

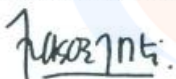




LAMPIRAN

Lampiran 1. Surat determinasi Laboratorium LIPI Bogor

		LEMBAGA ILMU PENGETAHUAN INDONESIA (INDONESIAN INSTITUTE OF SCIENCES) PUSAT PENELITIAN BIOLOGI (RESEARCH CENTER FOR BIOLOGY)			
LIPI		Cibinong Science Center, Jl. Raya Jakarta - Bogor KM. 46 Cibinong 16911 Telp. (+62 21) 87907636 - 87907604, Fax. 87907612 Website : www.biologi.lipi.go.id			
		Cibinong, 29 Maret 2021			
Nomor	: B-455/IV/DI.01/3/2021				
Lampiran	: -				
Perihal	: Hasil identifikasi/determinasi Tumbuhan				
Kepada Yth. Bpk./Ibu/Sdr/(), Shendy Feriansyah NIM : 20170311017 Universitas Esa Unggul Fakultas Ilmu-Ilmu Kesehatan Jl. Arjuna Utara 9, Kebon Jeruk Jakarta 11510					
Dengan hormat, Bersama ini kami sampaikan hasil identifikasi/determinasi tumbuhan yang Saudara kirimkan ke "Herbarium Bogoriense", Bidang Botani Pusat Penelitian Biologi-LIPI Bogor, adalah sebagai berikut :					
No.	No. Kol.	Jenis	Suku		
1.	Jahe Merah	<i>Zingiber officinale</i> Roscoe var. <i>suntii</i> Val.	Zingiberaceae		
Demikian, semoga berguna bagi Saudara.					
Koordinator Program Penelitian Botani  <u>Dr. Himmah Rustiami, S.P., M.Sc.</u> NIP.197106052000032005		 Kepala Pusat Penelitian Biologi LIPI  <u>Dr. Ati Kanti, S.Si, M.Sc</u> NIP.196611021994032002			
D:\Identifikasi Mahasiswa 2021\Shendy Feriansyah.docx:Demi-Michael					

Lampiran 2. Proses Panen Jahe Merah di Daerah Nerogtog Kec. Cipondoh Kota Tangerang

Gambar	Keterangan
	<p>Kebun tanaman jahe merah yang berumur 8-10 bulan</p>
	<p>Proses pengambilan rimpang tanaman jahe merah dari dalam tanah</p>
	<p>Rimpang jahe merah</p>



Proses pemanenan rimpang jahe merah

Lampiran 3. Pembagian Jahe Merah 2 kg tiap proses pengeringan (matahari langsung, matahari kain hitam, angin-angin dan dehidrator) dan sortasi basah

Gambar	Keterangan
	<p>Proses sortasi basah</p>
	<p>Proses pembagian jahe merah sebanyak 2 kg tiap jenis pengeringan</p>
	




Lampiran 4. Proses Perajangan Simplisia Jahe Merah

Gambar	Keterangan
	
	<p>Proses perajangan simplisia jahe merah</p>
	

Lampiran 5. Proses Pengeringan Jahe Merah (matahari langsung, matahari kain hitam, angin-angin dan dehidrator)

Gambar	Keterangan
	<p>Proses pengeringan Matahari secara langsung dan ditutup jarring/kain hitam</p>
	<p>Proses pengeringan menggunakan dehidrator</p>
	<p>Proses pengeringan dengan cara di angin-anginkan</p>

Lampiran 6. Hasil Simplisia Kering

Gambar	Keterangan
	Simplisia jahe merah yang sudah kering


Lampiran 7. Penimbangan Sampel Untuk Uji Kadar Air dan Abu, Pengujian Kadar Air dan Abu Simplisia dan Menghitung Hasil Pengujian Kadar Air & Abu Simplisia

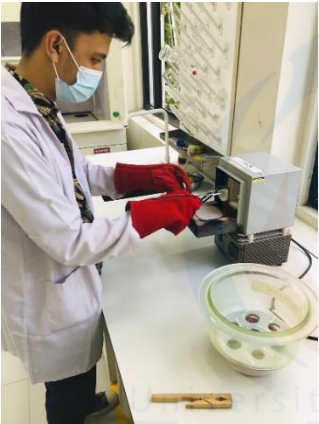

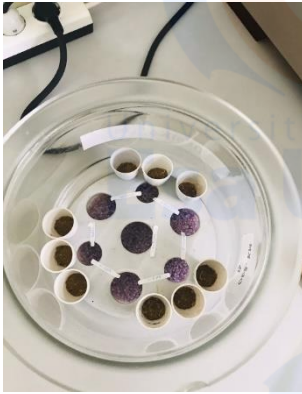
Data Pengujian Kadar Abu

No	Simplisia	Berat sampel (gr)	Kadar Abu (%)	Rata-rata (%)
1	Jahe Merah Dehidrator	2,0027	16,413	16,4890
			16,565	
		2,0009	16,747	16,8624
			16,977	
2	Jahe Merah Matahari Langsung	2,0013	19,777	19,8471
			19,917	
		2,0023	21,545	21,6326
			21,720	
3	Jahe Merah Matahari Kain hitam	2,0030	21,777	21,9196
			22,062	
		2,0002	20,553	20,6804
			20,808	
4	Jahe Merah Angin-angin	2,0002	18,983	19,0356
			19,088	
		2,0004	18,621	18,6687
			18,716	

Data Pengujian Kadar Air

No	Simplisia	Berat Sampel (gr)	Kadar Air (%)	Rata-rata (%)
1	Jahe Merah Dehidrator	1,0018	11,749	11,6539
			11,559	
		1,0006	11,913	11,8378
			11,793	
		1,0009	11,480	11,3847
			11,290	
2	Jahe Merah Matahari Langsung	1,0003	12,426	12,3112
			12,196	
		1,0005	11,574	12,4953
			12,417	
		1,0012	12,305	12,2353
			12,165	
3	Jahe Merah Matahari Kain Langsung	1,0007	14,070	14,0501
			14,030	
		1,0004	15,243	14,8790
			14,514	
		1,0008	14,349	14,2976
			13,579	
4	Jahe Merah Angin-angin	1,0004	15,014	14,8940
			14,774	
		1,001	15,335	15,0649
			14,795	
		1,0027	14,930	14,8725
			14,815	

Gambar	Keterangan
	Proses penimbangan sampel

	<p>Proses memasukkan sampel serbuk kasar untuk dipanaskan didalam tanur</p>
	<p>Proses pengambilan sampel dari dalam tanur dan dimasukkan dalam desikator</p>
	<p>Sampel yang di dinginkan didalam desikator</p>



Lampiran 8. Grinder Hasil Pengeringan Jahe Merah Untuk Ekstraksi

Gambar	Keterangan
	Simplisia kering
	Proses grinder simplisia kering hingga menjadi serbuk kasar

Lampiran 9. Optimasi Suhu Ultrasonik dengan waktu 0 – 120 menit

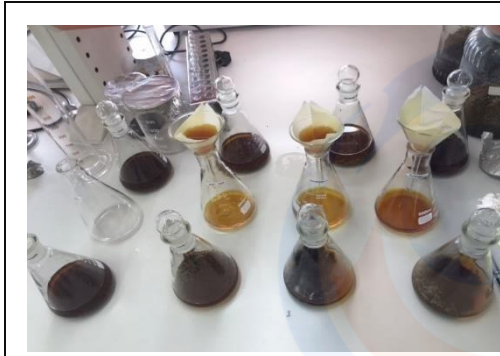
Optimasi Suhu Ultrasonik

0 menit	15 Menit	30 Menit	60 Menit	90 menit	120 menit
28° C	32° C	32° C	35° C	38° C	50° C

Gambar	Keterangan
	<p>Proses optimasi suhu ultrasonik</p>
	

Lampiran 10. Proses ekstraksi jahe merah dengan metode Ultrasonik (UAE)

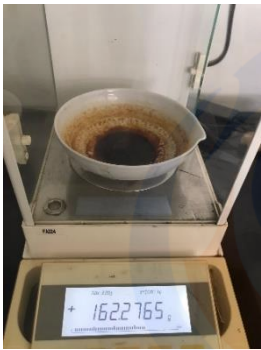
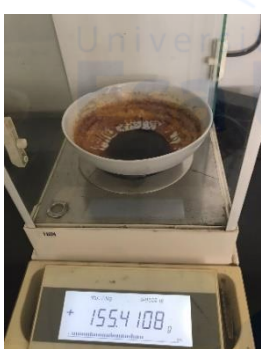
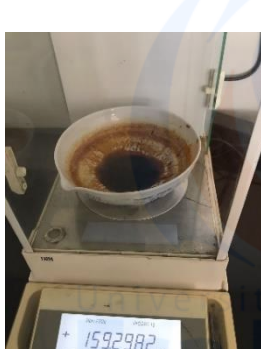
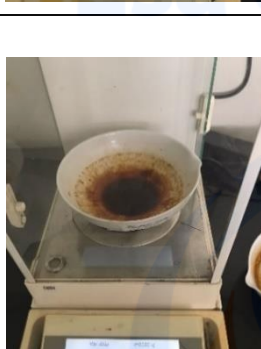
Gambar	Keterangan
 A photograph of an ultrasonic extraction machine. It is a rectangular metal unit with a blue front panel. The front panel has a digital display and several control buttons. The machine is sitting on a white surface, and several glass bottles with stoppers are arranged on top of it.	
 A photograph showing several Erlenmeyer flasks on a white surface. Each flask contains a dark brown, granular powder, which is the dried ginger rhizome. The flasks are arranged in a row, and some are slightly behind others.	Proses ekstraksi simplisia jahe merah
 A photograph showing several Erlenmeyer flasks on a white surface. Each flask contains a dark brown, liquid extract. The flasks are arranged in a row, and some are slightly behind others. The liquid appears to be the result of the ultrasonic extraction process.	



Proses penyaringan untuk memisahkan ampas simplisia dan filtrat ekstrak



Lampiran 11. Proses Pengeringan ekstrak Sampai Kental Menggunakan Waterbath dan Proses Penimbangan Ekstrak

Gambar	Keterangan
	
	<p>Proses pengeringan ekstrak menggunakan waterbath</p>
	

	
	
	<p>Proses penimbangan hasil ekstrak kental</p>
	

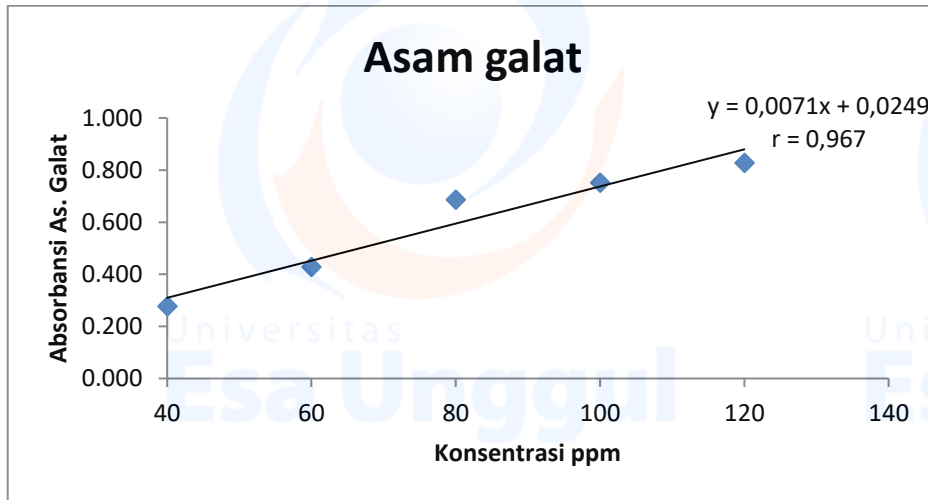
Lampiran 12. Pengujian Skrining Fitokimia Jahe Merah

No	Gol. Senyawa Kimia	Sampel				Parameter
		Matahari Langsung	Kain Hitam	Angin-Angin	Dehidrator	
1	Alkaloid					
	a. Perekasi Mayer	(+)	(+)	(+)	(+)	Endapan Putih – Kekuningan
	b. Perekasi Dragendorf	(+)	(+)	(+)	(+)	Endapan Jingga
2	Flavonoid	(+)	(+)	(+)	(+)	Warna Merah-Orange
3	Saponin	(+)	(+)	(+)	(+)	Terdapat Busa
4	Tanin	(+)	(+)	(+)	(+)	Endapan Biru Kehitaman/ Biru Kehijauan
5	Terpenoid	(+)	(+)	(+)	(+)	Cincin Kecoklatan/Violet

Gambar	Keterangan
	<p>Hasil skrining fitokimia</p>
	

Lampiran 13. Pengujian Kadar Total Fenol

Gambar Grafik Kurva Kalibrasi Asam Galat





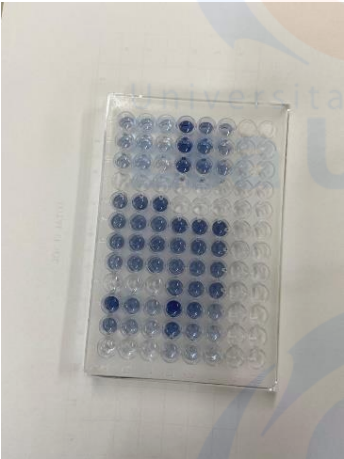
Pembuatan kurva kalibrasi asam galat					
Konsentrasi	A. Pengukuran			Rata-rata	A. Asam galat
	1	2	3		
120	0,9691	0,8844	0,9001	0,9179	0,8284
100	0,8678	0,8276	0,8276	0,8410	0,7516
80	0,7844	0,7693	0,7759	0,7765	0,6871
60	0,5186	0,5167	0,5187	0,5180	0,4286
40	0,3382	0,3999	0,3632	0,3671	0,2777
Blanko	0,0864	0,0939	0,0880	0,0894	

Tabel Kadar Total Fenol Jahe Merah

Ekstrak jahe merah UAE			
	1	2	3
Matahari	0,5467	0,5873	0,5907
Kain hitam	0,4776	0,5038	0,4989
Angin-angin	0,4564	0,5039	0,5068
Dehidrator	0,6826	0,7010	0,6907
Blanko	0,0889	0,0898	0,0891

Sampel	KTFe (mGAE/gr)	Rata-rata KTFe (mGAE/gr)	SD	KTFe ± SD (mGAE/gr)	X (ppm)
matahari	149,343	157,40	6,99	157,40 ± 6,99	500
	160,943				
	161,914				
Kain Hitam	129,600	134,12	3,98	134,12± 3,98	
	137,086				
	135,686				
Angin-Angin	123,543	132,87	8,09	132,87 ± 8,09	
	137,114				
	137,943				
Dehidrator	188,171	190,70	2,63	190,70 ± 2,63	
	193,429				
	190,486				

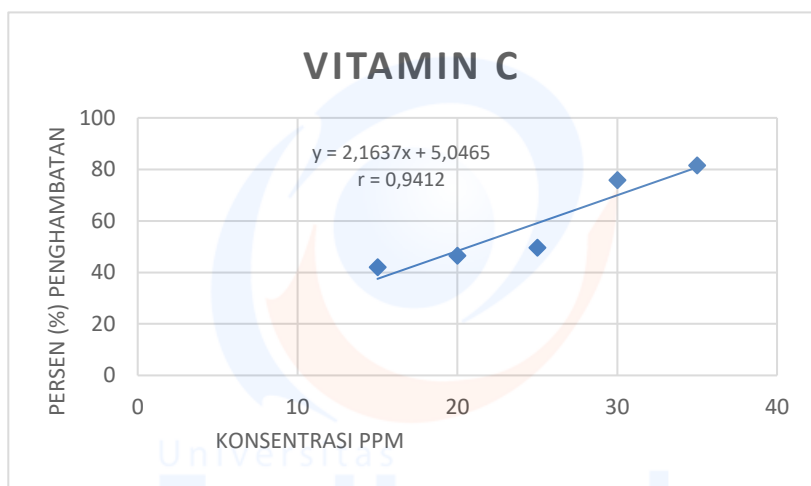
Gambar	Keterangan
	Asam Galat dan Natrium Karbonat
	Proses pengenceran Asam galat dan Natrium Karbonat

	
	<p>Warna/reaksi sampel sebelum diinkubasi dalam spektrofotometer UV-Vis</p>
	<p>Warna/reaksi sampel setelah diinkubasi dan dikeluarkan dari dalam spektrofotometer UV-Vis</p>

Lampiran 14. Uji Aktivitas Antioksidan

Grafik control positif Vitamin C

Konsentrasi	A.Pengulangan			A.Sampel			% Inhibisi			rata2 % inhibisi	IC50
	1	2	3	1	2	3	1	2	3		
15	0,8606	0,8979	0,9245	0,820	0,857	0,884	44,38994	41,86015	40,05607	42,10205	20.7762167
20	0,7950	0,8171	0,8731	0,754	0,776	0,832	48,83910	47,34022	43,54215	46,57383	
25	0,8200	0,7267	0,8047	0,779	0,686	0,764	47,14354	53,47139	48,18122	49,59872	
30	0,4722	0,3285	0,3881	0,432	0,288	0,347	70,73226	80,47838	76,43615	75,88226	
35	0,3153	0,3202	0,3030	0,275	0,280	0,262	81,37364	81,04130	82,20785	81,54093	

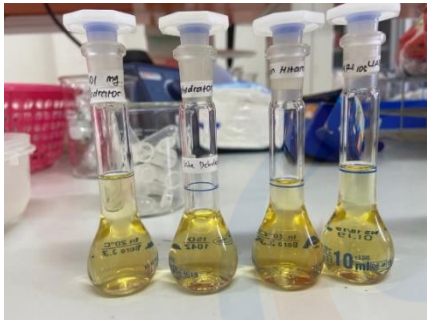
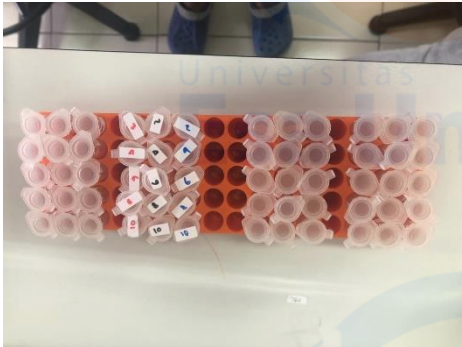



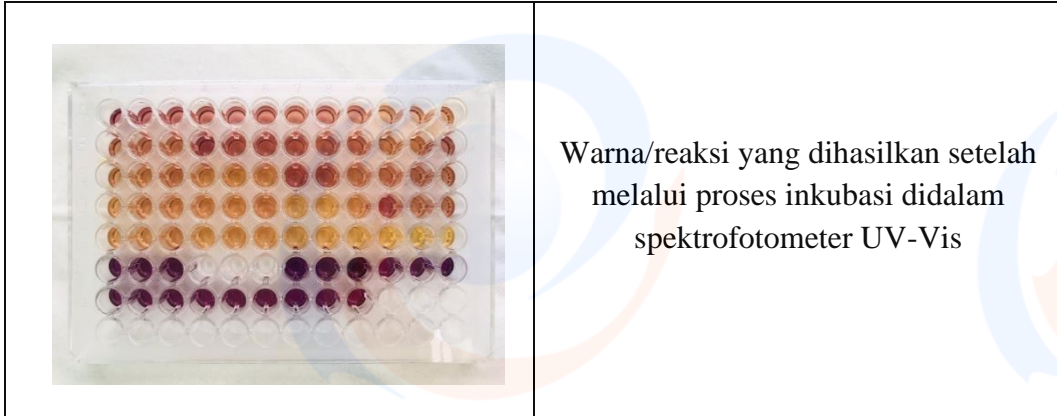
Absorbansi Sampel Jahe Merah

Konsentrasi	Sampel											
	Matahari			Kain Hitam			Angin-angin			Dehidrator		
	1	2	3	1	2	3	1	2	3	1	2	3
100	0,865	0,765	0,771	0,829	0,792	0,754	0,799	0,759	0,629	0,887	0,640	0,639
110	0,768	0,721	0,708	0,742	0,654	0,743	0,654	0,647	0,646	0,556	0,536	0,573
120	0,619	0,613	0,732	0,708	0,706	0,702	0,527	0,588	0,584	0,522	0,529	0,560
130	0,548	0,571	0,631	0,610	0,566	0,605	0,575	0,548	0,595	0,503	0,501	0,474
140	0,534	0,521	0,535	0,647	0,608	0,618	0,479	0,482	0,562	0,448	0,426	0,436

Sampel	Konsentrasi	% inhibisi	IC50
Matahari	100	47,928	104,021 $\mu\text{g/mL}$
	110	52,629	
	120	57,945	
	130	62,850	
	140	66,503	
Kain Hitam	100	48,535	101,336 $\mu\text{g/mL}$
	110	53,937	
	120	54,468	
	130	62,158	
	140	60,034	
Angin-Angin	100	52,830	88,190 $\mu\text{g/mL}$
	110	58,332	
	120	64,016	
	130	63,596	
	140	68,068	
Dehidrator	100	53,341	84,923 $\mu\text{g/mL}$
	110	64,820	
	120	66,029	
	130	69,087	
	140	72,940	

No	Sampel	IC50	Aktivitas Antioksidan
1	Matahari	104,021 $\mu\text{g/mL}$	Sedang
2	Kain Hitam	101,336 $\mu\text{g/mL}$	Sedang
3	Angin-Angin	88,190 $\mu\text{g/mL}$	Kuat
4	Dehidrator	84,923 $\mu\text{g/mL}$	Kuat
5	Vitamin C	20,776 $\mu\text{g/mL}$	Sangat kuat

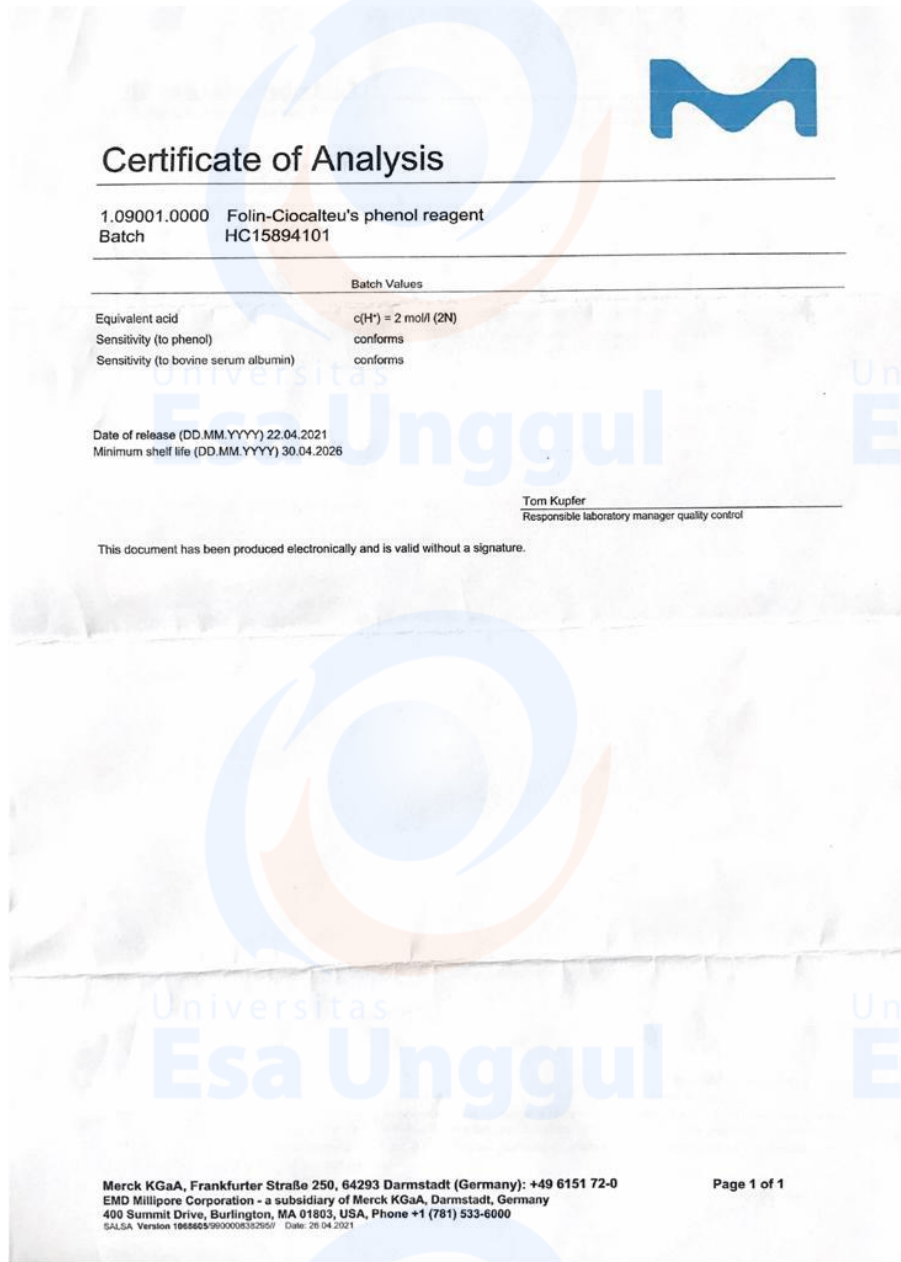
Gambar	Keterangan
	Proses pengenceran larutan sampel
	Pembuatan pengenceran dalam seri konsentrasi yang dimasukkan ke dalam sampel cup
	Proses pipetasi sampel dan DPPH ke dalam plate reader



Warna/reaksi yang dihasilkan setelah melalui proses inkubasi didalam spektrofotometer UV-Vis



Lampiran 15 *Certificate of Analysis* bahan yang digunakan



SIGMA-ALDRICH

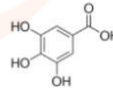
sigma-aldrich.com

3050 Spruce Street, Saint Louis, MO 63103, USA
 Website: www.sigmaaldrich.com
 Email USA: techserv@sial.com
 Outside USA: eurtechserv@sial.com

Certificate of Analysis

Product Name:
 Gallic acid - 97.5-102.5% (titration)

Product Number: **G7384**
 Batch Number: **SLBQ0358V**
 Brand: SIGMA
 CAS Number: 149-91-7
 MDL Number: MFCD00002510
 Formula: C7H6O5
 Formula Weight: 170.12 g/mol
 Quality Release Date: 11 DEC 2015



Test	Specification	Result
Appearance (Color)	White to Beige	Off-White
Appearance (Form)	Powder	Powder
Solubility (Color)	Faint Yellow to Dark Yellow	Faint Yellow
Solubility (Turbidity) 50 mg/mL, EtOH	Clear to Very Slightly Hazy	Clear
% Loss on Drying	≤ 10	4
Purity (GC)	≥ 98.5 %	100.0 %
Titration by NaOH (dry basis)	97.5 - 102.5 %	99.7 %

Rodney Burbach, Manager
 Analytical Services
 St. Louis, Missouri US

Sigma-Aldrich warrants, that at the time of the quality release or subsequent retest date this product conformed to the information contained in this publication. The current Specification sheet may be available at Sigma-Aldrich.com. For further inquiries, please contact Technical Service. Purchaser must determine the suitability of the product for its particular use. See reverse side of invoice or packing slip for additional terms and conditions of sale.

Version Number: 1

Page 1 of 1

HiMedia Laboratories Pvt. Ltd.



Certified ISO 9001-2015 and WHO GMP

23, Vadhani Industrial Estate, L.B.S. Marg, Mumbai - 400086
 Website : www.himedialabs.com, Email : info@himedialabs.com

Certificate of Analysis

Material Name: 2,2-Diphenyl-1-picrylhydrazyl
 CAS Number : 1898-66-4
 Material Code : MB263
 Lot Number : 0000473772

Molecular Formula : C₁₄H₁₂N₂O₆
 Report No : 10000464112

TEST	SPECIFICATIONS	RESULTS
Appearance	Green to dark violet to black-gold to black crystals or powder or solid	Dark violet crystals
Solubility	33.3 mg soluble in 1 mL of dimethylformamide	Complies
FTIR	Matches with the standard pattern	Complies
DNases	None detected	Complies
RNases	None detected	Complies
Assay (HPLC)	≥ 85.00%	99.99%

STATUS : APPROVED

QC Release Date : 2021-03-15
 Expiry Date : 2025-03-08

Quality Control Chemist
 Chemical Division

Manager, Quality Control
 Chemical Division

Manager, Quality Assurance
 Chemical Division

This is to certify that this lot passes and it confirms to the above mentioned tests and specifications . The information given here is believed to be correct and accurate, however, both the information and products are offered without warranty for any particulars use, other than that specified in the current technical data.

This document has been produced electronically and is valid with our signature.

PAGE : 1 of 1