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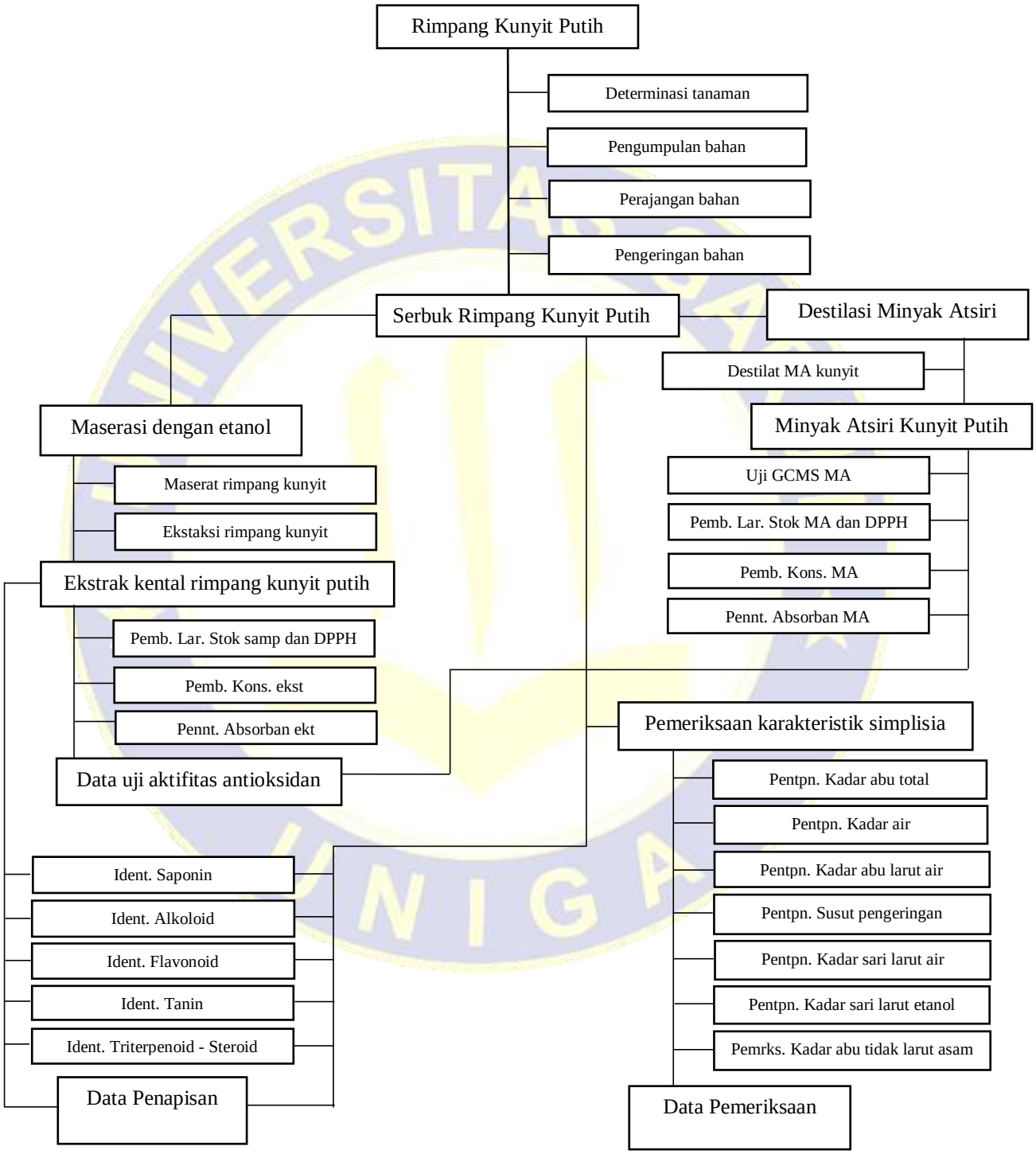
LAMPIRAN 1

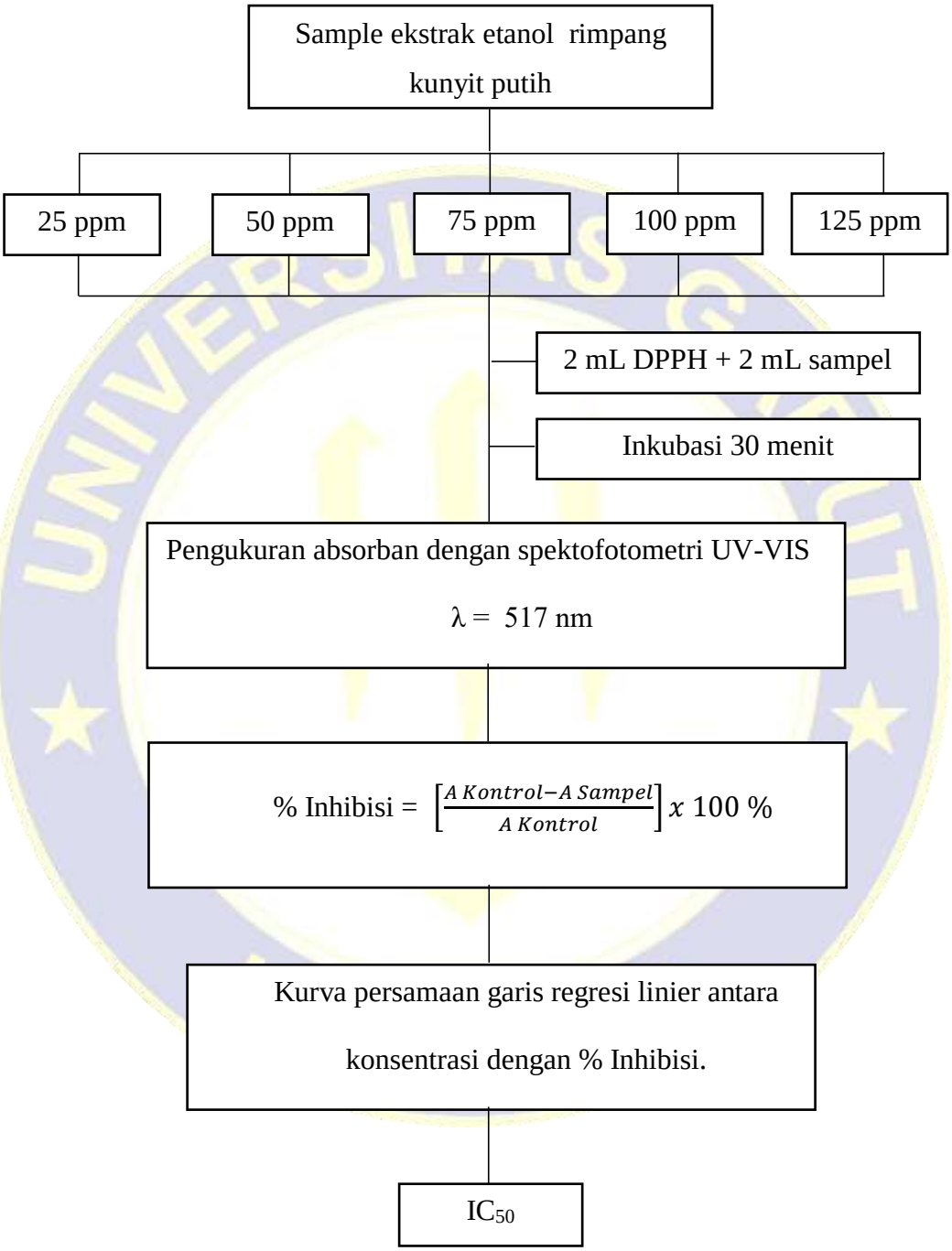
SKEMA KERJA



Gambar IV.1 Skema kerja

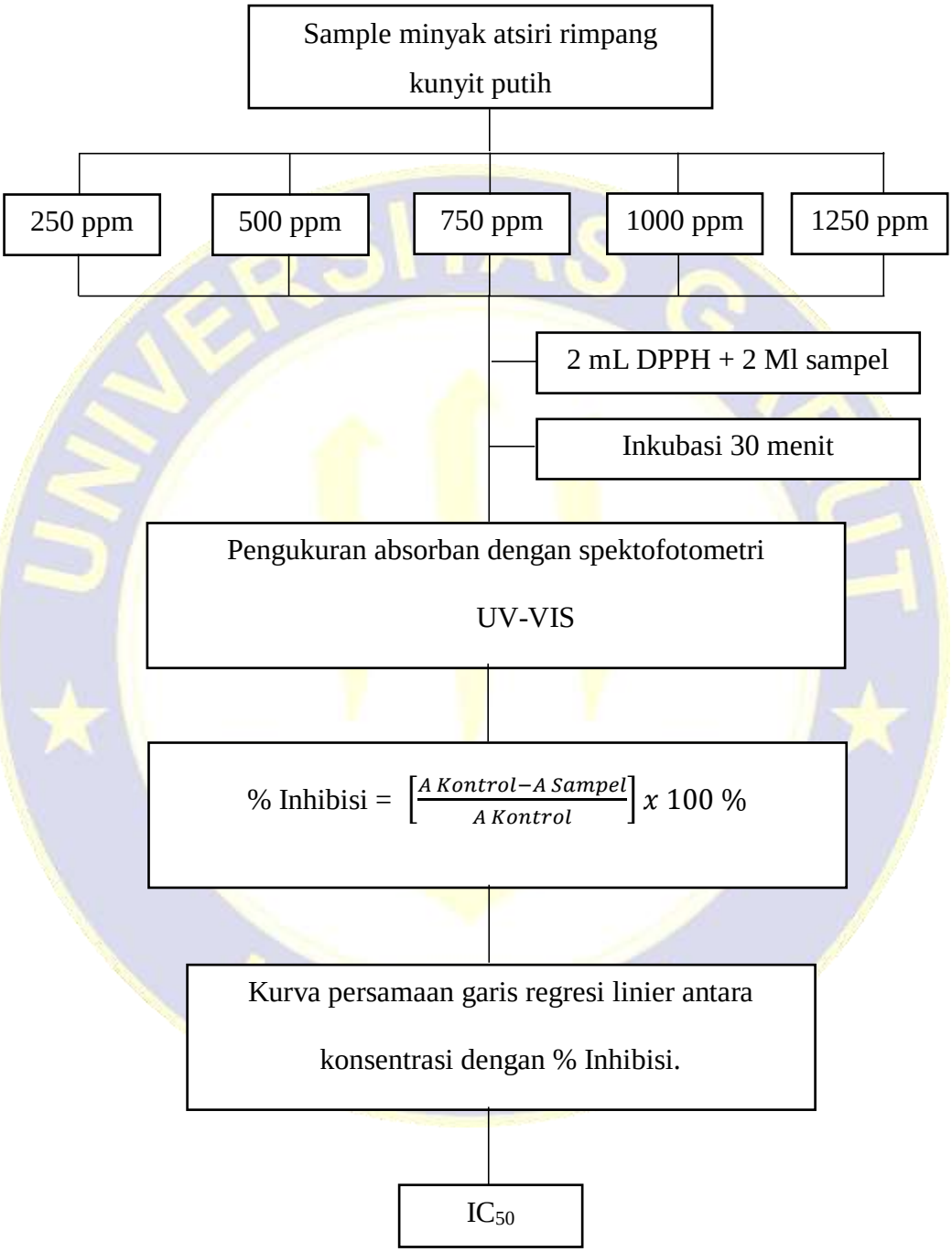
LAMPIRAN 2

PENGUKURAN SPEKTROFOTOMETER UV-VISIBLE



Gambar IV.2 Skema kerja spektrofotometer ekstrak

LAMPIRAN 2
(LANJUTAN)



Gambar IV.3 Skema kerja spektrofotometer minyak atsiri

LAMPIRAN 3

HASIL DETERMINASI

INSTITUT TEKNOLOGI BANDUNG
SEKOLAH ILMU DAN TEKNOLOGI HAYATI
Jalan Ganesha 10 Bandung 40132, Telp: (022) 251 1575, 250 0258, Fax (022) 253 4107
e-mail : sith@itb.ac.id http://www.sith.itb.ac.id

Nomor : 2366/I1.CO2.2/PL/2017. 8 Juni 2017.
Hal : Determinasi tumbuhan

Kepada yth.
Wakil Dekan I
Fakulas Matematika dan Ilmu Pengetahuan Alam
Universitas Garut
Jalan Jati No. 42 B, Tarogong Kaler
Garut

Memperhatikan surat permintaan Saudara dalam surat No. 155/F.MIPA-UNIGA/V/2017 tanggal 31 Mei 2017 mengenai determinasi tumbuhan, dengan ini kami sampaikan bahwa setelah dilakukan determinasi oleh staf kami, sampel tumbuhan kunyit putih yang dibawa oleh Sdr. Nia Monika (NPM : 24041316380), adalah :

Divisi	:	Magnoliophyta
Kelas	:	Liliopsida (Monocots)
Anak kelas	:	Zingiberidae
Bangsa	:	Zingiberales
Nama suku / familia	:	Zingiberaceae
Nama jenis / species	:	*Curcuma zedoaria* (Christin) Roscoe
Sinonim	:	*Curcuma pallida* Lour., *Curcuma zerumbet* Roxb.
Nama umum	:	Temu putih (Indonesia), koneng tegal (Sunda)
Buku acuan	:	1. Backer, C.A. & Bakhuizen van den Brink, Jr., R.C. 1968. Flora of Java.Vol. III.Wolters - Noordhoff N.V., Groningen, the Netherlands. pp. 72. 2. Ogata, Y. *et al.* (Committee Members). 1995. Medicinal Herb Index in Indonesia (Second edition). PT Eisai Indonesia, Jakarta. pp. 272. 4. Wardini, T.H. 1999. *Curcuma* L. In: de Padua, L.S., Bunyapraphatsara, N. & Lemmens, R. H. M. J. (eds.). Plant Resources of South – East Asia No 12 (1). Medicinal and poisonous plants 1. Backhuys Publishers, Leiden, the Netherlands. pp. 210 – 219. 5. Cronquist, A. 1981. An Integrated System of Classification of Flowering Plants. Columbia University Press, New York. pp. Xiii – Xviii.

Demikian yang kami sampaikan. Atas perhatian dan kerjasama yang diberikan, kami ucapkan terima kasih.

Wakil Dekan Bidang Sumber Daya,

Dr. Iriawati
NIP. 19691119199520001

Tembusan:
Dekan SITH ITB, sebagai laporan.

Gambar V.2 Hasil determinasi tanaman kunyit putih (*Curcuma zedoaria* (Christin) *Roscoe.*)

LAMPIRAN 4

DOKUMENTASI PENELITIAN

(a)

(b)

(c)

(d)

Gambar V.3 Dokumentasi :
(a) Penimbangan rimpang kunyit putih
(b) Pencucian rimpang kunyit putih
(c) Simplisia kunyit putih
(d) Proses maserasi

LAMPIRAN 4
(LANJUTAN)

(e)

(f)

(g)

(h)

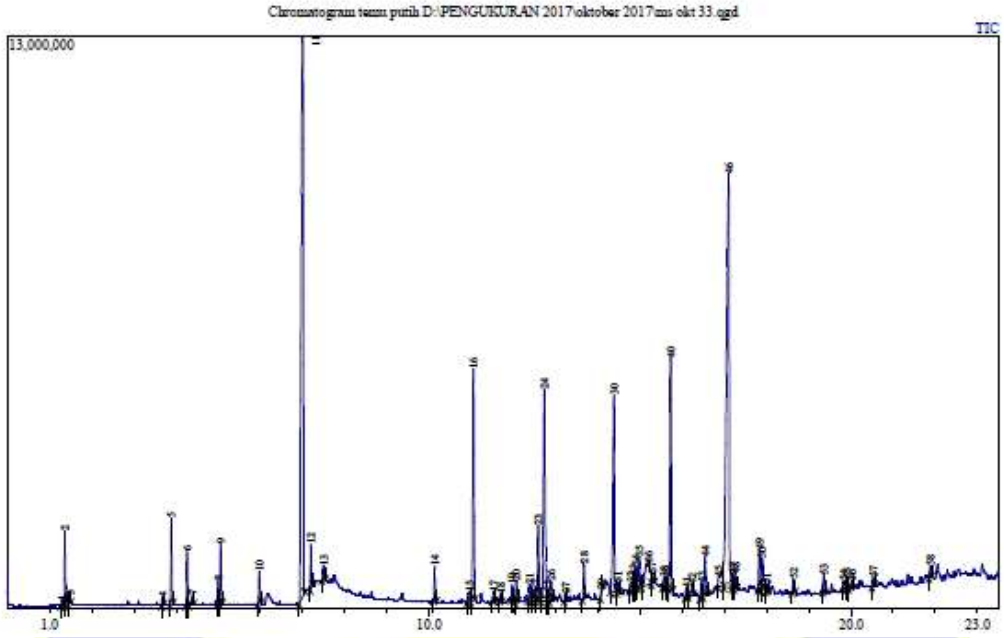
Gambar V.3 Dokumentasi :
(a) Ekstrak kental
(b) Proses penarikan minyak atsiri
(c) Proses penarikan minyak atsiri
(d) Hasil minya atsiri

LAMPIRAN 5

HASIL GCMS MINYAK ATSIRI

Sample Information

Analyzed	: 11/6/2017 9:31:26 PM
Sample Name	: temu putih
Sample ID	: MS 10_17_33
Injection Volume	: 0.20
Method File	: D:\Metode\atsiri baru.qgm
Tuning File	: C:\GCMSsolution\System\Tune1\6 november 2017.qgt



Gambar V.4 Hasil kromatografi GC-MS minyak atsiri kunyit putih

Tabel V.5
Kandungan minyak atsiri

Peak	R.Time	Area	Area%	Height	A/H	Name
1	1.290	404723	1.22	99635	4.06	7-Hydroxy-7-phenyl-3,9-diisopropyl-2,10-dioxadispiro[3.3.3.1]dodecan-1,11-dione
2	1.361	2710962	1.45	1665021	1.63	Ethanol
3	1.480	234334	0.12	186081	1.26	Methylpropenal
4	3.680	249772	0.13	190943	1.31	ALPHA.-PINENE

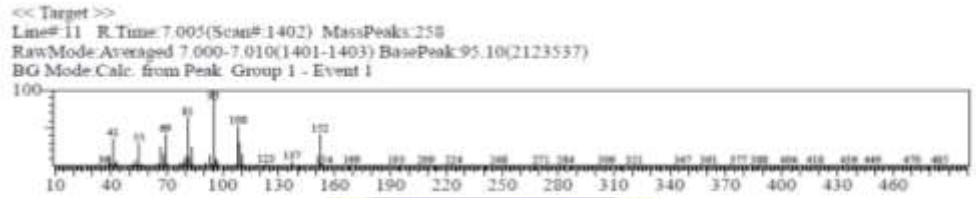
LAMPIRAN 5
(LANJUTAN)

Peak	R.Time	Area	Area%	Height	A/H	Name
5	3.887	2821728	1.51	1959127	1.44	Camphene
6	4.261	1710029	0.91	1214075	1.41	BETA.-PINENE
7	4.390	328554	0.18	206403	1.59	beta.-Myrcene
8	4.994	808456	0.43	537305	1.50	Limonene
9	5.056	2058085	1.10	1386316	1.48	Cineole
10	5.972	1246635	0.66	717600	1.74	Methylheptyl ketone
11	7.005	46883781	25.01	13383060	3.50	Camphor
12	7.196	1090125	0.58	998624	1.09	Borneol
13	7.495	635460	034	333744	1.90	Terpineol
14	10.131	1289601	0.69	777852	1.66	Zelta.-Elemene
15	10.951	721341	0.38	245850	2.93	BETA. BOURBONENE
16	11.049	9584985	5.11	5263136	1.82	BETA. ELEMENE
17	11.524	379471	0.20	20 235538	1.61	trans-Caryophyllene
18	11.691	311284	0.17	188748	1.65	GAMMA.-ELEMENE
19	11.966	563002	0.30	350717	1.61	Sinularene
20	12.069	892031	0.48	497186	1.79	alpha.-Humulene
21	12.380	818616	0.44	377925	2.17	2-ISOPROPENYL-4A,8-DIMETHYL-1,2,3,4,4A,5,6,7-OCTAHYDRO-NAPHTHALENE
22	12.492	748446	0.40	263764	2.84	GERMACRENE-D
23	12.588	3395787	1.81	1727966	1.97	beta.-Selinene
24	12.729	12870033	6.87	4826069	2.67	Curzerene
25	12.825	522247	0.28	237332	2.20	ISOLONGIFOLAN-8-OL
26	12.882	1229294	0.66	484527	2.54	BETA. ELEMENE
27	13.231	324614	0.17	178236	1.82	Selina-3,7(11)-diene
28	13.670	1441547	0.77	811247	1.78	Germacrene B
29	14.085	148643	0.08	96168	1.55	Caryophyllene oxide
30	14.380	10763351	5.74	4459024	2.41	Boldenone
31	14.476	481989	0.26	232034	2.08	HUMULENE OXIDE
32		650966	14.775	156901	4.15	1H-Cycloprop[e]azulen-4-ol, decahydro-1,1,4,7-tetramethyl
33	14.840	818526	0.44	315426	2.59	4,8,13-Cyclotetradecatriene1,3-diol, 1,5,9-trimethy-12-(1-methylethyl
34	14.889	1411382	0.75	514504	2.74	Thunbergol

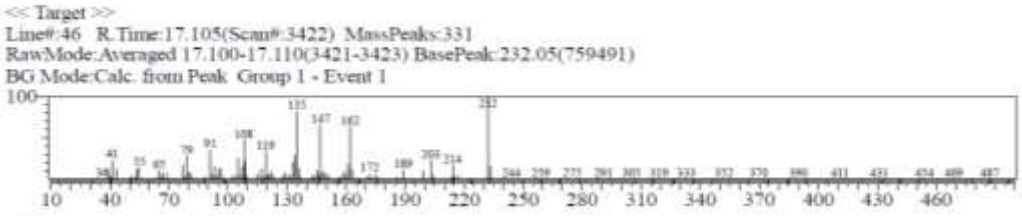
LAMPIRAN 5
(LANJUTAN)

Peak	R.Time	Area	Area%	Height	A/H	Name
35	14.982	1707500	0.91	692396	2.47	GAMMAGURJUNENEPOXID
36	15.198	4206704	2.24	537161	7.83	beta.-Eudesmol
37	15.295	554432	0.30	227620	2.44	delta.-Guaiene
38	15.563	506790	0.27	234009	2.17	Heptane
39	15.639	698116	0.37	295179	2.37	Furanodiene
40	15.727	11509850	6.14	5305491	2.17	Germacrone
41	16.100	348339	0.19	197071	1.77	2-ISOPROPENYL-4A,8-DIMETHYL-1,2,3,4,4A,5,6,7-OCTAHYDRO-NAPHTHALENE
42	16.231	418051	0.22	253325	1.65	7-ISOPROPYL-1,4-DIMETHYL-AZULEN-2-OL
43	16.456	706990	0.38	354116	2.00	(E)-2,3,3-Trimethyl-2-(3'-methyl-1'.3'-butadien-1'-yl)-6-methylidencyclohexanone
44	16.542	2096308	1.12	890518	2.35	hydroxy-valerenic acid
45	16.865	2646269	1.41	217531	12.17	3-(2'-hydroxyethyl)quinolin-2(1H)-one
46	17.103	41733676	22.26	9415146	4.43	LONGIVERBENON
47	17.203	774446	0.41	357247	2.17	Eremanthin
48	17.256	705013	0.38	362672	1.94	2,5-Dimethylbicyclo[3.3.0]oct-6-en-8-one
49	17.827	1959466	1.05	914292	2.14	ACETIC ACID
50	17.895	2345651	1.25	742030	3.16	ACETIC ACID
51	18.007	328347	0.18	181180	1.81	NAPHTHALIN
52	18.635	573423	0.31	300497	1.91	.GAMMA.-ELEMENE
53	19.358	766547	0.41	412515	1.86	Eicosane
54	19.825	545921	0.29	160877	3.39	.BETA.-H-PREGNA
55	19.904	420053	0.22	224115	1.87	Linderazulene
56	20.025	465797	0.25	198593	2.35	(E,1'RS,2'RS,4'SR,7'SR)-1-(2',5',5'-trimethyl-3'-oxatricyclo[5.1.0.0(2,4)]oct-4'-yl)-3-
57	20.528	388459	0.21	223547	1.74	Heneicosane
58	21.878	514804	0.27	248322	2.07	CYCLOHEXYLETHYL N-AMYL ETHER

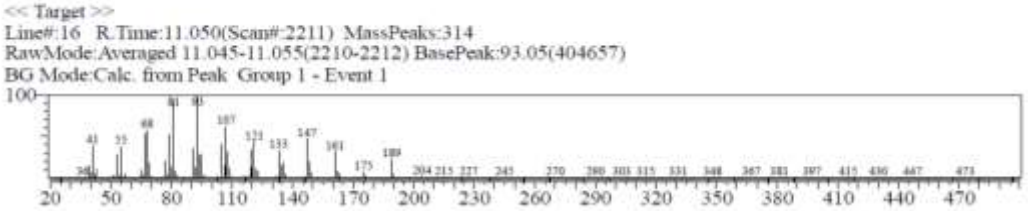
LAMPIRAN 5
(LANJUTAN)



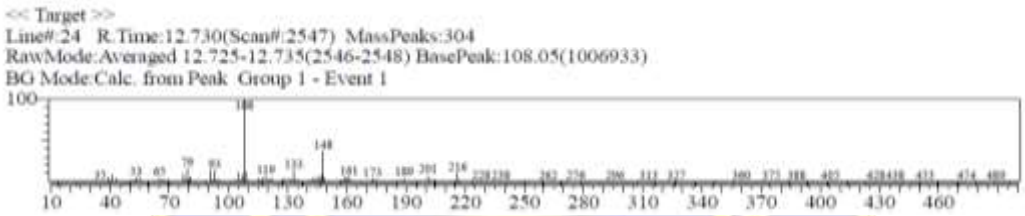
Gambar V.5 Hasil spektra massa camphor



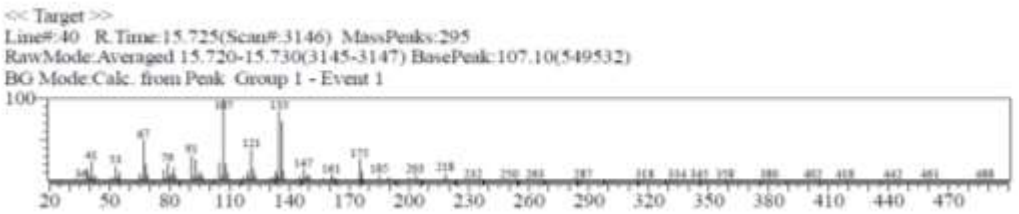
Gambar V.6 Hasil spektra massa longiverbenon (vulgaron b)



Gambar V.7 Hasil spektra massa curzerene



Gambar V.8 Hasil spektra massa germacrone



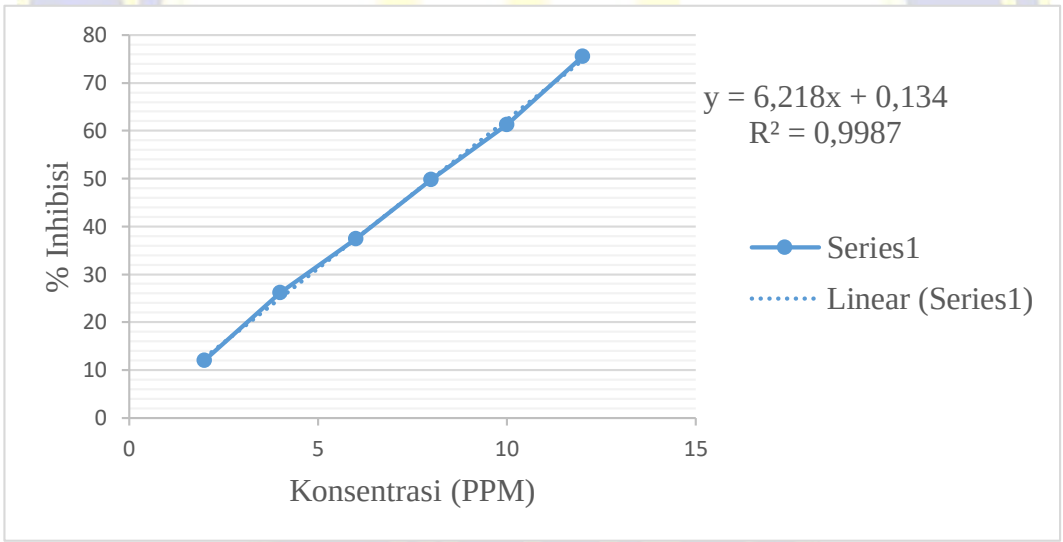
Gambar V.9 Hasil spektra beta-element

LAMPIRAN 6

HASIL PENGUJIAN AKTIVITAS ANTIOKSIDAN VITAMIN C

Tabel V.6
Pengujian aktivitas antioksidan vitamin c

Konsentrasi (ppm)	Absorbansi			SD	Rata-rata	Abs. DPPH	%Inhibisi	Ic50
	1	2	3					
2	0,690	0,680	0,700	0,01	0,690	0,784	11,98%	8,019
4	0,577	0,579	0,580	0,001528	0,579		26,14%	
6	0,491	0,491	0,490	0,000577	0,491		37,37%	
8	0,391	0,395	0,396	0,002646	0,394		49,74%	
10	0,301	0,306	0,305	0,002646	0,304		61,22%	
12	0,193	0,190	0,192	0,001528	0,192		75,51%	



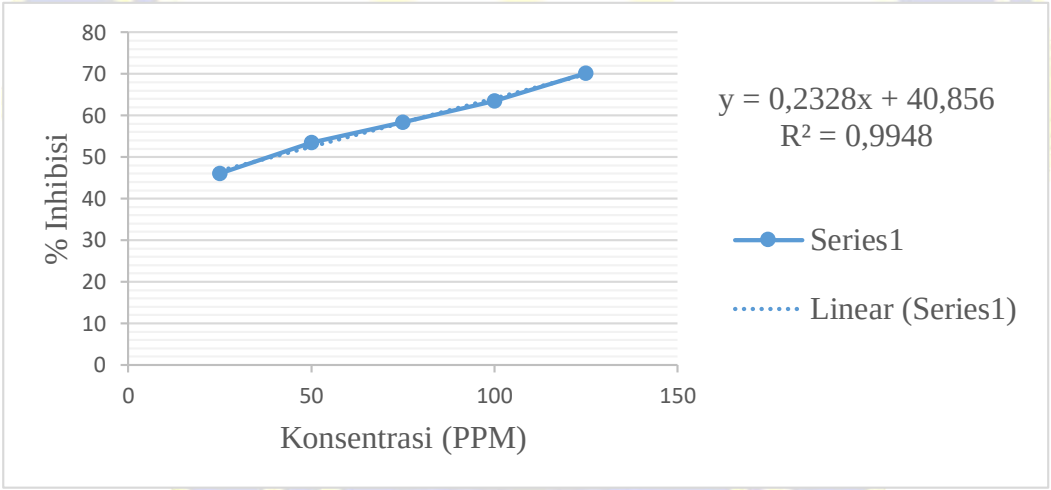
Gambar V.10 Grafik pengujian aktivitas antioksidan vitamin c

LAMPIRAN 7

HASIL PENGUJIAN AKTIVITAS ANTIOKSIDAN EKSTRAK ETANOL RIMPANG KUNYIT PUTIH

Tabel V.7
Pengujian aktivitas antioksidan ekstrak etanol rimpang kunyit putih

Konsentrasi (ppm)	Absorbansi			SD	Rata-rata	Abs. DPPH	%Inhibisi	Ic50
	1	2	3					
25	0,391	0,392	0,393	0,001	0,392	0,727	46,07	39,27835
50	0,339	0,338	0,338	0,000577	0,338		53,50	
75	0,302	0,306	0,303	0,002082	0,303		58,52	
100	0,263	0,265	0,267	0,002	0,265		63,54	
125	0,217	0,214	0,220	0,003	0,217		70,15	



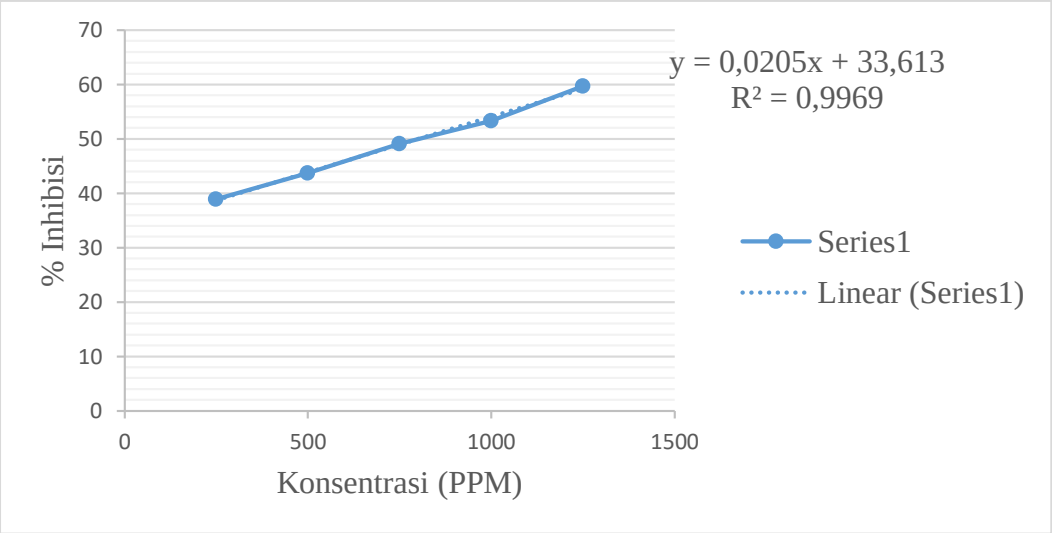
Gambar V.11 Grafik pengujian aktivitas antioksidan ekstrak etanol rimpang kunyit putih

LAMPIRAN 8

HASIL PENGUJIAN AKTIVITAS ANTIOKSIDAN MINYAK ATSIRI RIMPANG KUNYIT PUTIH

Tabel V.8
Pengujian aktivitas antioksidan minyak atsiri rimpang kunyit putih

Konsentrasi (ppm)	Absorbansi			SD	Rata-rata	Abs. DPPH	%Inhibisi	Ic50
	1	2	3					
250	0,447	0,445	0,441	0,003055	0,444	0,727	38,92	799,3659
500	0,411	0,409	0,408	0,001528	0,409		43,74	
750	0,370	0,369	0,371	0,001	0,370		49,10	
1000	0,339	0,338	0,340	0,001	0,339		53,37	
1250	0,295	0,294	0,292	0,001528	0,293		59,69	



Gambar V.12 Grafik pengujian aktivitas antioksidan minyak atsiri rimpang kunyit putih

LAMPIRAN 9

PERHITUNGAN PENGENCERAN LARUTAN SERI KONSENTRASI VITAMIN C

- 2 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1.000 = 10 . 2$

  $V_1 = \frac{20}{1000}$

  = 0,02 ml = 20 µl

- 4 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1.000 = 10 . 4$

  $V_1 = \frac{40}{1000}$

  = 0,04 ml = 40 µl

- 6 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1.000 = 10 . 6$

  $V_1 = \frac{60}{1000}$

  = 0,06 ml = 60 µl

- 8 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1.000 = 10 . 8$

  $V_1 = \frac{80}{1000}$

  = 0,08 ml = 80 µl

- 10 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1.000 = 10 . 10$

  $V_1 = \frac{100}{1000}$

  = 0,10 ml = 100 µl

- 12 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1.000 = 10 .1\ 2$

  $V_1 = \frac{120}{1000}$

  = 0,12 ml = 120 µl

LAMPIRAN 10

PERHITUNGAN PENGENCERAN LARUTAN SERI KONSENTRASI EKSTRAK KUNYIT PUTIH (*Curcuma zedoaria* (Christin) *Roscoe*.)

- 25 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1000 = 10 . 25$

  $V_1 = \frac{250}{1000}$

  = 0,25 ml = 250 µl

- 50 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1000 = 10 . 50$

  $V_1 = \frac{500}{1000}$

  = 0,50 ml = 500 µl

- 25 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1000 = 10 . 75$

  $V_1 = \frac{750}{1000}$

  = 0,75 ml = 750 µl

- 25 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1000 = 10 . 100$

  $V_1 = \frac{1000}{1000}$

  = 1 ml = 1000 µl

- 25 ppm

  $V_1 . M_1 = V_2 . M_2$

  $V_1 . 1000 = 10 . 125$

  $V_1 = \frac{1250}{1000}$

  = 0,125 ml = 1250 µl

LAMPIRAN 11

PERHITUNGAN PENGENCERAN LARUTAN SERI KONSENTRASI MINYAK ATSIRI KUNYIT PUTIH (*Curcuma zedoaria* (Christin) *Roscoe*.)

❖ 250 ppm

$V_1 . M_1 = V_2 . M_2$

$V_1 . 50.000 = 10.000 . 250$

$V_1 = \frac{2.500.000}{50.000}$

$= 50$ µl

❖ 500 ppm

$V_1 . M_1 = V_2 . M_2$

$V_1 . 50.000 = 10.000 . 500$

$V_1 = \frac{5.000.000}{50.000}$

$= 100$ µl

❖ 750 ppm

$V_1 . M_1 = V_2 . M_2$

$V_1 . 50.000 = 10.000 . 750$

$V_1 = \frac{7.500.000}{50.000}$

$= 150$ µl

❖ 1000 ppm

$V_1 . M_1 = V_2 . M_2$

$V_1 . 50.000 = 10.000 . 1000$

$V_1 = \frac{10.000.000}{50.000}$

$= 200$ µl

❖ 1.250 ppm

$V_1 . M_1 = V_2 . M_2$

$V_1 . 50.000 = 10.000 . 1.250$

$V_1 = \frac{12.500.000}{50.000}$

$= 250$ µl

LAMPIRAN 12

PERHITUNGAN IC_{50} EKSTRAK ETANOL DAN MINYAK ATSIRI KUNYIT PUTIH (*Curcuma zedoaria* (Christin) *Roscoe*.)

- IC_{50} VITAMIN C

$$IC_{50} = \frac{50-b}{a}$$

$$= \frac{50-6,218}{0,134}$$

= 8,01962 PPM

- IC_{50} EKSTRAK ETANOL KUNYIT PUTIH

$$IC_{50} = \frac{50-b}{a}$$

$$= \frac{50-40,856}{0,2328}$$

= 39,28PPM

- IC_{50} MINYAK ATSIRI KUNYIT

$$IC_{50} = \frac{50-b}{a}$$

$$= \frac{50-33,613}{0,02052}$$

= 799,37PPM