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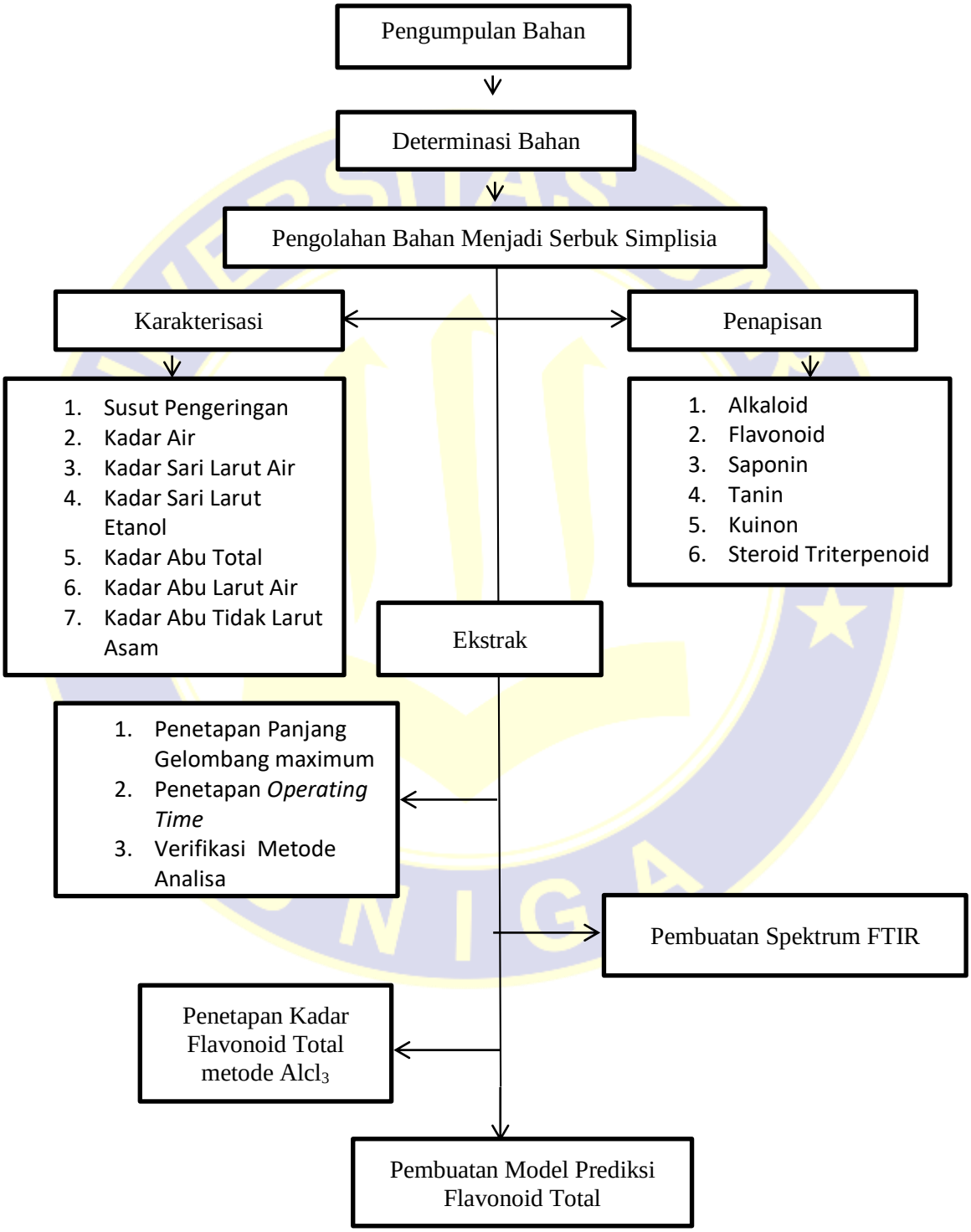
LAMPIRAN 1

ALUR PENELITIAN



Gambar IV.1 Alur penelitian

LAMPIRAN 2

SAMPEL TANAMAN JAMBU MAWAR

Gambar IV.2 Tanaman jambu mawar (*Syzygium jambos* (L.) Alston)

LAMPIRAN 3

MAKROSKOPIK TANAMAN

Gambar IV.3 Makroskopik daun jambu mawar (*Syzygium jambos* (L.) Alston)

LAMPIRAN 4

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 : 1842/I1.CO2.2/PL/2018. 23 April 2018
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. 063/F.MIPA-UNIGA/II/2018 tanggal 17 Februari 2018 mengenai determinasi tumbuhan, dengan ini kami sampaikan bahwa setelah dilakukan determinasi oleh staf kami, sampel tumbuhan jambu mawar yang dibawa oleh Sdr. Yushi Choerunisa (NPM: 2404114137), adalah :

Divisi	:	Magnoliophyta
Kelas	:	Magnoliopsida (Dicots)
Anak kelas	:	Rosidae
Bangsa	:	Myrtales
Nama suku / familia	:	Myrtaceae
Nama jenis / species	:	*Syzygium jambos* (L.) Alston
Sinonim	:	*Eugenia jambos* L., *Myrtus jambos* (L.) Kunth
Nama umum	:	Rose apple (Inggris), jambu mawar (Indonesia)
Buku acuan	:	1. Backer, C.A. & Bakhuizen van den Brink, Jr. R.C. 1963. Flora of Java. Volume I. N.V.P. Noordhoff – Groningen, the Netherlands. pp. 344. 2. Ogata, Y. *et al.* (Committee Members). 1995. Medicinal Herb Index in Indonesia (Second Edition). PT. Eisai Indonesia, Jakarta. pp. 59. (Sebagai *Eugenia jambos* L.). 3. 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,

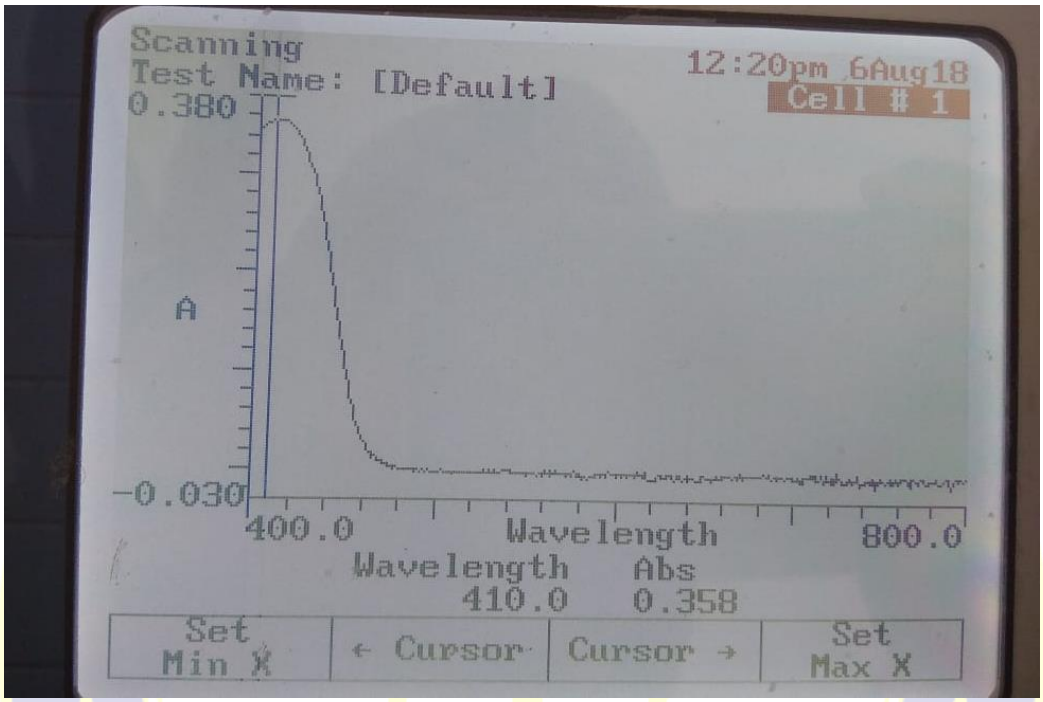
Dr. Iriawati
NIP. 196205071988032001

Tembusan:
Dekan SITH ITB, sebagai laporan.

Gambar IV.4 Hasil determinasi

LAMPIRAN 5

PENENTUAN PANJANG GELOMBANG KUERSETIN



Gambar IV.5 Panjang gelombang maksimum kuersetin

LAMPIRAN 6

PENENTUAN *OPERATING TIME*

Tabel I.3
Penentuan Waktu Kerja (*Operating Time*)

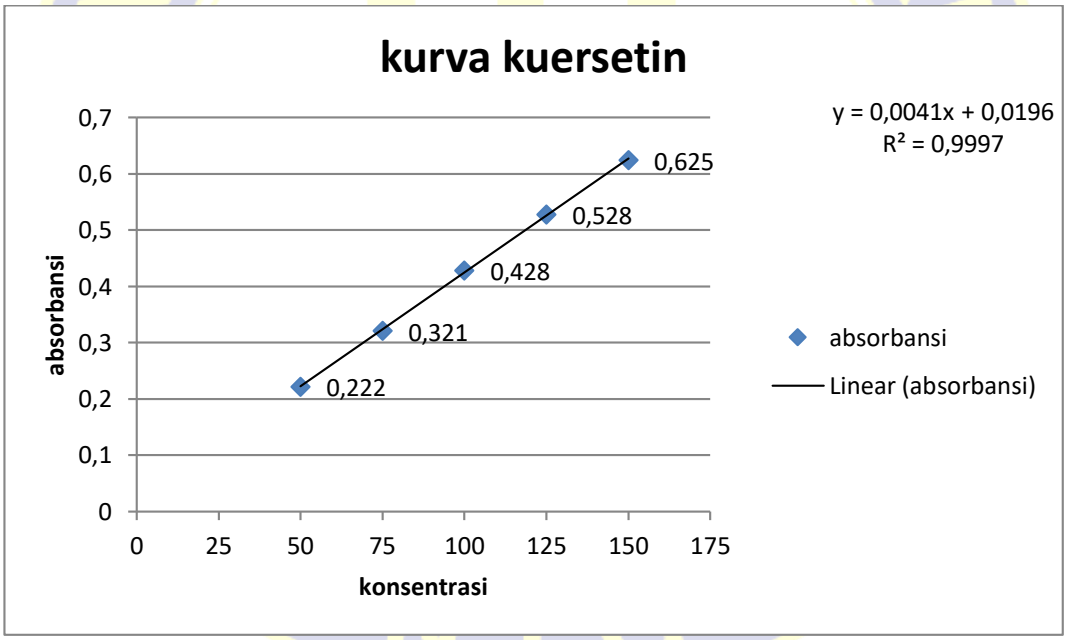
MENIT	ABSORBAN
1	0,313
2	0,366
3	0,397
4	0,400
5	0,417
6	0,430
7	0,436
8	0,440
9	0,442
10	0,445
11	0,446
12	0,448
13	0,447
14	**0,448**
15	**0,448**
16	**0,448**
17	**0,448**
18	**0,448**
19	**0,448**
20	**0,448**

LAMPIRAN 7

PERSAMAAN REGRESI LINIER

Tabel I.4
Hasil pengukuran larutan baku kuersetin

Konsentrasi (ppm)	Absorban
50	0,222
75	0,321
100	0,428
125	0,528
150	0,625



Gambar IV.6 Kurva kalibrasi kuersetin

LAMPIRAN 8

HASIL UJI PRESISI

Tabel I.5
Hasil uji presisi

Konsentrasi baku kuersetin (ppm) (x)	Absorban	Kadar Terukur	$(x- x_i)^2$	$(x- \hat{x})$
150	0,626	149,65	0,27	0,0729
150	0,620	149,16	-0,05	0,0025
150	0,626	149,65	0,27	0,0729
150	0,618	147,68	-1,04	1,0816
150	0,629	150,39	0,77	0,5929
150	0,623	148,91	-0,22	0,0484
Σ				**1,8712**

$$RSD = \frac{Konsentrasi\ terukur}{\text{Rata}-\text{rata}} \text{ x } 100\ \%$$

$$= \ 0{,}14\%$$

Ketelitian alat = 100 – 0,14 = 99,86%

LAMPIRAN 9

HASIL UJI AKURASI

Tabel I.6
Hasil uji akurasi

Konsentrasi	Replikasi	Absorban	Konsentrasi sampel (ppm)	Konsentrasi terukur (ppm)	Konsentrasi standar (ppm)	Perolehan Kembali %
80%	1	0,370	44,52	86,47	35,61	95,89
	2	0,367		85,73		94,20
	3	0,369		86,22		95,33
					Rata-rata	**95,14**
100%	1	0,375	44,52	87,70	44,52	98,15
	2	0,384		89,93		103,79
	3	0,377		88,20		99,27
					Rata-rata	**100,40**
120%	1	0,402	44,52	94,37	53,42	112,87
	2	0,415		97,58		120,13
	3	0,410		96,34		117,34
					Rata-rata	**116,78**

LAMPIRAN 10

BATAS DETEKSI DAN BATAS KUANTITASI

Tabel I.7
Batas deteksi dan batas kuantitasi

Konsentrasi (ppm)	Absorban (y)	Yi (y=bx+a)	(y-yi)	$(y-yi)^2$
50	0,222	0,222	0	0
75	0,321	0,323	-0,002	0,000004
100	0,428	0,425	0,003	0,000009
125	0,528	0,526	0,002	0,00004
150	0,625	0,627	0,002	0,00004
Σ		2,123		0,000021

Batas simpangan baku residual $= \sqrt{\frac{\sum(Y-Yi)^2}{n-2}}$

$= \sqrt{\frac{0,000021}{5-2}}$

$= (0,000007)^{\frac{1}{2}}$

$= 0,00265$

Batas deteksi (LOD) $= \frac{3,3 \text{ x } SB}{b}$

$= \frac{3,3 \text{ x } 0,00265}{0,004052} = 2,158$ ppm

LAMPIRAN 10
(LANJUTAN)

Batas kuantitasi (LOQ) $= \frac{10 \text{ x } SB}{b}$

$= \frac{10 \text{ x } 0{,}00265}{0{,}004052}$

= 6,540 ppm

LAMPIRAN 11

PENETAPAN KADAR FLAVONOID TOTAL

Tabel I.8
Nilai Kadar Flavonoid Total

Konsentrasi Sampel (ppm)	Absorbansi	Konsentrasi Flavonoid (mgQE/L)	Kadar Flavonoid Total (mgQE/100 gram ekstrak)
2000	0,295	67,17	33,58
3000	0,385	89,24	29,74
4000	0,492	115,21	28,80
5000	0,506	118,75	23,75
6000	0,625	147,78	24,63

Contoh perhitungan :

Penentuan kadar flavonoid total pada konsentrasi sampel 2000 ppm sebagai berikut :

Diketahui : Absorbansi sampel = 0,295

Persamaan Y = 0,0041x + 0,0196

Y = Absorbansi sampel

Ditanyakan : X = Kadar Flavonoid

Perhitungan : Y = 0,0041x + 0,0196

$$X = \frac{0,295-0,0196}{0,0041}$$

X = 67,17 µg/ml

Faktor pengenceran = 1

LAMPIRAN 11
(LANJUTAN)

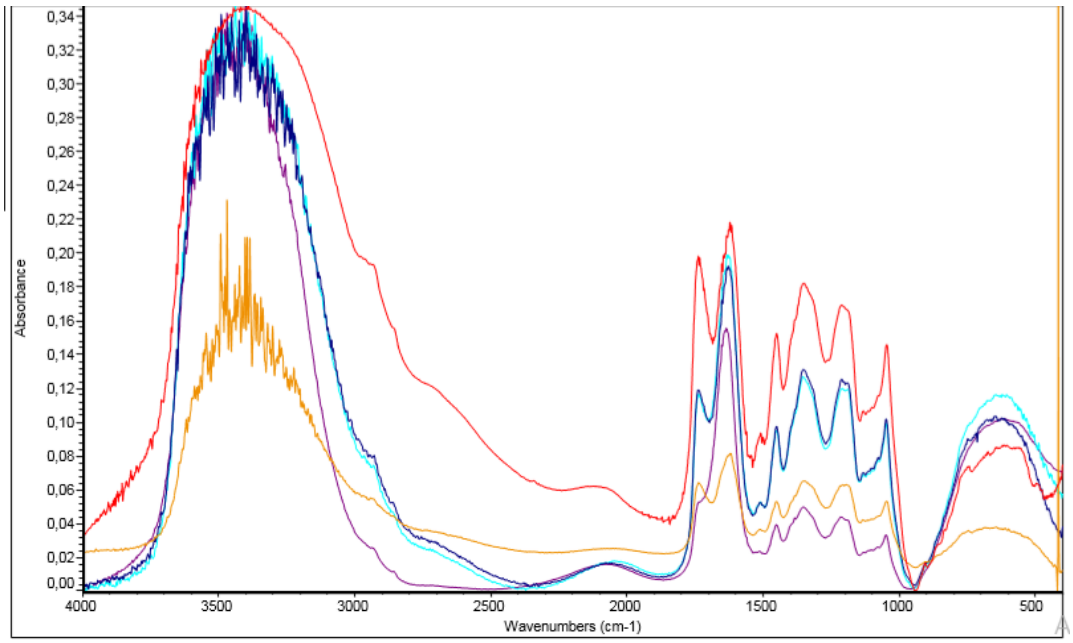
Flavonoid Total = $\frac{x\ (ppm) x\ L\ (Volume\ sampel) x\ faktor\ pengenceran}{g\ sampel}$

Flavonoid Total = $\frac{67{,}17\ x\ 0{,}01\ x\ 1}{0{,}02}$

Flavonoid Total = 33,58 mgQE/100g ekstrak

LAMPIRAN 12

SPEKTRUM FTIR



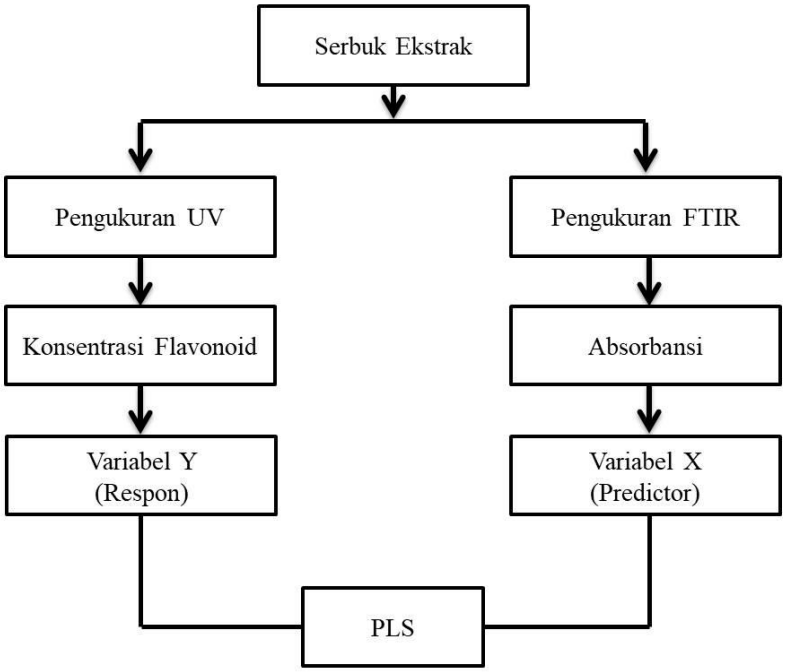
Gambar IV.7 Hasil spektrum FTIR

Keterangan :

- **2000 ppm**
- **3000 ppm**
- **4000 ppm**
- **5000 ppm**
- **6000 ppm**

LAMPIRAN 13

ALUR KERJA PLS (*partial least square*)



Gambar IV.8 Alur kerja PLS (*partial least square*)

LAMPIRAN 14

OUTPUT KALIBRASI DAN VALIDASI

PLS Regression: Kadar UV versus 667, 1000, 1200, 1300, ... 0, 1600, 3400

Method

Cross-validation	Leave-one-out
Components to evaluate	Set
Number of components evaluated	3
Number of components selected	3

Analysis of Variance for Kadar UV

Source	DF	SS	MS	F	P
Regression	3	0.368482	0.122827	14.80	0.188
Residual Error	1	0.008296	0.008296		
Total	4	0.376779			

Model Selection and Validation for Kadar UV

Components	X Variance	Error	R-Sq	PRESS	R-Sq (pred)
1	0.518280	0.162849	0.567786	1.87478	0.000000
2	0.951753	0.013382	0.964482	2.24031	0.000000
3	0.998017	0.008296	0.977981	0.19225	0.489756

Coefficients

	Kadar UV	Kadar UV standardized
Constant	0.355772	0.000000
667	0.011964	0.679400
1000	0.004524	0.339452
1200	0.003583	0.316518
1300	0.003236	0.289734
1400	0.003955	0.283592
1600	-0.004127	-0.428922
3400	-0.001791	-0.521080

PLS Coefficient Plot for Kadar UV

PLS Response Plot for Kadar UV

Gambar IV.9 Output kalibrasi dan validasi