217	375597	0.74	Naphthalene, 1,2,3,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-, (1S	483-76-1
17	17.252	17.217	17.283	169101	0.33	Naphthalene, 1,2,4a,5,6,8a-hexahydro-4,7-dimethyl-1-(1-methylethyl)-	483-75-0
18	17.317	17.283	17.333	258565	0.51	(3S,3aR,3bR,4S,7R,7aR)-4-Isopropyl-3,7-dimethyloctahydro-1H-cyclopen	23445-2-5
19	17.368	17.333	17.392	1781750	3.51	trans-Calamenene	73209-42-4
20	17.409	17.392	17.458	1083611	2.14	6-Isobutyryl-2,2,4,4-tetramethylcyclohexane-1,3,5-trione	22595-45-5
21	17.510	17.458	17.604	1192701	2.35	Naphthalene, 1,2,3,4,4a,7-hexahydro-1,6-dimethyl-4-(1-methylethyl)-	16728-99-7
22	18.096	18.063	18.129	70046	0.14	Androstan-3-one, 17-hydroxy-1,17-dimethyl-, (1.alpha.,5.alpha.,17.beta.)-	2881-21-2
23	18.217	18.167	18.250	482425	0.95	1H-Cycloprop[e]azulen-7-ol, decahydro-1,1,7-trimethyl-4-methylene-, [1a	6750-60-3
24	18.318	18.250	18.375	2997998	5.91	2,2,4,4-Tetramethyl-6-(2-methylbutanoyl)cyclohexane-1,3,5-trione	5009-5-2
25	18.471	18.375	18.567	8277973	16.32	2,2,4,4-Tetramethyl-6-(3-methylbutanoyl)cyclohexane-1,3,5-trione	567-75-9
26	18.606	18.567	18.637	203940	0.40	Globulol	51371-47-2
27	18.695	18.637	18.742	295295	0.58	Neointermedeol	5945-72-2
28	18.802	18.742	18.833	406532	0.80	Di-epi-1,10-cubenol	73365-77-2
29	18.862	18.833	18.892	99979	0.20	1H-Cycloprop[e]azulen-7-ol, decahydro-1,1,7-trimethyl-4-methylene-, [1a	6750-60-3
30	18.975	18.892	19.058	884407	1.74	Epicubenol	19912-67-5
31	19.129	19.067	19.154	213289	0.42	.alpha.-Cadinol	481-34-5
32	19.213	19.154	19.262	615865	1.21	Neointermedeol	5945-72-2
33	19.294	19.262	19.329	110057	0.22	1H-Cycloprop[e]azulen-7-ol, decahydro-1,1,7-trimethyl-4-methylene-, [1a	6750-60-3
34	19.363	19.329	19.433	91110	0.18	2,2,6-Trimethyl-1-(2-methyl-cyclobut-2-enyl)-hepta-4,6-dien-3-one	0-0-0
35	19.528	19.433	19.571	126444	0.25	(1R,2R,4S,6S,7S,8S)-8-Isopropyl-1-methyl-3-methylenetricyclo[4.4.0.02,7	124753-76-0
36	19.674	19.571	19.733	299087	0.59	E-7-Octadecene	0-0-0
37	19.957	19.887	20.000	138549	0.27	Ylangenal	41610-68-8
38	20.084	20.042	20.163	256090	0.50	1,1,4,7-Tetramethyldecahydro-1H-cyclopropa[e]azulene-4,7-diol	1212211-43-2
39	20.387	20.358	20.446	98248	0.19	2-Cyclopenten-1-one, 3-methyl-2-(2-pentenyl)-, (Z)-	488-10-8
40	20.779	20.717	20.854	407494	0.80	2(1H)-Naphthalenone, octahydro-4a,7,7-trimethyl-, cis-	7056-56-6
41	20.922	20.879	20.996	168760	0.33	Thunbergol	25269-17-4
42	21.200	21.087	21.233	1160534	2.29	1-Heptatriacotanol	105794-58-9
43	23.503	23.421	23.658	605521	1.19	Phytol	150-86-7
44	24.517	24.446	24.758	13850863	27.31	2,2,4,4-Tetramethyl-6-(3-phenylpropanoyl)cyclohexane-1,3,5-trione	50861-53-5
45	25.513	25.438	25.700	4492247	8.86	?	91424-75-8
46	28.258	28.221	28.300	95693	0.19	Tetratetracontane	7098-22-8
47	29.317	29.275	29.354	56742	0.11	Squalene	111-2-4
48	29.700	29.667	29.750	52010	0.10	Eicosanal-	2400-66-0
49	30.017	29.962	30.071	633805	1.25	Heneicosane	629-94-7
50	31.984	31.950	32.054	67523	0.13	Eicosanal-	2400-66-0

Sample Information





NORTH AND SOUTH ISLAND OILS ARE DIFFERENT!!!!

Mānuka oil from around NZ

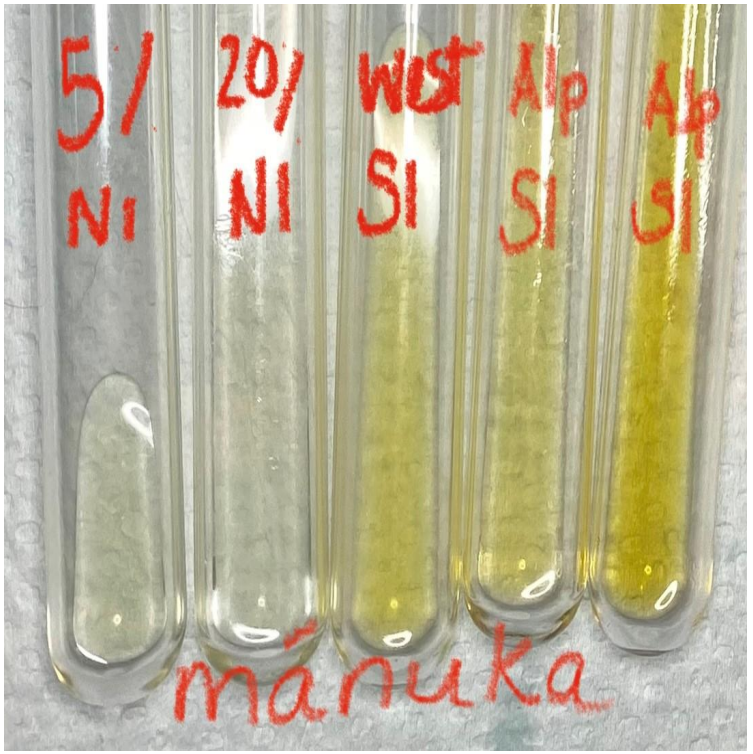
Potential Therapeutic Applications

Gentle, calming

- anti inflammatory (skin, muscular), anti irritant (bites, stings), premium skin care, anti pollutant, oral care, respiratory support, perfumery, antiseptic, emotional benefits (nature deficiency)
- **No safety issues identified with any oil**

Kānuka oil-*Kunzea ericoides*
at least 10 different
chemotypes known ,
lives longer than mānuka
(160 years) but does not
regenerate after fire

Kānuka Oil Literature
Google Scholar 17/09/2025
Google Scholar search “kanuka oil” 649
(2 of first 10 mine)

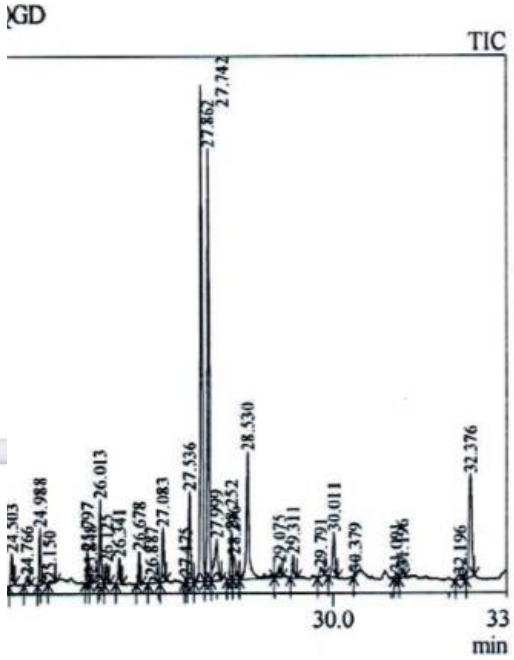


Kānuka vs. Mānuka

%	Gt. Barrier Island	Gt Barrier NI old wood	East Coast NI	Far North NI	Coromandel NI Vacuum	Arapawa Island	Central Otago SI	Waipu SCOO2
α-pinene	1.68	74.34	60.12	50	74.08	70.64	61.39	
1,8-cineole	5.95	5.58	5.51	8.5	6.6	4.34	8.99	
linalool	2.49	2.57	1.81	<2	4.45	1.93	2.62	
α-terpineol	1.39	0.94	1.06	Trace	1	0.8	n/a	
Bioactive	1.39	0.15	2.95	Trace	0.61	0.95	n/a	
cis-calamenene	1.72	1.38	1.9	Trace	0.92	1.21	n/a	
spathulenol	1.35	0.64	0.94	Trace	0.75	0.5	1.32	
viridiflorol	4.11	1.06	3.5	Trace	2.32	1.3	n/a	
o-cymene	1.14	1.27	2.99	>4	0.44	3.95	n/a	
Epiglobulol				>8				
β-selinene	0.25	1.62	0	0	0	0	3.41	
Total of main constituents	92.76	90.43	86.89		92.09	89.68	unstated	

Kānuka Oil Variations

7	10.781	10.742	10.829	52260	0.07	trans-Linalool oxide (furanoid)	34995-77-2
8	10.916	10.875	10.971	957527	1.37	Linalool	78-70-6
9	11.672	11.633	11.713	165558	0.24	.alpha.-Campholenal	4501-58-0
10	11.767	11.713	11.821	181780	0.26	Bicyclo[3.1.1]heptan-3-ol, 6,6-dimethyl-2-methylene-, [1S-(1.alpha.,3.alpl	547-61-5
11	11.863	11.821	11.913	71381	0.10	cis-Verbenol	1845-30-3
12	12.257	12.213	12.283	104190	0.15	Pinocarvone	30460-92-5
13	12.311	12.283	12.358	61059	0.09	Cyclohexanemethanol, .alpha.,.alpha.-dimethyl-4-methylene-	7299-42-5
14	12.473	12.417	12.546	185209	0.26	Terpinen-4-ol	562-74-3
15	12.724	12.663	12.813	1092874	1.56	.alpha.-Terpineol	98-55-5
16	13.090	13.042	13.108	100836	0.14	Bicyclo[3.1.1]hept-3-en-2-one, 4,6,6-trimethyl-	80-57-9
17	13.135	13.108	13.258	225039	0.32	2-Cyclohexen-1-ol, 2-methyl-5-(1-methylethenyl)-, cis-	1197-6-4
18	13.854	13.783	13.917	107256	0.15	6-Methyl-cyclohex-2-en-1-ol	0-0-0
19	14.775	14.738	14.825	145760	0.21	.alpha.-Cubebene	17699-14-8
20	15.148	15.100	15.213	111824	0.16	Phenol, 2-methoxy-4-(2-propenyl)-, acetate	93-28-7
21	15.252	15.213	15.304	254551	0.36	.alfa.-Copaene	0-0-0
22	15.694	15.642	15.788	278222	0.40	Cubenol	21284-22-0
23	15.913	15.875	15.954	138479	0.20	Caryophyllene	87-44-5
24	16.291	16.254	16.325	228568	0.33	Aromandendrene	489-39-4
25	16.343	16.325	16.383	65790	0.09	(1S,4S,4aS)-1-Isopropyl-4,7-dimethyl-1,2,3,4,4a,5-hexahydronaphthalene	267665-20-3
26	16.563	16.467	16.596	366480	0.52	(1R,9R,E)-4,11,11-Trimethyl-8-methylenebicyclo[7.2.0]undec-4-ene	68832-35-9
27	16.936	16.887	16.996	725425	1.04	(1S,2E,6E,10R)-3,7,11,11-Tetramethylbicyclo[8.1.0]undeca-2,6-diene	24703-35-3
28	17.053	16.996	17.113	262895	0.38	Tricyclo[6.3.1.0(2,5)-]dodecan-1-ol, 4,4,8-trimethyl-, acetate, [1R-(1.alph	57082-24-3
29	17.173	17.133	17.212	197635	0.28	1-Isopropyl-4,7-dimethyl-1,2,3,5,6,8a-hexahydronaphthalene	16729-1-4
30	17.249	17.212	17.283	153044	0.22	Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-7-methyl-4-methylene-1-(1-metl	39029-41-9
31	17.363	17.283	17.454	1964271	2.81	cis-Calamenene	72937-55-4
32	17.506	17.454	17.567	444355	0.64	Naphthalene, 1,2,3,4,4a,7-hexahydro-1,6-dimethyl-4-(1-methylethyl)-	16728-99-7
33	17.726	17.688	17.771	102630	0.15	Cyclodeca[b]furan-2(3H)-one, 3a,4,5,6,7,8,9,11a-octahydro-3,6,10-trimetl	54833-40-8
34	18.083	18.012	18.125	144994	0.21	(+)-Cycloisolongifol-5-ol	74841-81-9
35	18.217	18.125	18.242	3831853	5.48	1H-Cycloprop[e]azulen-7-ol, decahydro-1,1,7-trimethyl-4-methylene-, [1a	6750-60-3
36	18.269	18.242	18.408	7068744	10.11	1H-Indene, 2-butyl-5-hexyloctahydro-	55044-33-2
37	18.466	18.408	18.567	7226872	10.34	1H-Cycloprop[e]azulen-4-ol, decahydro-1,1,4,7-tetramethyl-, [1aR-(1a.alp	552-2-3
38	18.608	18.567	18.671	1535454	2.20	Ledol	577-27-5
39	18.692	18.671	18.733	179976	0.26	2-Naphthalenemethanol, 2,3,4,4a,5,6,7,8-octahydro-.alpha.,.alpha.,4a,8-tet	63891-61-2
40	18.798	18.733	18.829	195168	0.28	Di-epi-1,10-cubenol	73365-77-2
41	18.862	18.829	18.913	145566	0.21	(-)-Spathulenol	77171-55-2
42	18.968	18.913	18.992	230848	0.33	1-Naphthalenol, 1,2,3,4,4a,7,8,8a-octahydro-1,6-dimethyl-4-(1-methylethy	19435-97-3
43	19.667	19.554	19.696	438833	0.63	3-Isopropylidene-5-methyl-hex-4-en-2-one	64149-32-2
44	19.801	19.696	19.817	1216177	1.74	Bicyclo[4.1.0]heptan-3-one, 4,7,7-trimethyl-, [1R-(1.alpha.,4.beta.,6.alpha	4176-1-6
45	19.854	19.817	19.950	1557453	2.23	1,1,4,7-Tetramethyldecahydro-1H-cyclopropa[e]azulene-4,7-diol	1212211-43-2
46	19.973	19.950	20.008	323936	0.46	Pulegone	89-82-7
47	20.066	20.008	20.158	784781	1.12	1H-Cycloprop[e]azulen-7-ol, decahydro-1,1,7-trimethyl-4-methylene-, [1a	6750-60-3
48	20.337	20.308	20.367	87812	0.13	(+)-3-Carene, 4-isopropenyl-	161395-29-5
49	20.470	20.433	20.529	169887	0.24	Benzyl Benzoate	120-51-4
50	21.241	21.217	21.292	78618	0.11	N-Ethyl-2,2,3,3,3-pentafluoro-N-[2-(4-methoxy-3-methylphenyl)ethyl]pro	0-0-0



Peak#	R.Time	I.Time	F.Time	Area	Area%	Name	CAS#
51	21.825	21.792	21.858	51450	0.07	Bicyclo[3.1.1]hept-3-ene, 2-formylmethyl-4,6,6-trimethyl-	135004-95-4
52	21.894	21.858	21.925	58519	0.08	.alpha.-Farnesene	502-61-4
53	22.205	22.163	22.254	99493	0.14	2-(2-(2-Butoxyethoxy)ethoxy)ethyl benzoate	0-0-0
54	23.150	23.075	23.208	103213	0.15	Heneicosane	629-94-7
55	23.478	23.408	23.671	2417097	3.46	Phytol	150-86-7
56	24.503	24.458	24.554	398268	0.57	2,2,4,4-Tetramethyl-6-(3-phenylpropanoyl)cyclohexane-1,3,5-trione	50861-53-5
57	24.766	24.708	24.813	172701	0.25	Pentafluorobenzoic acid, undec-2-enyl ester	0-0-0
58	24.988	24.946	25.025	604441	0.86	Heneicosane	629-94-7
59	25.150	25.125	25.258	61357	0.09	Acetic acid, chloro-, octadecyl ester	5348-82-3
60	25.797	25.754	25.825	350311	0.50	4-Terpinenyl acetate	4821-4-9
61	25.848	25.825	25.879	89152	0.13	Octacosane	630-2-4
62	26.013	25.975	26.079	963406	1.38	Cyclohexanol, 1-methyl-4-(1-methylethylidene)-	586-81-2
63	26.125	26.079	26.171	234272	0.34	Cyclohexanol, 1-methyl-4-(1-methylethylidene)-	586-81-2
64	26.341	26.279	26.387	354632	0.51	2,6,10,14-Hexadecatetraene, 1-benzyloxy-9-(phenylthio)-3,7,11,15-tetram	0-0-0
65	26.678	26.629	26.717	336437	0.48	Pentacosane	629-99-2
66	26.887	26.825	27.004	206216	0.29	1-Heneicosanol	15594-90-8
67	27.083	27.029	27.137	722047	1.03	5-hydroxy-7-methoxyflavanone	75291-74-6
68	27.475	27.446	27.496	58771	0.08	Carbonic acid, tetradecyl vinyl ester	0-0-0
69	27.536	27.496	27.613	1167030	1.67	4H-1-Benzopyran-4-one, 2,3-dihydro-5,7-dimethoxy-2-phenyl-	1036-72-2
70	27.742	27.613	27.800	6394195	9.15	4H-1-Benzopyran-4-one, 2,3-dihydro-5-hydroxy-7-methoxy-6,8-dimethyl-	55820-35-4
71	27.862	27.800	27.913	5452895	7.80	4H-1-Benzopyran-4-one, 2,3-dihydro-5,7-dimethoxy-2-phenyl-	1036-72-2
72	27.999	27.913	28.079	1066875	1.53	Tetratetracontane	7098-22-8
73	28.252	28.175	28.275	585888	0.84	Tetratetracontane	7098-22-8
74	28.296	28.275	28.387	473434	0.68	5-hydroxy-7-methoxyflavanone	75291-74-6
75	28.530	28.387	28.983	2428840	3.47	2-(6-Heptenyl)-(6-(4-pentenyl)piperidine	127629-8-7
76	29.075	28.983	29.129	180308	0.26	i-Propyl 11-methyl-octadecanoate	0-0-0
77	29.311	29.258	29.371	323669	0.46	Squalene	111-2-4
78	29.791	29.733	29.850	185098	0.26	(6aR,12aR)-6a,12a-Dihydro-6H-[1,3]dioxolo[4',5':5,6]benzofuro[3,2-c]ch	2035-15-6
79	30.011	29.913	30.075	711382	1.02	Octacosane	630-2-4
80	30.379	30.350	30.396	55592	0.08	Z-5-Nonadecene	0-0-0
81	31.091	31.046	31.133	80296	0.11	Tetratetracontane	7098-22-8
82	31.196	31.142	31.238	130111	0.19	dl-.alpha.-Tocopherol	10191-41-0
83	32.196	32.117	32.242	117287	0.17	Benzoic acid, octadecyl ester	10578-34-4
84	32.376	32.300	32.442	1928091	2.76	Hentriacontane	630-4-6

ANZCTR

Australian New Zealand Clinical Trials Registry

The ANZCTR is an online registry of clinical trials being undertaken in Australia, New Zealand and elsewhere.

Date	Condition	Oil	Status	Country
June 2023	Gingivitis	Mānuka (gel)	Provisional	NZ
March 2023	Dry eyes	Mānuka eye product	Provisional	Aus
Nov 2022	Eczema child	Mānuka cream **ECMT-154™**	Provisional	NZ
July 2022	Eczema adult	A/A	Provisional	NZ
2018*	Eczema	Kanuka cream 3%	Completed	NZ
2021*	Acne	Kanuka Serum	In progress	NZ
2022	Eczema	3% Kanuka Cream	In progress	NZ
2014	Psoriasis	Kunzea ambigua	Completed	Aust
2014	Fungal toenails	Kunzea ambigua	? completed	

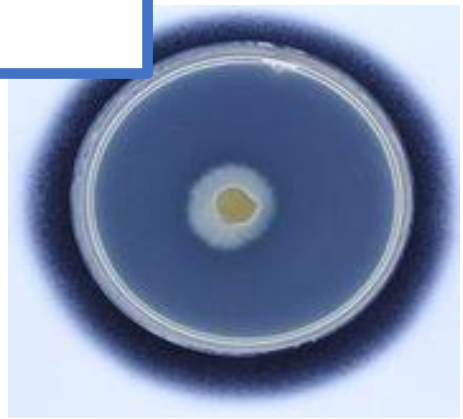
Results- plates were photographed against a black background and mycelial growth measured and averaged across the plates for each dilution. Images below are indicative of photos taken

M. Canis control

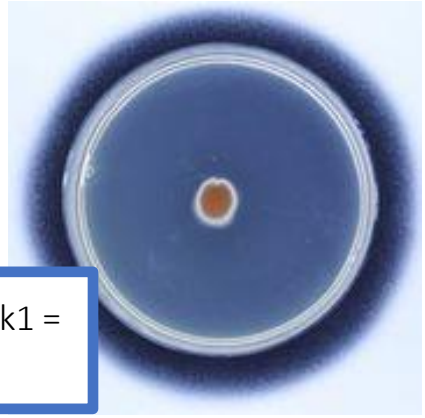
T. Rubrum control

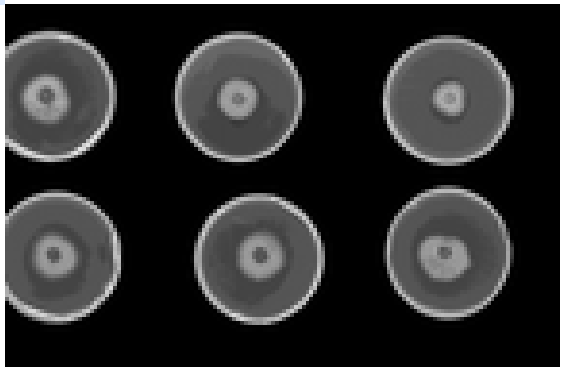
Representative images of mycelia of Microsporum canis and Trychophyton rubrum grown in the presence of kanuka. Images were photographed and converted to 8 bit images using Fiji. No adjustments have been made to brightness or contrast in the presented images. Control plates

M. Canis k1 = 7%

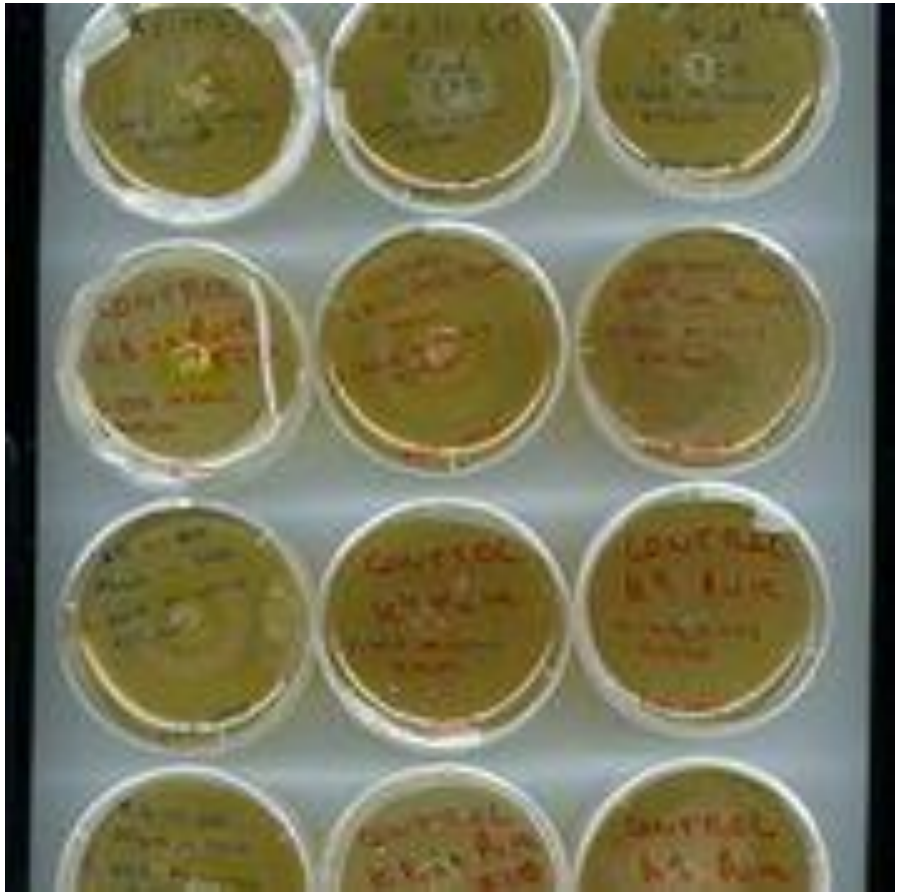


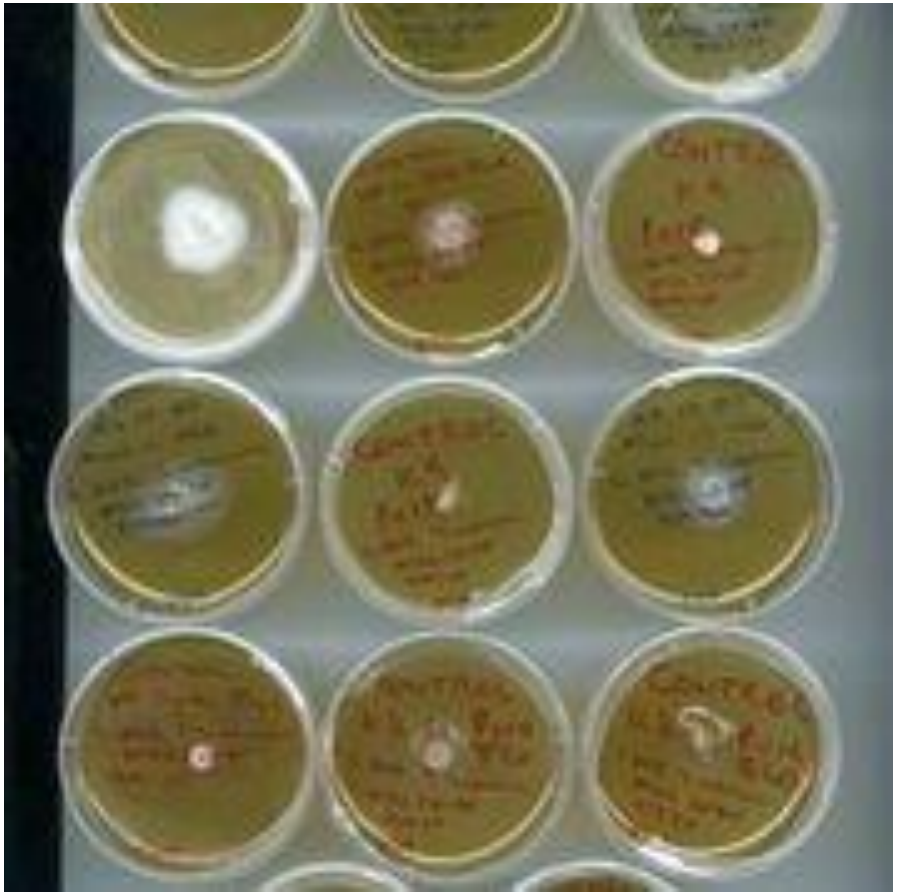
T. Rubrum k1 = 5%





Sample Plates M. canis (L) and T. rubrum (R)-each plate labelled at time of inoculation and left sealed in incubator





Results

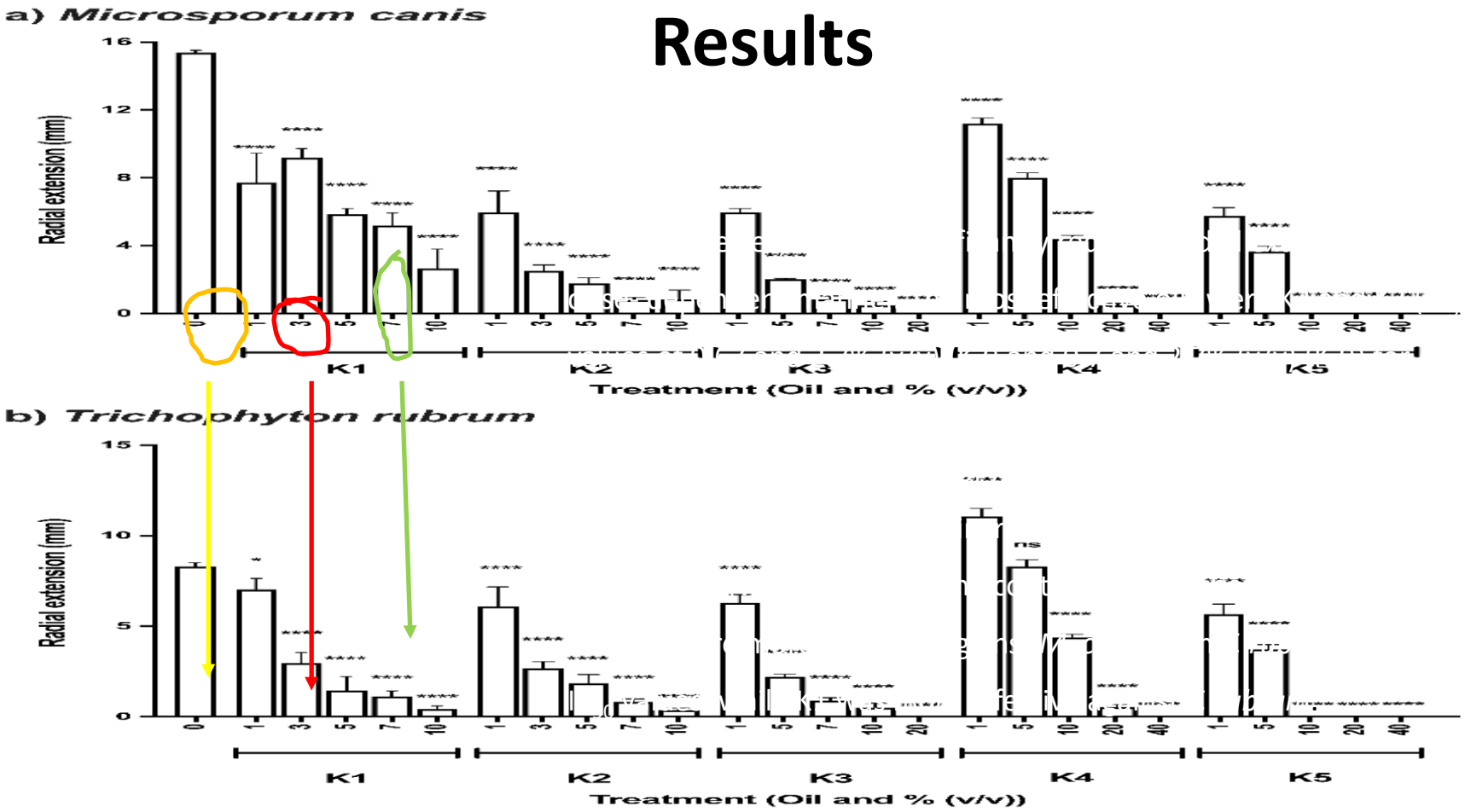
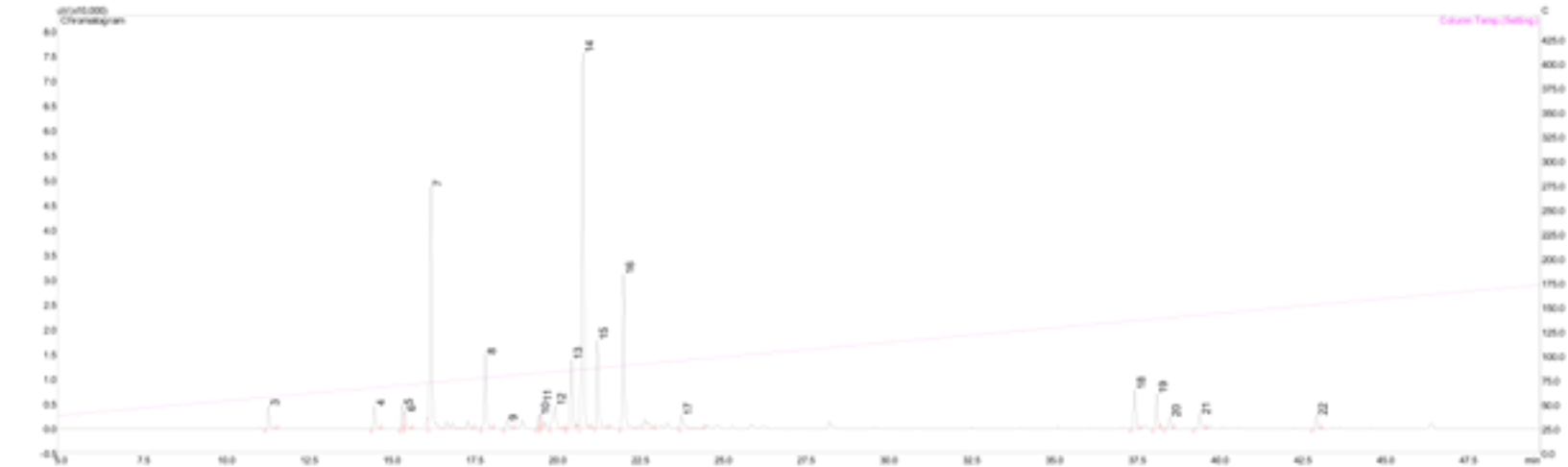


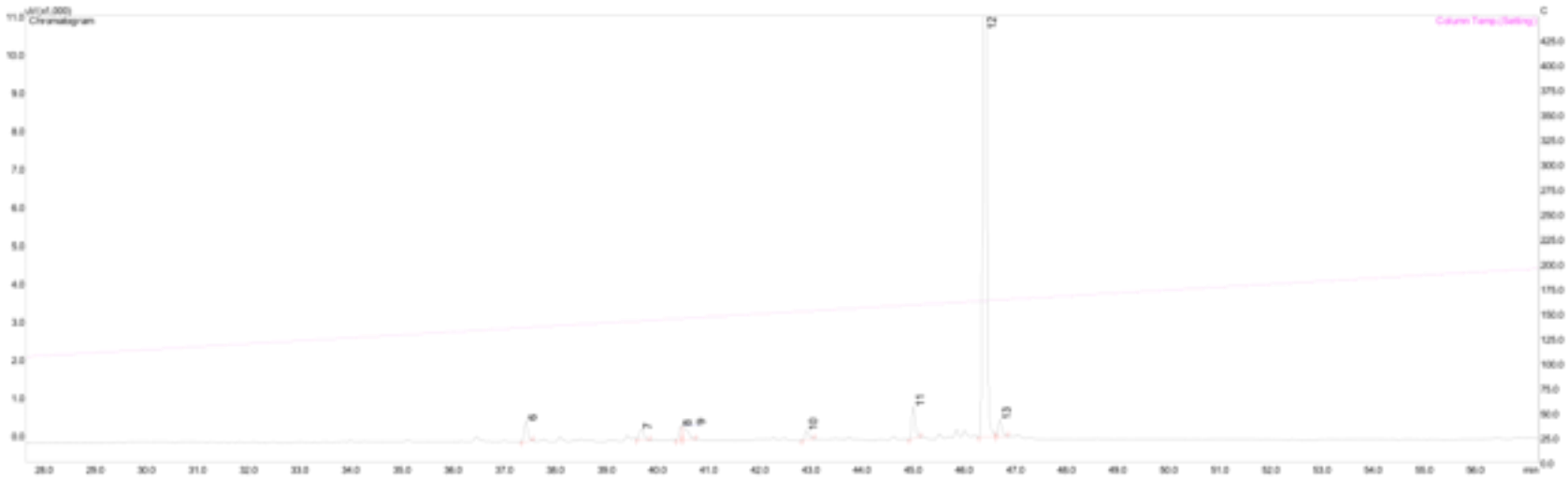
Figure 1: The effect of the kanuka oils on radial expansion of *Microsporum canis* and *Trychophyton rubrum*. Each of the oils reduced radial extension rates in a dose dependant manner. Control plates were treated with fractionated coconut oil. Data are presented as mean + SEM. Based on ANOVA and Tukey tests significant differences relative to the control are indicated as **** P<0.0001 and * P<0.05.

Kānuka hydrosol Study

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

N.I Kanuka Hydrosol





S.I. kanuka

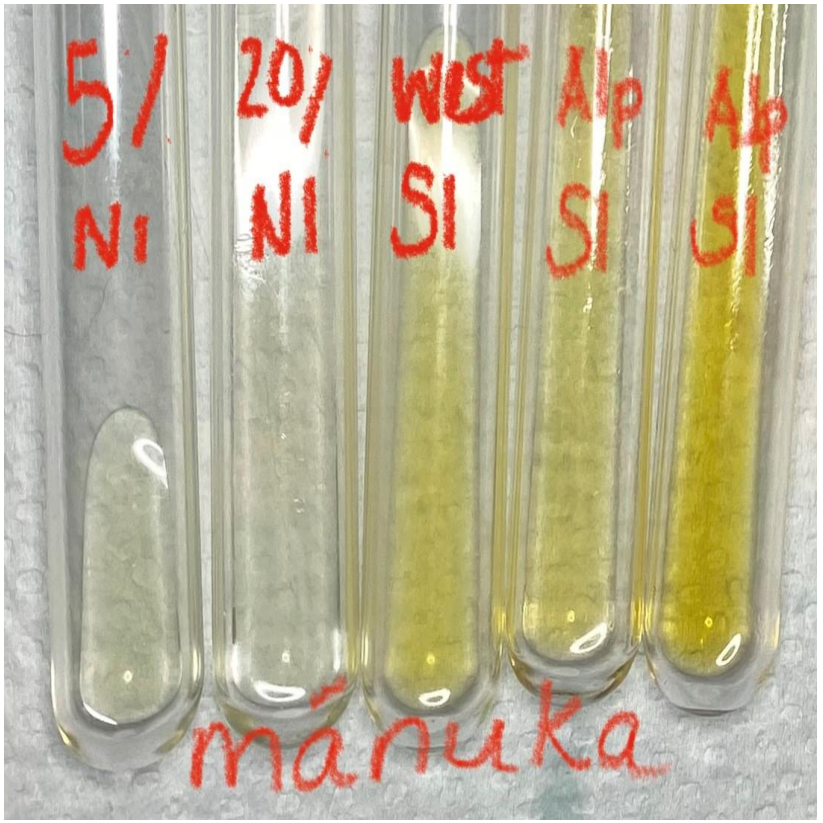
So what does this mean?

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% eudesamol

However potential for kānuka hydrosol to have antifungal effects on skin



Kānuka versus Mānuka

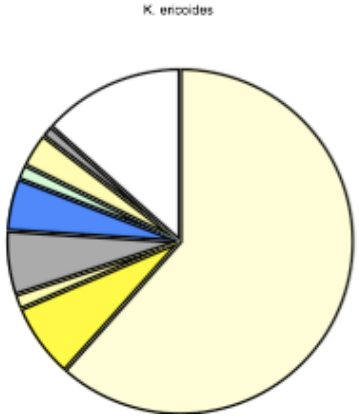
Good Gargling

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

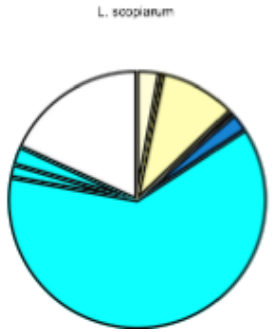
- RIM- expected in 80-100% of patients-Definite point in treatment where reaction occurs (pain)
- RIM affects QOL, treatment due to pain, poor nutrition, stress, fatigue etc.

- Based on literature review needed ingredients with a PROTECTIVE action + analgesia + anti inflammatory BUT won't potentially affect the beam transmission to target tissue

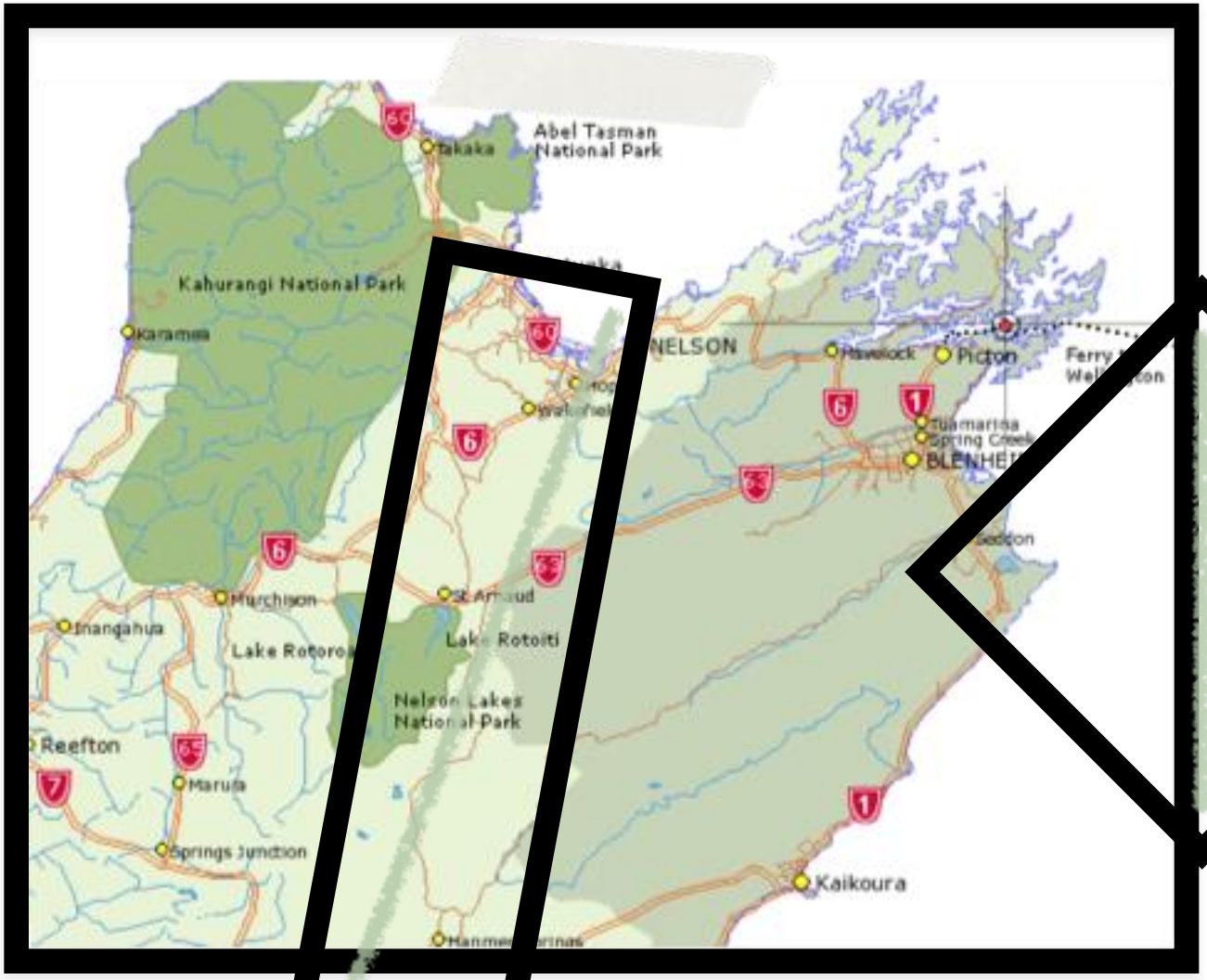
Kanuka ericoides- Kanuka SI
Kanuka viridiflorol- radioprotective



Manuka-Leptospermum 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)



Motueka south island

Active	Placebo	Control
5 drops 50:50 blend K+M in 30 mls warm H20 5 x day gargle PLUS SAME swallow	Sterile water + warm water gargle + swallow	No additional treatment
Usual cares* as per consultant wishes	**Usual cares*** as per consultant wishes	**Usual cares*** as per consultant wishes

- Objective RIM (0-5 scale) assessed by medical staff
- Pain scoring 5 x day (0-10 scale) + recording of analgesia usage
- Objective weekly weight (clinical staff)
- Subjective QOL (0-10 scale)

Key Findings-RIM

- 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)

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

Ngā mihi nui thank you

Acknowledgments

Alpinus Oils for hosting me on site, sharing information & samples to review https://www.alpinus.nz/ 20% discount for this course

Black Fern Botanicals for images, technical information, sample to review https://blackfern.co.nz/

Cross checking by author of constituents using https://pubchem.ncbi.nlm.nih.gov/

Waipu Extracts for samples of solid SCOO2

- Dr. Wendy Maddocks (RN, BA, MA, DHlthSc, Dip. Aromatherapy)
- www.aromaticadventures.com
- www.doctorwendy.net
- New Zealand

www.alpinus.nz (alpine South Island
www.blackfern.co.nz (Coastal SouthIsland)
www.barriergold.co.nz
www.kanukaoilnz.com

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NO MĀNUKA or KĀNUKA OIL IS THE SAME CHECK LOCATION AND ANALYSIS!!! NORTH AND SOUTH TOTALLY DIFFERENT