

Supplementary Files for ‘*Prostanthera* (Lamiaceae) as a ‘cradle of incense’: Chemophenetics of rare essential oils from both new and forgotten Australian ‘mint bush’ species’

Table S1. Species studied and their corresponding codes used for Figures 2, 3 and 4, collector’s number and location of collection.

Code	Species	Collector’s Number	Location
ASS	<i>P. aspalathoides</i> A.Cunn. ex Benth.	N.J. Sadgrove 544	Talleeban NR, Griffith, NSW
CAA	<i>P. caerulea</i> R.Br.	N.J. Sadgrove 272	Winburdale NR, 20 km ENE of Bathurst, NSW
CIA-1	<i>P. cineolifera</i> R.T.Baker & H.G.Sm.	N.J. Sadgrove 291	‘Wallaby Rocks’, near Wybong, NSW
CIA-2	<i>P. cineolifera</i> R.T.Baker & H.G.Sm.	N.J. Sadgrove 313	Wingen Maid, N of Scone, NSW
CIA-3	<i>P. cineolifera</i> R.T.Baker & H.G.Sm.	N.J. Sadgrove 317	Pokolbin SF, NSW
COA-1	<i>P. cotinifolia</i> A.Cunn. ex Benth.	N.J. Sadgrove 543	Warrumbungle NP, NSW
INA-1, a-e*	<i>P. incisa</i> R.Br.	J.J. Bruhl 3532	Forbes River, Werrikimbe NP, NSW
INA-2	<i>P. incisa</i> R.Br.	N.J. Sadgrove 274	Blue Mtns NP, 4 km SW of Katoomba, NSW
LAA-1	<i>P. lanceolata</i> Domin	R.L. Palsson 104	Tamborine Mtn, Qld
LAA-2	<i>P. lanceolata</i> Domin	R.L. Palsson 108	Border Ranges NP, NSW
LAA-3	<i>P. lanceolata</i> Domin	R.L. Palsson 110	Border Ranges NP, NSW
LAA-4	<i>P. lanceolata</i> Domin	R.L. Palsson 111	Border Ranges NP, NSW
LAA-5	<i>P. lanceolata</i> Domin	R.L. Palsson 118	Tabbimoble Creek, NSW
LAA-6	<i>P. lanceolata</i> Domin	R.L. Palsson 122	Middle Creek, Sherwood NR, NSW
LAA-7	<i>P. lanceolata</i> Domin	J.J. Bruhl 3545	Minyon Falls, Nightcap NP, NSW
LAA-8	<i>P. lanceolata</i> Domin	N.J. Sadgrove 239	Nymboida River, Namoi-Binderay NP, NSW
LAA-9	<i>P. lanceolata</i> Domin	N.J. Sadgrove 321	Hells Hole, Mt Jerusalem NP, NSW
LAA-10	<i>P. lanceolata</i> Domin	N.J. Sadgrove 325	Minyon Falls, Nightcap NP, NSW
LAA-11	<i>P. lanceolata</i> Domin	N.J. Sadgrove 455	Sherwood NR, NSW
LAA-12, a-d*	<i>P. lanceolata</i> Domin	J.J. Bruhl 3563	Oxley Road, New England NP, NSW
LAA-13	<i>P. sp.</i> Ellenborough Falls	N.J. Sadgrove 423	Ellenborough Falls, NSW
LAIA-1, -2*	<i>P. latifolia</i> (Benth.) Domin	N.J. Sadgrove 424	Rowleys Rock, Tapin Tops NP, NSW
LIS-1	<i>P. lithospermoides</i> F.Muell.	N.J. Sadgrove 473	Miles – Roma, Warrego Hwy, Qld
OVA-1	<i>P. ovalifolia</i> R.Br.	R.L. Palsson 200	Mt Stanley, Mt Castle Tower NP, Qld
PRS-1	<i>P. prunelloides</i> R.Br.	N.J. Sadgrove 348	Mt Dangar, W of Sandy Hollow, NSW
PRS-2	<i>P. prunelloides</i> R.Br.	N.J. Sadgrove 512	Near Sandy Hollow, NSW
PRS-3	<i>P. prunelloides</i> R.Br.	N.J. Sadgrove 516	Near Putty, NSW
RIS-1	<i>P. ringens</i> Benth.	N.J. Sadgrove 493	Moonie Hwy, Qld
RIS-2	<i>P. ringens</i> Benth.	N.J. Sadgrove 513	Moonie Hwy, Qld
RIS-3	<i>P. ringens</i> Benth.	N.J. Sadgrove 531	Moonie Hwy, Qld
ROA-1	<i>P. rotundifolia</i> R.Br.	J.R. Nevin 155	Bradys Lookout, N of Launceston, Tas.

ROA-2, a,b*	<i>P. rotundifolia</i> R.Br.	J.R. Nevin 158	Genoa Falls, Croajingalong NP, Vic.
SUS-1	<i>P. subobicularis</i> C.T.White & W.D.Francis	N.J. Sadgrove 549	10 km W of Charleville, Qld
BGB-1	<i>P. sp.</i> Baking Board	N.J. Sadgrove 475	W of Miles, Qld
BGB-2	<i>P. sp.</i> Baking Board	N.J. Sadgrove 508	N of Miles, Qld
BNM-1	<i>P. sp.</i> Barren Mtn	N.J. Sadgrove 366	Barren Mtn, New England NP, NSW
BNM-2	<i>P. sp.</i> Barren Mtn	N.J. Sadgrove 427	Barren Mtn, New England NP, NSW
BNM-3	<i>P. sp.</i> Barren Mtn	N.J. Sadgrove 428	Barren Mtn, New England NP, NSW
BEM-1	<i>P. sp.</i> Blue Mtns	N.J. Sadgrove 542	Glow-worm Tunnel, Wollemi NP, NSW
DAC-1	<i>P. sp.</i> Dandahra Creek	N.J. Sadgrove 296	Mulligans Hut, Gibraltar Range NP, NSW
GRR-1	<i>P. sp.</i> Gibraltar Range	N.J. Sadgrove 299	Granites Lookout, Washpool NP, NSW
OSF -1	<i>P. sp.</i> Olney S.F.	R.L. Palsson 162	Olney SF, NSW
OSF -2	<i>P. sp.</i> Olney S.F.	R.L. Palsson 165	Olney SF, NSW
OSF-3	<i>P. sp.</i> Olney S.F.	R.L. Palsson 172	Olney SF, NSW
PIA-1	<i>P. sp.</i> Pilliga	N.J. Sadgrove 378	Goonoo Goonoo SF, NSW
TOR-1	<i>P. sp.</i> Thredbo River	J.J. Bruhl 3371	Alpine Way, Kosciuszko NP, NSW
ULN-1	<i>P. sp.</i> Ulan	N.J. Sadgrove 292	The Drip, Goulburn River NP, NSW
MNF-1	<i>P. scutellarioides</i>	N.J. Sadgrove 324	Minyon Falls, Nightcap NP, NSW
STA-1	<i>P. striatiflora</i>	N.J. Sadgrove 263	Broken Hill, NSW
CUA-1	<i>P. cuneata</i>	1985-8646 WAK	Royal Botanic Gardens, Kew, London
PEA-1, a-e*	<i>P. petraea</i>	N.J. Sadgrove 361	Bald Rocks NP, NSW

*replicates of the species from within the same or nearby populations.

Table S2. Species, reference and code corresponding to essential oil chemical profiles taken from published data. To see the chemical profiles of these species see cited literature [1,2].

Affiliation	Collector Reference	Code
<i>P. lasianthos</i> var. <i>lasianthos</i>	D.W. Lawrence 894 (NE)	LSL-1
<i>P. lasianthos</i> var. <i>lasianthos</i>	D.W. Lawrence 895 (NE)	LSL -2
<i>P. lasianthos</i> var. <i>lasianthos</i>	D.W. Lawrence 896 (NE)	LSL -3
<i>P. lasianthos</i> var. <i>subcoriacea</i>	K.L. Wilson 11271 (NSW)	LSS-1
<i>P. lasianthos</i> var. <i>subcoriacea</i>	J.R. Nevin 115 (NE)	LSS -2
<i>P. lasianthos</i> var. <i>subcoriacea</i>	J.R. Nevin 116 (NE)	LSS -3
<i>P. eungella</i>	I.R. Telford 13488a (NE)	EUA-1
<i>P. eungella</i>	I.R. Telford 13488b (NE)	EUA-2
<i>P. eungella</i>	I.R. Telford 13488 (NE)	EUA-3
<i>P. sp.</i> Bald Mountain	N.J. Sadgrove 286 (NE)	BDM-1
<i>P. sp.</i> Bald Mountain	N.J. Sadgrove 304 (NE)	BDM-2

P. sp. Bald Mountain	N.J. Sadgrove 357 (NE)	BDM-3
P. sp. Mount Kaputar	N.J. Sadgrove 276 (NE)	MTK-1
P. sp. Point Lookout	N.J. Sadgrove 309 (NE)	PTL-1
P. sp. Schofields Gap	N.J. Sadgrove 270 (NE)	SSG-1
P. sp. Schofields Gap	N.J. Sadgrove 294 (NE)	SSG-2
P. sp. Wollomombi Gorge	N.J. Sadgrove 511 (NE)	WIG-1
P. sp. Wollomombi Gorge	N.J. Sadgrove 311 (NE)	WIG-2
P. sp. Wollomombi Gorge	N.J. Sadgrove 311a (NE)	WIG-3
P. sp. Wollomombi Gorge	N.J. Sadgrove 311b (NE)	WIG-4
P. sp. Wollomombi Gorge	N.J. Sadgrove 311c (NE)	WIG-5
P. sp. Wollomombi Gorge	N.J. Sadgrove 311d (NE)	WIG-6
P. sp. Wollomombi Gorge	N.J. Sadgrove 319 (NE)	WIG-7
P. sp. Wollomombi Gorge	N.J. Sadgrove 319a (NE)	WIG-8
P. sp. Wollomombi Gorge	N.J. Sadgrove 319b (NE)	WIG-9
<i>P. centralis</i>	D185139	CES-1

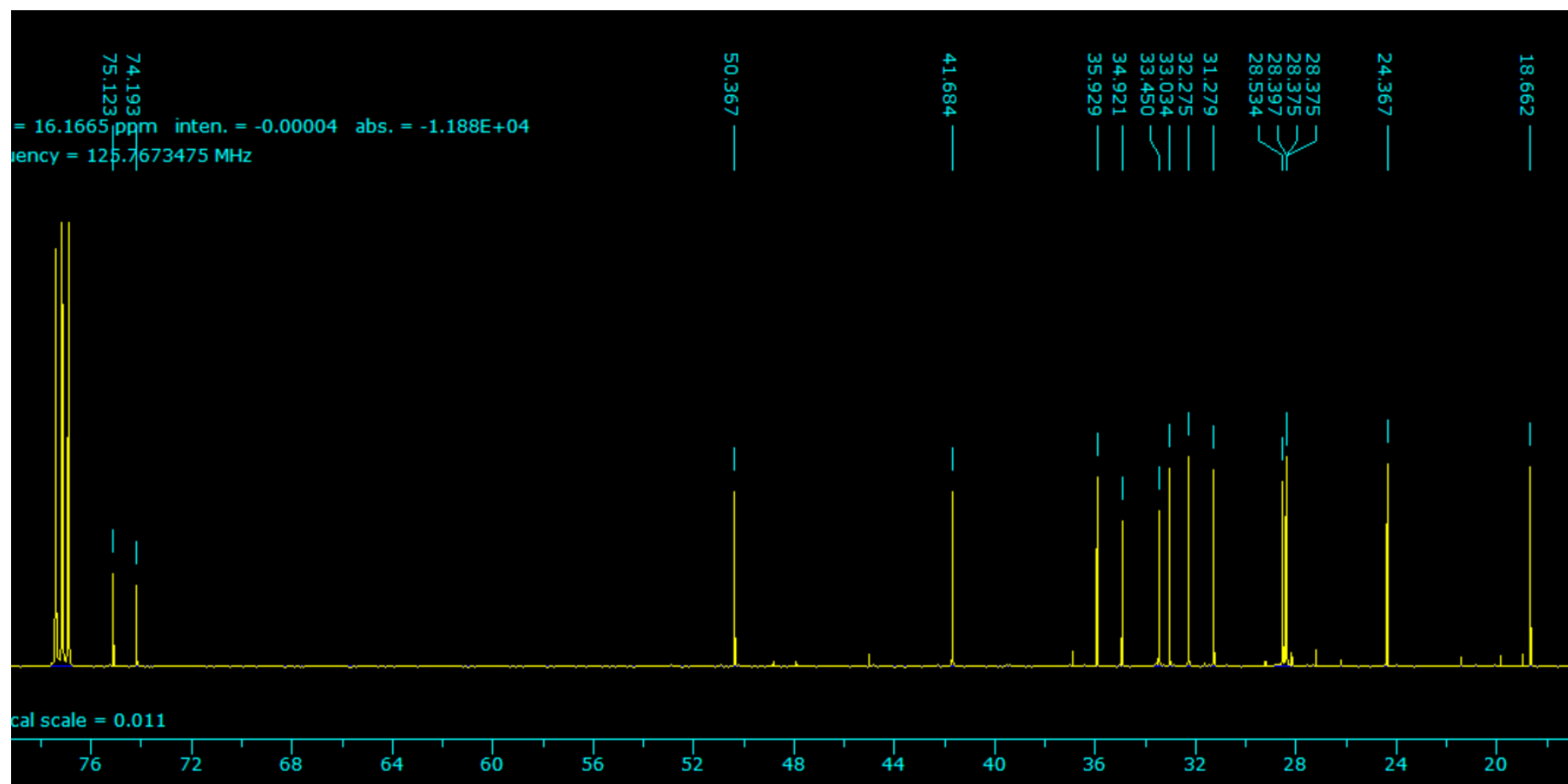


Figure S1 - ^{13}C NMR of kessane isolated from the variagated '*Prostanthera ovalifolia*' from a cultivated specimen. Processing software is Spinworks™.

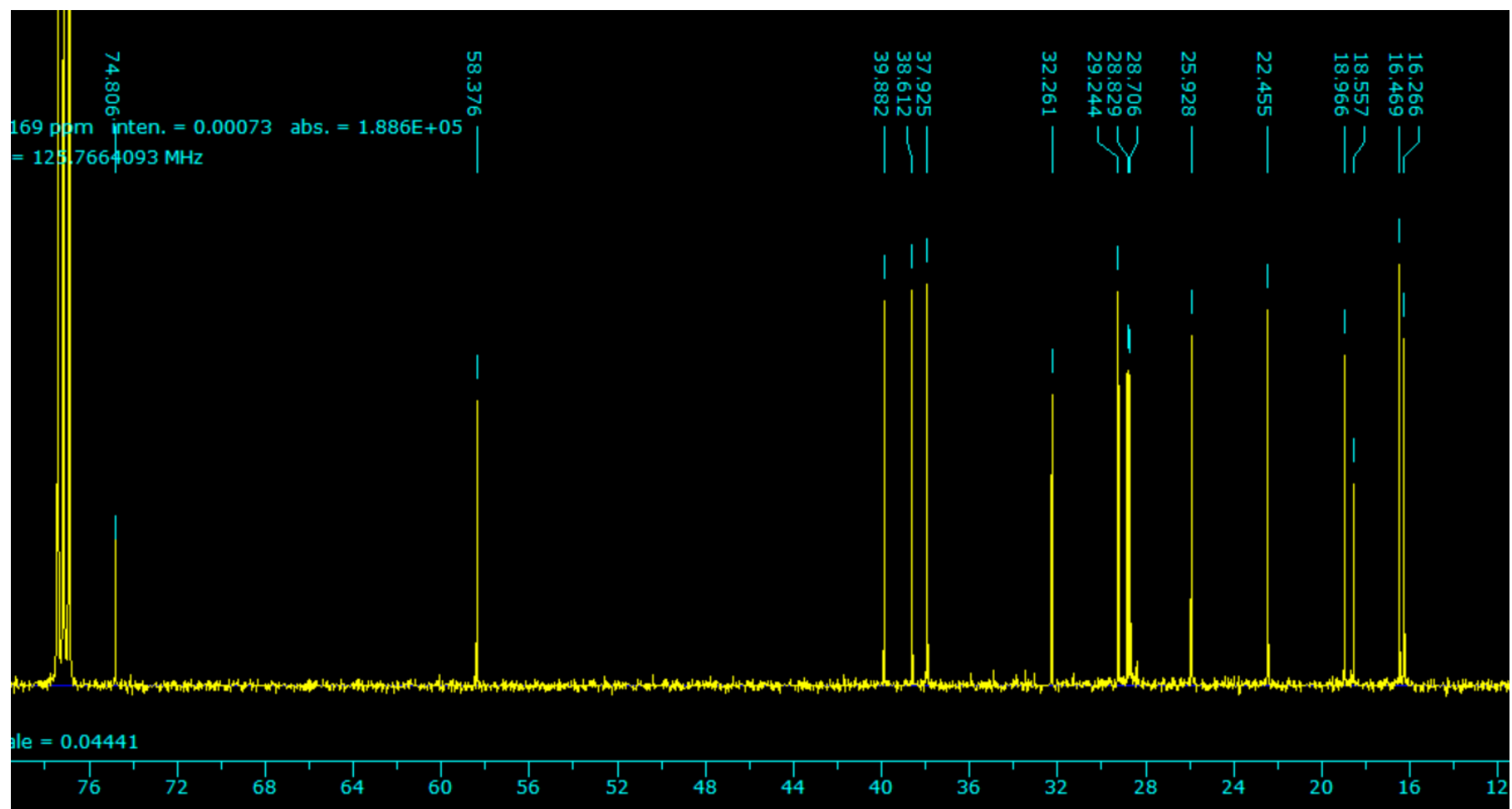


Figure S2 - ^{13}C NMR of pure prostantherol isolated from *Prostanthera petraea*. Processing software is Spinworks™.

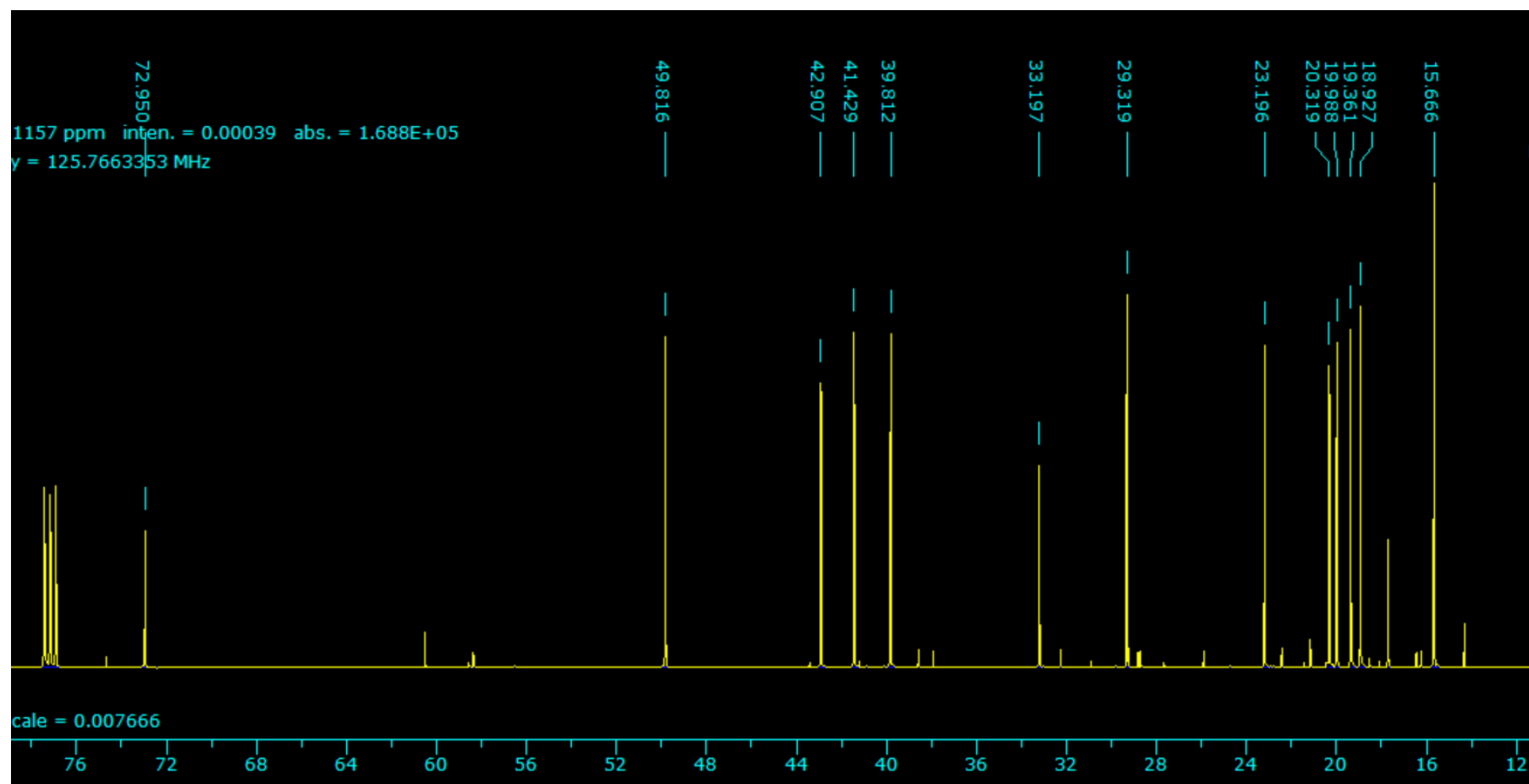


Figure S3 - ^{13}C NMR of near pure maaliol in whole essential oil from *Prostanthera lithospermoides*. Processing software is Spinworks™.

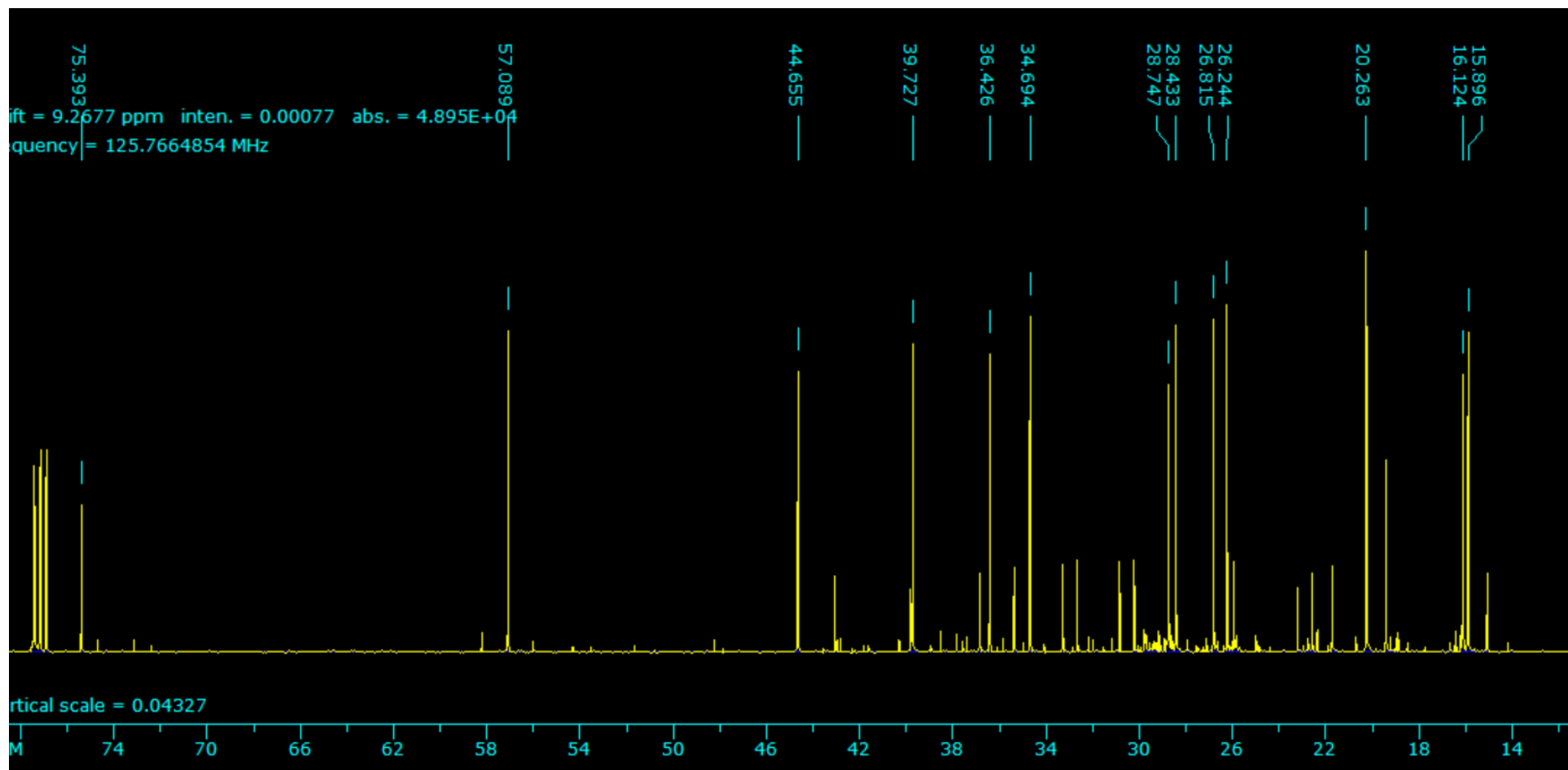


Figure S4 - ^{13}C NMR of globulol in enriched fraction of the essential oil from *Prostanthera aspalathoides* (collection from condenser by hexane gave globulol and Z-dihydroagarofuran). Processing software is Spinworks™.

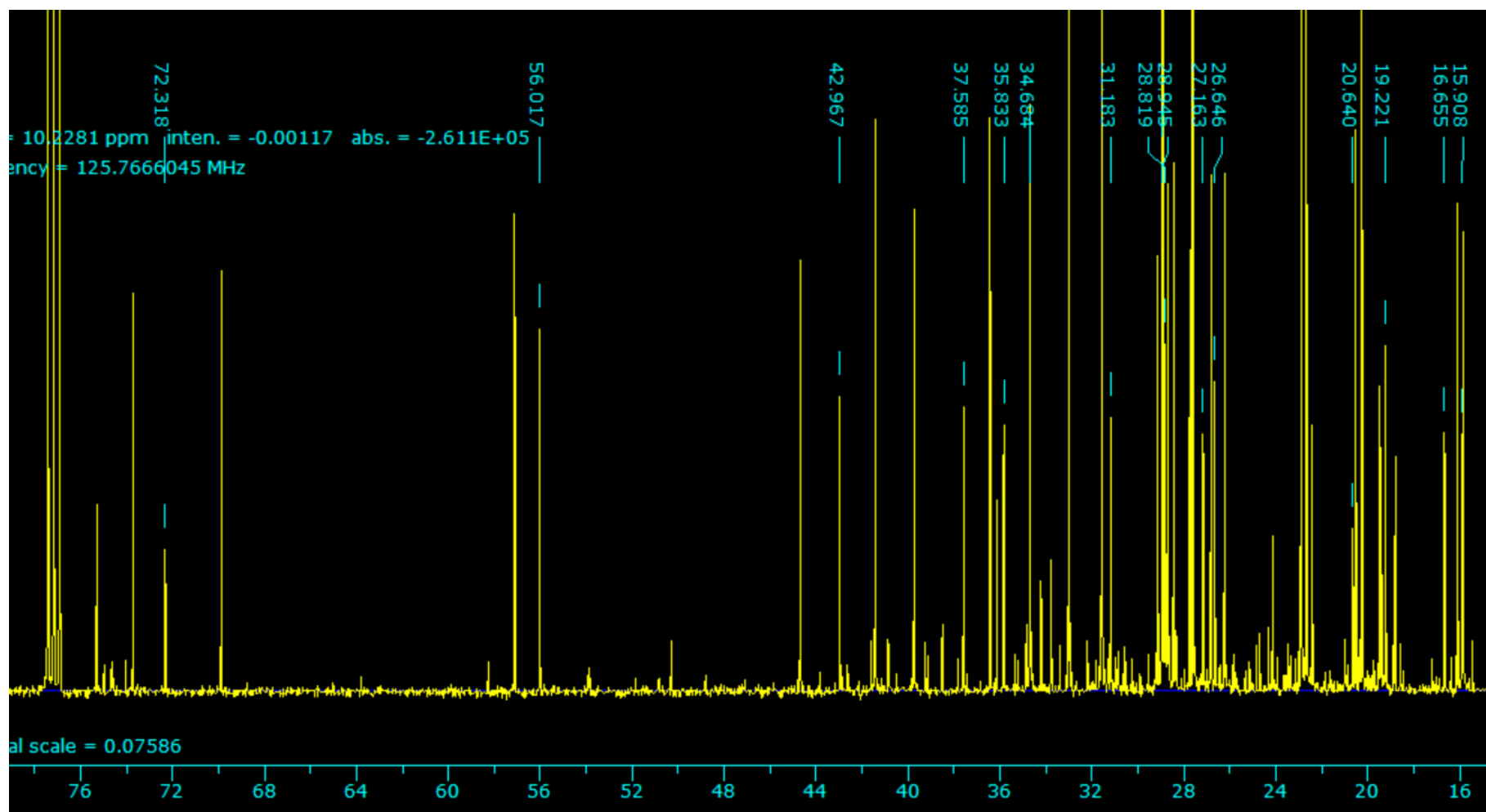


Figure S5 - ^{13}C NMR of epiglobulol as a major component of the whole essential oil of Tasmanian *Prostanthera rotundifolia*. The selected shifts (ppm) are from the epiglobulol. Processing software is SpinworksTM.

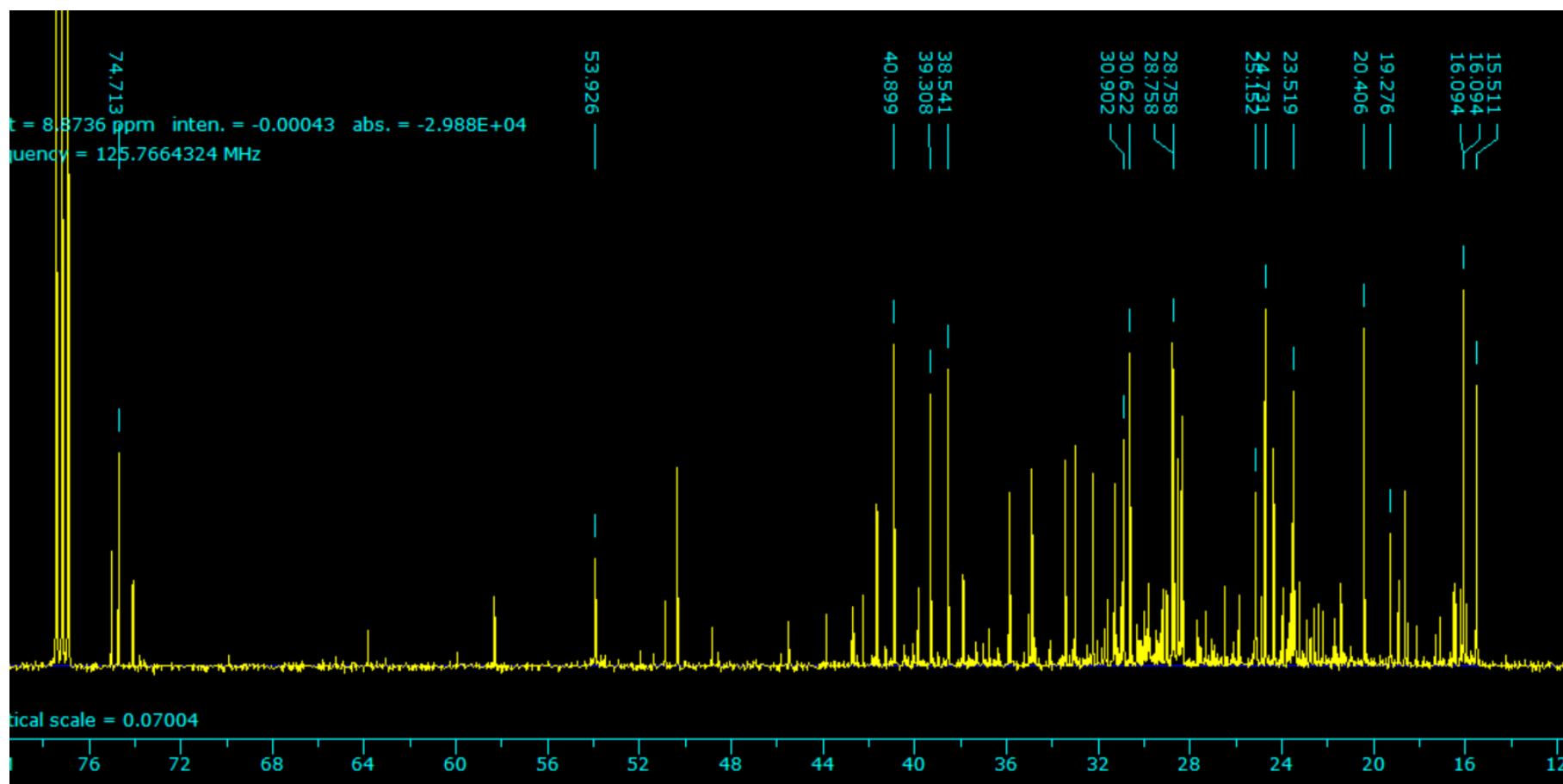


Figure S6 - ^{13}C NMR of ledol in whole essential oil from Tasmanian *Prostanthera rotundifolia*. The selected shifts (ppm) are for the ledol. Processing software is Spinworks™.

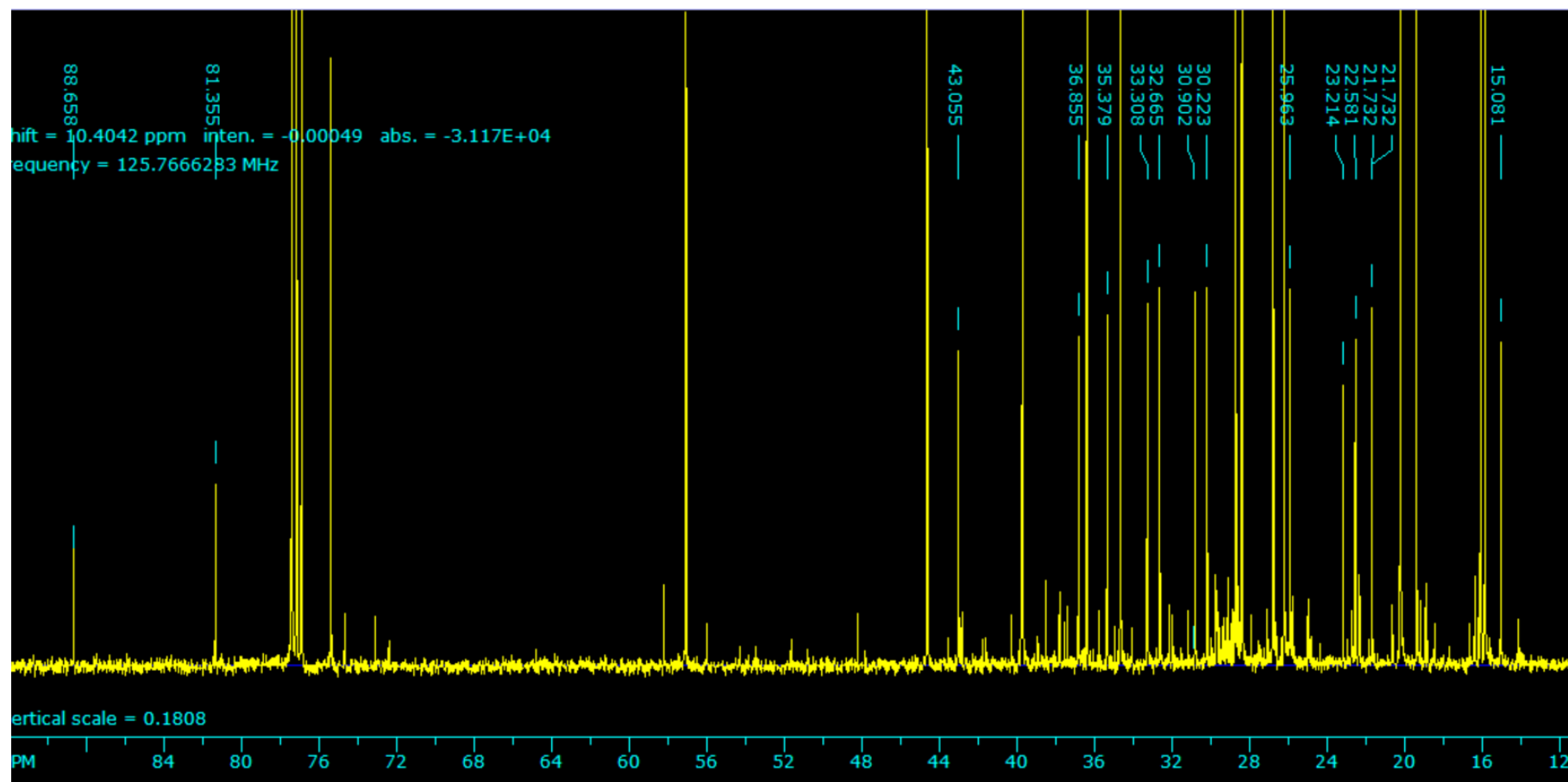


Figure S7 - ^{13}C of Z-dihydroagarofuran in enriched fraction of essential oil from *Prostanthera aspalathoides* (collection from the condenser by hexane gave this enriched fraction). Processing software is Spinworks™.

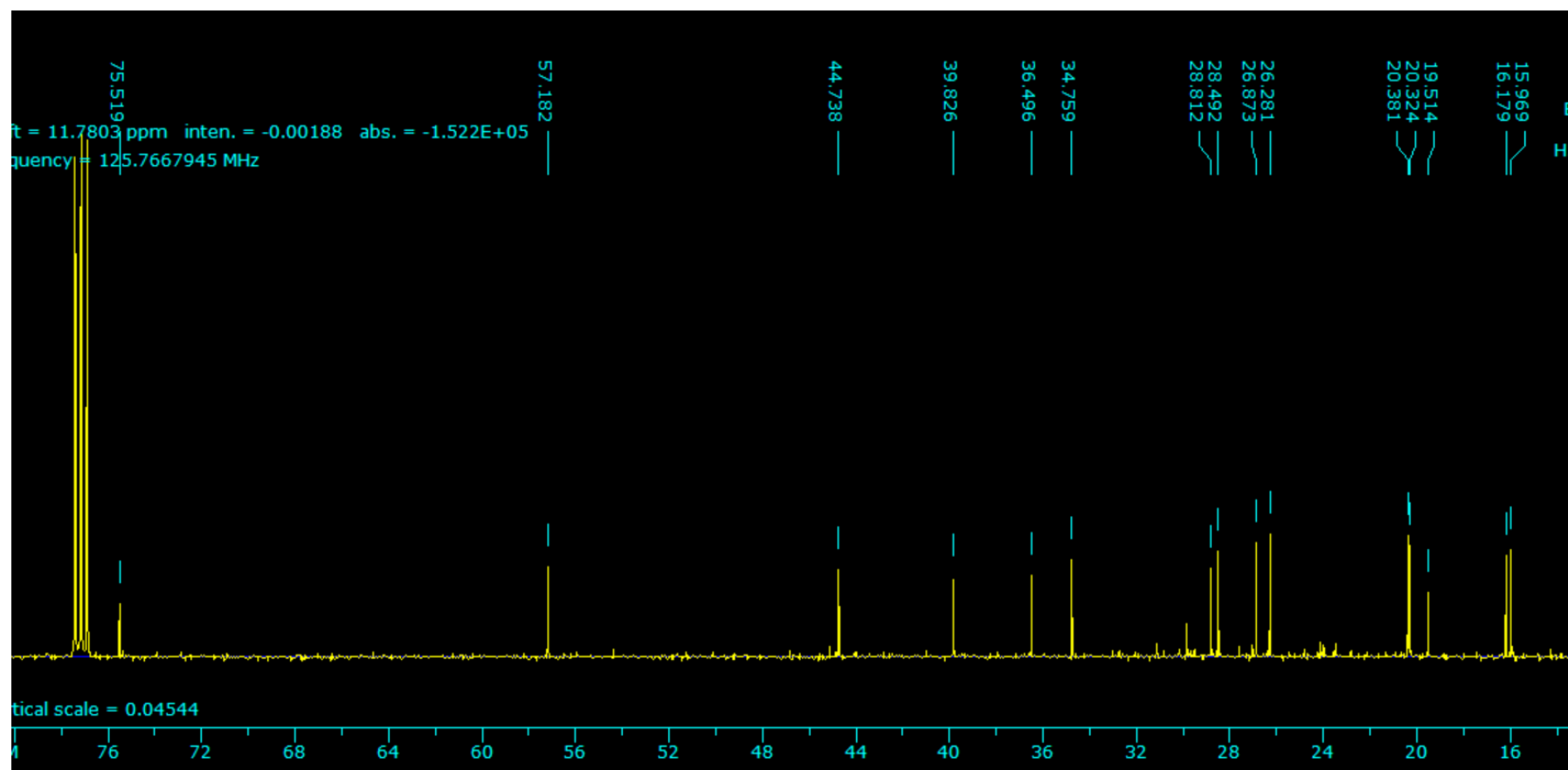


Figure S8 - ^{13}C NMR spectra of globulol isolated from *Prostanthera* sp. Piliga. Processing software is Spinworks™.

1. Sadgrove, N.J. Comparing essential oils from australia's 'victorian christmas bush' (*prostanthera lasianthos* labill., lamiaceae) to closely allied new species: Phenotypic plasticity and taxonomic variability. *Phytochemistry* **2020**, *176*, 112403.
2. Collins, T.L.; Jones, G.L.; Sadgrove, N. Volatiles from the rare australian desert plant *prostanthera centralis* b.J.Conn (lamiaceae): Chemical composition and antimicrobial activity. *Agriculture* **2014**, *4*, 308-316.