

LAMPIRAN

Lampiran 1. Determinasi Tanaman



UPT-LABORATORIUM

Nomor : 025E/DET/UPT-LAB/30.07.2022
Hal : Hasil determinasi tumbuhan
Lamp. :-

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Prodi : S-1 Farmasi, Universitas Sahid Surakarta
Nama sampel : *Foeniculum vulgare* Mill / Adas

HASIL DETERMINASI TUMBUHAN

Klasifikasi :
Kingdom : Plantae
Super divisi : Spermatophyta
Divisi : Magnoliophyta
Kelas : Magnoliopsida
Ordo : Apiales
Familia : Apiaceae
Genus : *Foeniculum*
Species : *Foeniculum vulgare* Mill

Hasil Determinasi menurut C.A. Backer & R.C. Bakhuizen van den Brink Jr, (1963) :

1b – 2b – 3b – 4b – 12b – 13b – 14b – 17b – 18b – 19b – 20b – 21b – 22b – 23b – 24b – 25b
– 26b – 27a – 28b – 29b – 30b – 31a – 32a – 33c – 631a. familia 148. Apiaceae -1a – 2b – 3b
– 4a – 5a – 6b – 7b – 8a – 9a – 17. *Foeniculum* 1. *Foeniculum vulgare* Mill.

Deskripsi:

Habitus : Terna menahun, tinggi 2m atau lebih. Tanpa batang utama. Membentuk roset dengan banyak anakan.

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- Batang** : Batang bentuk galah, beralur, mempunyai banyak cabang, batang mempunyai aroma sedap.
- Daun** : Daun tunggal, duduk berseling. Pangkal tangkai bersayap. Helaian daun berbagi, bentuk jarum, ujung dan pangkal daun runcing. Daun berpelepah bentuk silindris, bagian bawah lebih besar. Panjang 30-50 cm, lebar 5-7 cm. Tangkai dan helaian hijau. Panjang tangkai 0-10 cm, silindris. Jika diremas berbau harum.
- Bunga** : Bunga majemuk payung, di ujung batang atau cabang. Jumlah bunga 6-40 tiap tangkai. Tangkai utama 5-10 cm, tangkai bunga 2-5 mm. Bunga bentuk tabung, kelopak bertaju 5, berwarna hijau, mahkota kecil, berbagi 5, berwarna kuning.
- Buah** : Buah lonjong, berusuk. Panjang 6-10 mm, lebar 3-4 mm. Bau seperti rempah-rempah. Warna buah saat muda hijau, setelah tua coklat atau coklat kekuningan.
- Akar** : Akar tunggang, putih kekuningan, tumbuh menyebar sampai 10-15 cm, diameter 1-1,5 cm.

Kepala UPT-LAB
Universitas Setia Budi



Asik Gunawan, Amdk

Surakarta, 30 Juli 2022

Penanggung jawab
Determinasi Tumbuhan

Dra. Dewi Sulistyawati, M.Sc.

Lampiran 2. Penentuan *Operating Time*Data Pengukuran Waktu Kerja (*Operating Time*) Baku Asam Galat

No	Menit	Absorbansi
1	0	0,739
2	1	0,752
3	2	0,764
4	3	0,775
5	4	0,784
6	5	0,791
7	6	0,796
8	7	0,801
9	8	0,804
10	9	0,808
11	10	0,810
12	11	0,812
13	12	0,814
14	13	0,815
15	14	0,817
16	15	0,819
17	16	0,821
18	17	0,821
19	18	0,822
20	19	0,823
21	20	0,823
22	21	0,823
23	22	0,823
24	23	0,822
25	24	0,822
26	25	0,822
27	26	0,823
28	27	0,822
29	28	0,821

30	29	0,820
31	30	0,820
32	31	0,819
33	32	0,818
34	33	0,818
35	34	0,817
36	35	0,817
37	36	0,816
38	37	0,815
39	38	0,814
40	39	0,813
41	40	0,813
42	41	0,812
43	42	0,812
44	43	0,811
45	44	0,810
46	45	0,809
47	46	0,808
48	47	0,807
49	48	0,806
50	49	0,805
51	50	0,805
52	51	0,804
53	52	0,803
54	53	0,802
55	54	0,801
56	55	0,800
57	56	0,799
58	57	0,798
59	58	0,798
60	59	0,797
61	60	0,796

Keterangan:

Absorbansi larutan baku asam galat dengan pereaksi *Folin Ciocalteu* (1:10) dan Na_2CO_3 7,5% mulai menunjukkan kestabilan pada menit ke-19 sehingga dipilih *operating time* pada menit ke-19 hingga menit ke-22.

Menghitung Absorbansi Asam Galat Dengan *Operating Time* Selama 19 Menit Pada Panjang Galombang 633 nm.

Lampiran 3. Penentuan Kurva Kalibrasi

No	Konsentrasi (ppm)	Absorbansi
1	3,75	0,264
2	5	0,337
3	6,25	0,383
4	7,5	0,419
5	8,75	0,494

$$y = bx + a$$

$$y = 0,094x - 0,0629$$

$$a = 0,094$$

$$b = 0,0629$$

$$r = 0,9853$$

Lampiran 4. Perhitungan Rendemen Ekstrak dan Fraksi

$$\text{Perhitungan Rendemen Ekstrak} = \frac{\text{bobot simplisia (akhir)}}{\text{bobot simplisia baku (awal)}} \times 100\%$$

$$= \frac{126 \text{ gram}}{1000 \text{ gram}} \times 100\%$$

$$= 12,6\% \text{ b/b}$$

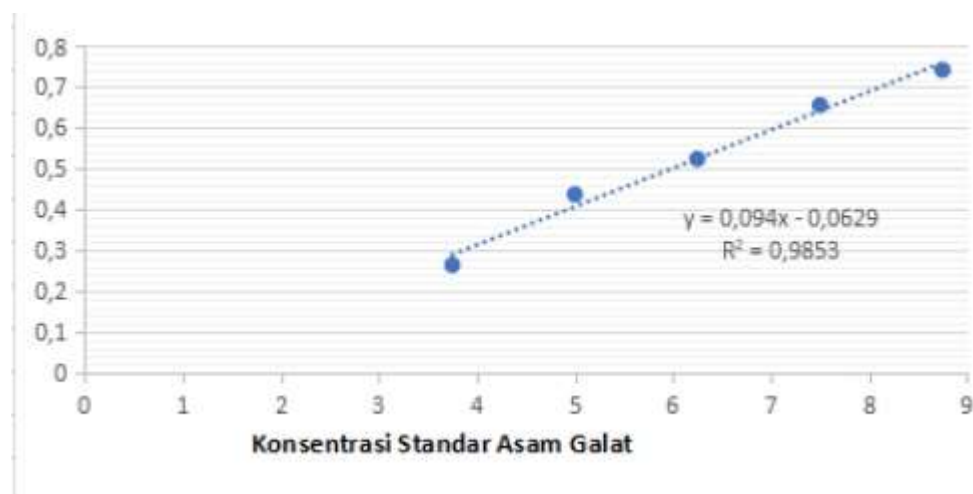
$$\text{Fraksi N-heksan} = \frac{2,92}{30} \times 100\% = 9,7\% \text{ b/b}$$

$$\text{Fraksi Etil asetat} = \frac{3,44}{30} \times 100\% = 11,4\% \text{ b/b}$$

$$\text{Fraksi Air} = \frac{6,56}{30} \times 100\% = 21,8\% \text{ b/b}$$

Lampiran 5. Perhitungan Kadar Fenolik Total

Perhitungan Larutan Standar Asam Galat Pada Panjang Gelombang 633 nm Dengan Spektrofotometri *UV-Vis*



Perhitungan Larutan Stok Asam Galat

$$C_1 = 50 \text{ mg} : 0,1 \text{ L} = 500 \text{ ppm}$$

$$V_2 = 10 \text{ mL}$$

$$V_1 \cdot C_1 = V_2 \cdot C_2$$

$$0,075 \cdot 500 = 10 \cdot C_2$$

$$C_2 = \frac{0,075 \times 500}{10} = 3,75 \text{ ppm}$$

$$V_1 \cdot C_1 = V_2 \cdot C_2$$

$$0,1 \cdot 500 = 10 \cdot C_2$$

$$C_2 = \frac{50 \times 500}{10} = 5 \text{ ppm}$$

$$V_1.C_1 = V_2.C_2$$

$$0,125.500 = 10.C_2$$

$$C_2 = \frac{0,125 \times 500}{10} = 6,25 \text{ ppm}$$

$$V_1.C_1 = V_2.C_2$$

$$0,15.500 = 10.C_2$$

$$C_2 = \frac{0,15 \times 500}{10} = 7,5 \text{ ppm}$$

$$V_1.C_1 = V_2.C_2$$

$$0,175.500 = 10.C_2$$

$$C_2 = \frac{0,175 \times 500}{10} = 8,75 \text{ ppm}$$

Lampiran 6. Penentuan Kandungan Fenolik Total Pada Ekstrak Etanol Daun Adas
(*Foeniculum vulgare mill*) Fraksi N-heksan, etil asetat dan air.

Fraksi	absorbansi	Kandungan Fenolik Total (mg GAE/g)	Rata-rata Fenolik Total (mg GAE/g)	SD	RSD
N-heksan	0,248	220,44	228,71	10,833	211%
	0,277	240,97			
	0,254	224,71			
Etil Asetat	0,491	392,76	402,91	8,966	449%
	0,510	406,22			
	0,515	409,75			
Air	0,310	264,44	256,13	7,879	325%
	0,297	255,17			
	0,288	248,77			

Perhitungan Kandungan Fenolik Total

$$y = 0,094x - 0,0629$$

$$\text{Faktor Pengenceran} = 10 \text{ mL} : 0,15 \text{ mL} = 66,6$$

$$\text{N-heksan} = 0,248 = 0,094x - 0,0629$$

$$0,094x = 0,248 + 0,0629$$

$$x = \frac{0,3109}{0,094} = 3,307 \mu\text{g/mL} = 0,003307 \text{ mg/mL} \times 66,6 = 0,22044 \text{ mg/mL}$$

$$\text{KF} = 0,22044 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 220,44 \text{ mg GAE/g}$$

$$= 0,277 = 0,094x - 0,0629$$

$$0,094x = 0,277 + 0,0629$$

$$x = \frac{0,3399}{0,094} = 3,615 \mu\text{g/mL} = 0,003615 \text{ mg/mL} \times 66,6 = 0,24097 \text{ mg/mL}$$

$$\text{KF} = 0,24097 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 240,97 \text{ mg GAE/g}$$

$$= 0,254 = 0,094x - 0,0629$$

$$0,094x = 0,254 + 0,0629$$

$$x = \frac{0,3169}{0,094} = 3,371 \mu\text{g/mL} = 0,003371 \text{ mg/mL} \times 66,6 = 0,22471 \text{ mg/mL}$$

$$\text{KF} = 0,22471 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 224,71 \text{ mg GAE/g}$$

$$\text{Rata-rata} = \frac{220,44 + 240,97 + 224,71}{3} = 228,71 \text{ mg GAE/g}$$

$$\text{Etil asetat} = 0,491 = 0,094x - 0,0629$$

$$0,094x = 0,491 + 0,0629$$

$$x = \frac{0,5539}{0,094} = 5,892 \mu\text{g/mL} = 0,005892 \text{ mg/mL} \times 66,6 = 0,39276 \text{ mg/mL}$$

$$\text{KF} = 0,39276 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 392,76 \text{ mg GAE/g}$$

$$= 0,510 = 0,094x - 0,0629$$

$$0,094x = 0,510 + 0,0629$$

$$x = \frac{0,5729}{0,094} = 6,094 \mu\text{g/mL} = 0,006094 \text{ mg/mL} \times 66,6 = 0,40622 \text{ mg/mL}$$

$$\text{KF} = 0,40622 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 406,22 \text{ mg GAE/g}$$

$$= 0,515 = 0,094x - 0,0629$$

$$0,094x = 0,515 + 0,0629$$

$$x = \frac{0,5779}{0,094} = 6,147 \mu\text{g/mL} = 0,006147 \text{ mg/mL} \times 66,6 = 0,40975 \text{ mg/mL}$$

$$\text{KF} = 0,40975 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 409,75 \text{ mg GAE/g}$$

$$\text{Rata-rata} = \frac{392,76+406,22+409,75}{3} = 402,91 \text{ mg GAE/g}$$

$$\text{Air} = 0,310 = 0,094x - 0,0629$$

$$0,094x = 0,310 + 0,0629$$

$$x = \frac{0,3729}{0,094} = 3,967 \mu\text{g/mL} = 0,003967 \text{ mg/mL} \times 66,6 = 0,26444 \text{ mg/mL}$$

$$\text{KF} = 0,26444 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 264,44 \text{ mg GAE/g}$$

$$= 0,297 = 0,094x - 0,0629$$

$$0,094x = 0,297 + 0,0629$$

$$x = \frac{0,3599}{0,094} = 3,828 \mu\text{g/mL} = 0,003828 \text{ mg/mL} \times 66,6 = 0,25517 \text{ mg/mL}$$

$$\text{KF} = 0,25517 \text{ mg/mL} \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 255,17 \text{ mg GAE/g}$$

$$= 0,288 = 0,094x - 0,0629$$

$$0,094x = 0,288 + 0,0629$$

$$x = \frac{0,3509}{0,094} = 3,732 \mu\text{g/mL} = 0,003732 \text{ mg/mL} \times 66,6 = 0,24877 \text{ mg/mL}$$

$$\text{KF} = 0,24877 \times \frac{100 \text{ ml}}{0,1 \text{ g}} = 248,77 \text{ mg GAE/g}$$

$$\text{Rata-rata} = \frac{264,44+255,17+248,77}{3} = 256,13 \text{ mg GAE/g}$$

Lampiran 7. Hasil SPSS

Tests of Normality

	Kolmogorov-Smirnov ^a			Shapiro-Wilk		
	Statistic	df	Sig.	Statistic	Df	Sig.
kadar	.320	9	.009	.758	9	.007

a. Lilliefors Significance Correction

Test of Homogeneity of Variances

		Levene Statistic	df1	df2	Sig.
kadar	Based on Mean	.182	2	6	.838
	Based on Median	.000	2	6	1.000
	Based on Median and with adjusted df	.000	2	4.000	1.000
	Based on trimmed mean	.156	2	6	.859

Kruskal-Wallis Test

		Ranks	
	larutan	N	Mean Rank
kadar	n-heksana	3	2.00
	etil asetat	3	8.00
	aqua	3	5.00
	Total	9	

Test Statistics^{a,b}

kadar	
Kruskal-Wallis H	7.200
df	2
Asymp. Sig.	.027

a. Kruskal Wallis Test

b. Grouping Variable: larutan

Mann Whitney

		Ranks		
	larutan	N	Mean Rank	Sum of Ranks
kadar	n-heksana	3	2.00	6.00
	etil asetat	3	5.00	15.00
	Total	6		

Test Statistics^a

		kadar
Mann-Whitney U		.000
Wilcoxon W		6.000
Z		-1.964
Asymp. Sig. (2-tailed)		.050
Exact Sig. [2*(1-tailed Sig.)]		.100 ^b

a. Grouping Variable: larutan

b. Not corrected for ties.

		Ranks		
	larutan	N	Mean Rank	Sum of Ranks
kadar	etil asetat	3	5.00	15.00
	aqua	3	2.00	6.00
	Total	6		

Test Statistics^a

		kadar
Mann-Whitney U		.000
Wilcoxon W		6.000
Z		-1.964
Asymp. Sig. (2-tailed)		.050
Exact Sig. [2*(1-tailed Sig.)]		.100 ^b

a. Grouping Variable: larutan

b. Not corrected for ties.

Ranks

	larutan	N	Mean Rank	Sum of Ranks
kadar	n-heksana	3	2.00	6.00
	aqua	3	5.00	15.00
	Total	6		

Test Statistics^a

	Kadar
Mann-Whitney U	.000
Wilcoxon W	6.000
Z	-1.964
Asymp. Sig. (2-tailed)	.050
Exact Sig. [2*(1-tailed Sig.)]	.100 ^b

a. Grouping Variable: larutan

b. Not corrected for ties.

Lampiran 8. Dokumentasi Penelitian



Tanaman untuk determinasi



Sortasi daun adas



Proses pengeringan



Proses maserasi



Penguapan menggunakan *Rotary Evaporator*



Ekstrak etanol daun adas



Uji kualitatif fenolik



Proses fraksinasi



Replikasi 1 fenolik daun adas



Replikasi 2 fenolik daun adas



Replikasi 3 fenolik daun adas