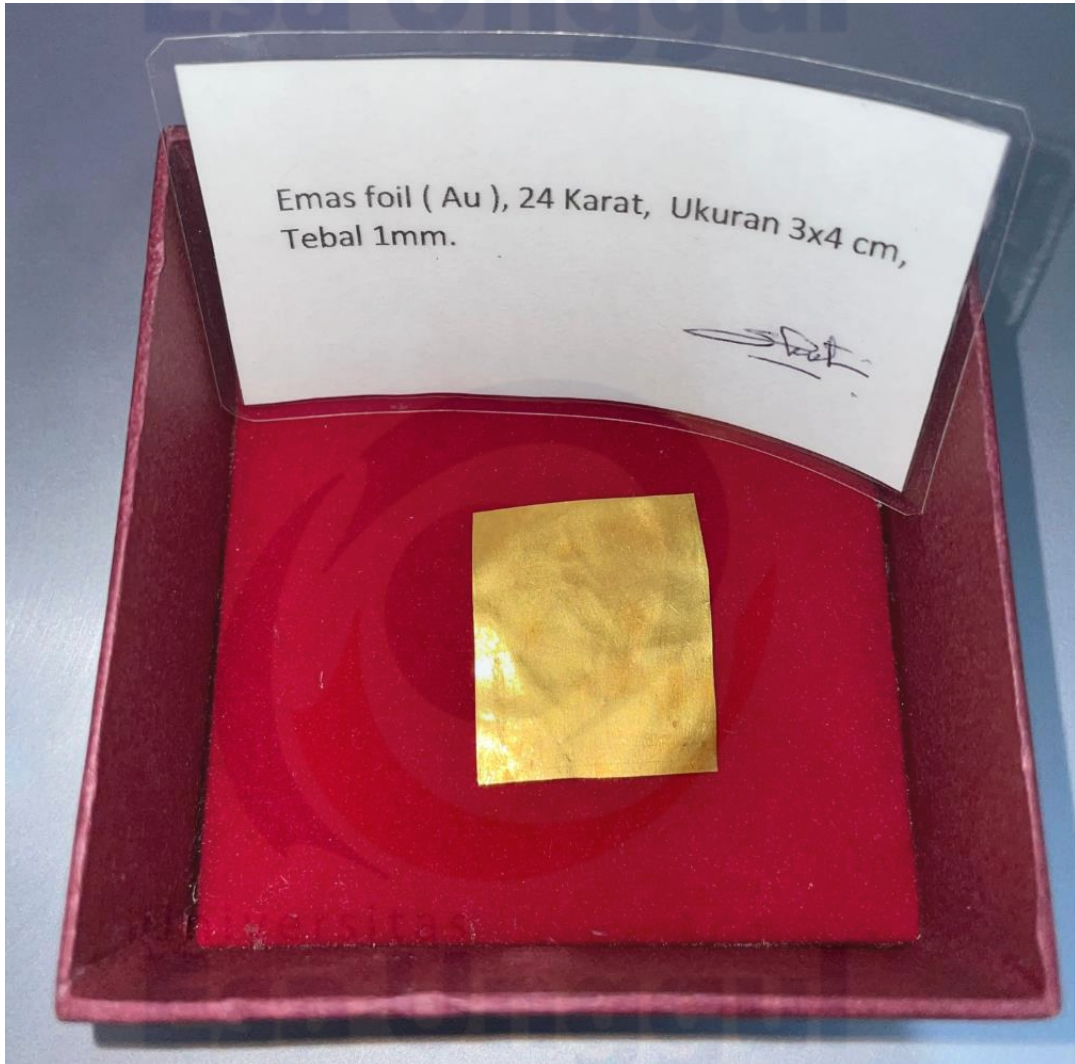


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Lampiran 1. *Au Foil*



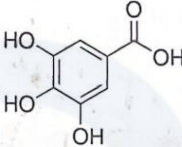
Lampiran 2. Sertifikat Analisis dari Asam Galat

Sigma-Aldrich

3050 Spruce Street, Saint Louis, MO 63103, USA
 Website: www.sigma-aldrich.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 : G7384-100G
Batch Number : 0000159698
Source Batch : SLCR2507
CAS Number : 149-91-7
Molecular Formula : C₇H₆O₅
Formula Weight : 170.12
Quality Release Date : 12 MAY 2021




Test	Specification	Result
Appearance (Color)	White to Beige	Off White
Appearance (Form)	Powder	Powder
Solubility (Color)	Colorless to Faint Yellow	Almost Colorless
Solubility (Turbidity)	Clear to Very Slightly Hazy	Clear
50 mg/mL, EtOH ^{AAAA} LIGHT SENSITIVE WEIGHING INSTRUCTIONS: WEIGH 250 MG. PROC-DEK-OP-003154 Dilute sample in EtOH to a concentration of 50 mg/mL. Prepare 5 mL of solution by adding 5 mL of EtOH to 250 mg of sample.		
Loss on Drying	≤ 10 %	3 %
Purity (GC)	≥ 98.5 %	99.5 %
Titration by NaOH (dry basis)	97.5 - 102.5 %	99.4 %

Brian Dulle, Supervisor
 Quality Assurance
 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. Purchase must determine the suitability of the product for its particular use. See reverse side of website or packing slip for additional terms and conditions of sale.
 Version Number: 01 Doc 1077784
 Page 1 of 1
 The branding on the labels and/or labels of this document may temporarily not visually match the product purchased as we transition our branding. However, all of the information in this document regarding the product remains unchanged and matches the product ordered.
 For further information please contact ast@sigmaaldrich.com



Lampiran 3. Sertifikat Analisis dari KH_2PO_4



Certificate of Analysis

1.04873.0000 Potassium dihydrogen phosphate for analysis EMSURE® ISO
Batch AM1704373

	Spec. Values		Batch Values	
Assay (alkalimetric, calculated on dried substance)	99.5 - 100.5	%	99.8	%
Assay (alkalimetric; dried substance)	≥ 99.5	%	99.9	%
pH-value (5 %; water)	4.2 - 4.5		4.3	
Chloride (Cl)	≤ 0.0005	%	≤ 0.0005	%
Sulfate (SO ₄)	≤ 0.003	%	≤ 0.003	%
Total nitrogen (N)	≤ 0.001	%	≤ 0.001	%
Heavy metals (as Pb)	≤ 0.0010	%	≤ 0.0010	%
As (Arsenic)	≤ 0.0002	%	≤ 0.0002	%
Cu (Copper)	≤ 0.0003	%	≤ 0.0003	%
Fe (Iron)	≤ 0.0010	%	≤ 0.0010	%
Na (Sodium)	≤ 0.02	%	≤ 0.02	%
Pb (Lead)	≤ 0.001	%	≤ 0.001	%
Reducing substances	passes test		passes test	
Loss on drying (110 °C)	≤ 0.2	%	< 0.2	%
Loss on drying (130 °C)	≤ 0.2	%	< 0.1	%

Corresponds to ISO

Date of release (DD.MM.YYYY) 07.05.2021
Minimum shelf life (DD.MM.YYYY) 31.01.2026

Claudia Wiegand
 Responsible laboratory manager quality control

This document has been produced electronically and is valid without a signature.

Merck KGaA, Frankfurter Straße 250, 64293 Darmstadt (Germany): +49 6151 72-0
 EMD Millipore Corporation - a subsidiary of Merck KGaA, Darmstadt, Germany
 400 Summit Drive, Burlington, MA 01803, USA, Phone +1 (781) 533-6000
SALSA Version 1073438/990000829993/ Date: 07.05.2021

Page 1 of 1

Lampiran 4. Sertifikat Analisis dari L-Tirosin

SIGMA-ALDRICH

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

Certificate of Analysis

Product Name: L-Tyrosine
reagent grade, >= 98 % HPLC

Product Number: T3754

Batch Number: BCCC5665

Brand: Sigma-Aldrich

CAS Number: 60-18-4

Formula: 4-(HO)C₆H₄CH₂CH(NH₂)CO₂H

Formula Weight: 181.19

Quality Release Date: 16 DEC 2019

Recommended Retest Date: NOV 2025

TEST	SPECIFICATION	RESULT
APPEARANCE (COLOR)	WHITE TO OFF WHITE	OFF-WHITE
APPEARANCE (FORM)	POWDER	POWDER
PURITY (HPLC AREA %)	≥ 98 %	100 %
SPECIFIC ROTATION	-11.2 - -9.8 DEGREES	-10.5 DEGREES
CONCENTRATION	C=5 IN 1M HYDROCHLORIC ACID AT 25 C	C=5 IN 1M HYDROCHLORIC ACID AT 25 C
SOLUBILITY (COLOR)	COLORLESS TO LIGHT YELLOW	COLORLESS
SOLUBILITY (TURBIDITY)	CLEAR	CLEAR
SOLUBILITY (METHOD)	50MG/ML IN 1M HYDROCHLORIC ACID	50MG/ML IN 1M HYDROCHLORIC ACID
CARBON CONTENT	58.5 - 60.8 %	59.5 %
NITROGEN CONTENT	7.4 - 8.0 %	7.7 %
INFRARED SPECTRUM	CONFORMS TO STRUCTURE	CONFORMS




Dr. Reinhold Schwenninger
Quality Assurance
Buchs, Switzerland

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.

Sigma-Aldrich Certificate of Analysis - Product T3754 Lot BCCC5665 Page 1 of 1

Lampiran 5. Sertifikat Analisis dari Enzim Tirosinase



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:
Tyrosinase from mushroom – lyophilized powder, ≥1000 unit/mg solid


Product Number: T3824
Batch Number: SLCG8506
Brand: SIGMA
CAS Number: 9002-10-2
MDL Number: MFCD00082118
Storage Temperature: Store at -20 °C
Quality Release Date: 23 SEP 2020
Recommended Retest Date: SEP 2023

Test	Specification	Result
units/mg Solid Tyrosinase Activity Unit Definition: One unit will cause an increase in A280 of 0.001 per minute at pH 6.5 at 25 deg C in a 3 mL reaction mix containing L-tyrosine	≥ 1000	8503
units/mg Solid Polyphenol Oxidase Activity Unit Definition: One unit will cause a decrease in A265 of 0.001 per minute at pH 6.5 at 25 deg C. In a 3 mL reaction mixture containing L-Beta-3,4-dihydroxyphenyl-alanine (L-DOPA)	≥ 30000	300628
units/mg Solid Catechol Oxidase Activity Unit Definition: One unit will cause a decrease in A265 of 0.001 per minute at pH 6.5 at 25 deg C in a 3 mL reaction mixture containing catechol and ascorbic acid	≥ 30000	1778114

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 2



(Lanjutan)



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 Number: T3824
Batch Number: SLCG8506




Brian Dulle, Supervisor
Quality Assurance
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 2 of 2

Lampiran 6. Sertifikat Analisis dari Asam Kojat




Certificate Of Analysis

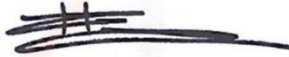
Item Number	K1062	Lot Number	1JJ0323
Item	Kojic Acid		
CAS Number	501-30-4		
Molecular Formula	C ₆ H ₆ O ₄	Molecular Weight	142.11

Test	Specification		Result
	min	max	
ASSAY	99 %		99.4 %
HEAVY METALS (as Pb)		20 ppm	<10 ppm
ARSENIC (As)		2 ppm	<0.1 ppm
LOSS ON DRYING		0.6 %	0.35 %
RESIDUE ON IGNITION		0.2 %	0.09 %
EXPIRATION DATE			31-MAR-2025
DATE OF MANUFACTURE			31-MAY-2022
APPEARANCE			WHITE CRYSTALLINE POWDER

Spectrum Chemical Mfg Corp
14422 South San Pedro Street
Gardena 90248 CA



Certificate of Analysis Results Certified by:

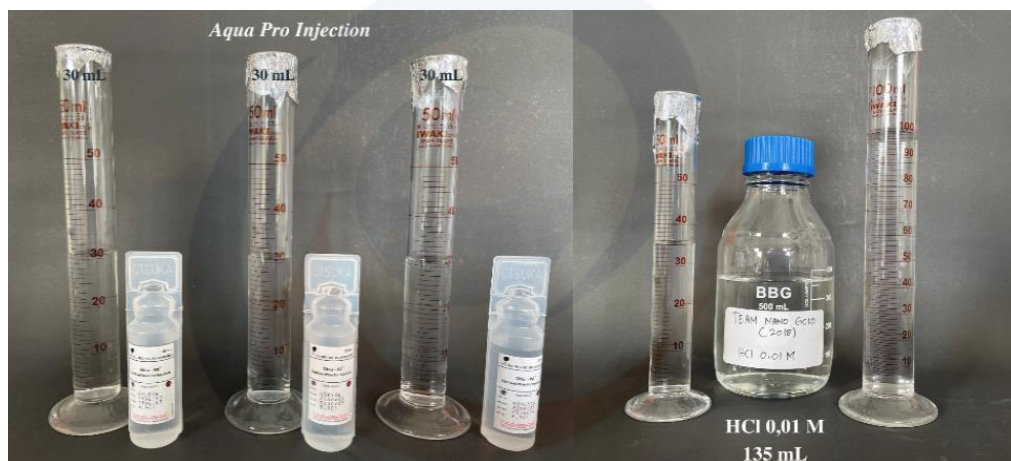
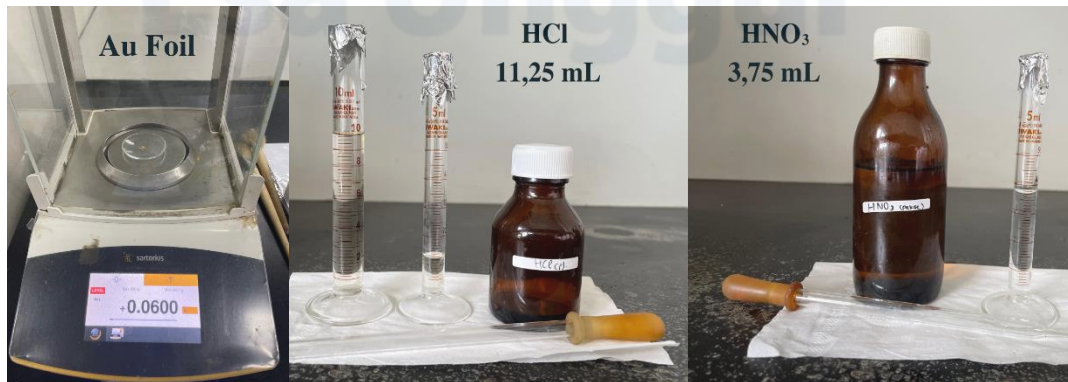


Himanshu Patel
Quality Control Manager
Spectrum Chemicals & Laboratory Products

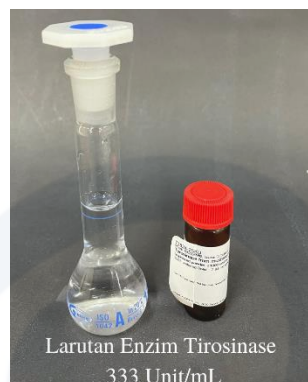
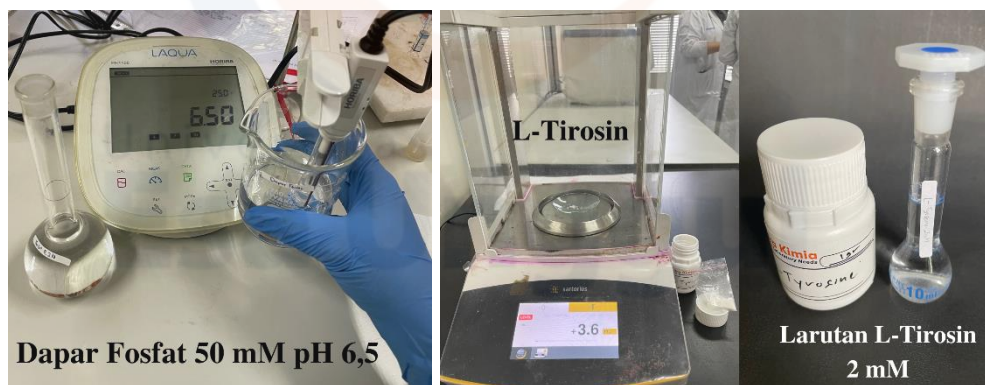
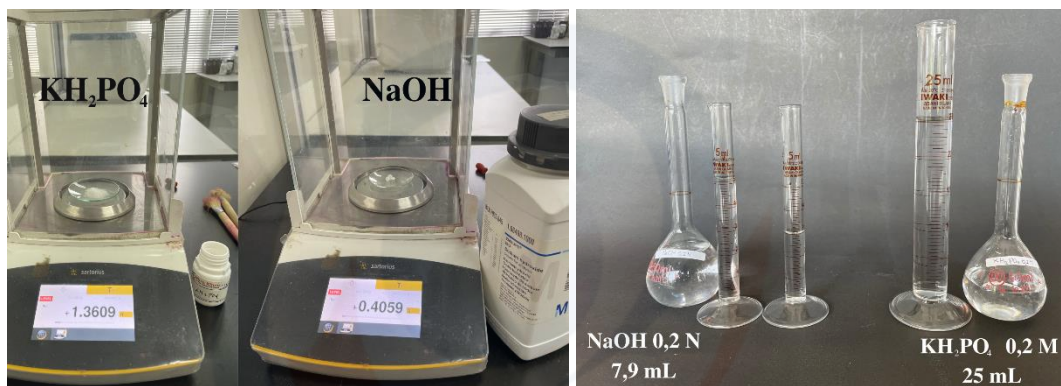
All pharmaceutical ingredients are tested using current edition of applicable pharmacopeia.

Read and understand label and SDS before handling any chemicals. All Spectrum's chemicals are for manufacturing, processing, repacking or research purposes by experienced personnel only. It is the customer's responsibility to provide adequate hazardous material training and ensure that appropriate Personal Protective Equipment (PPE) is used before handling any chemical.

Lampiran 7. Dokumentasi

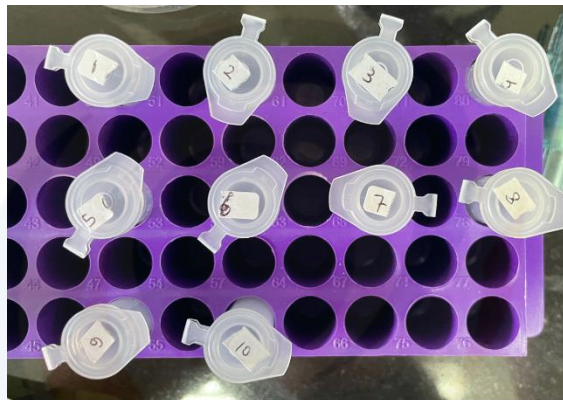


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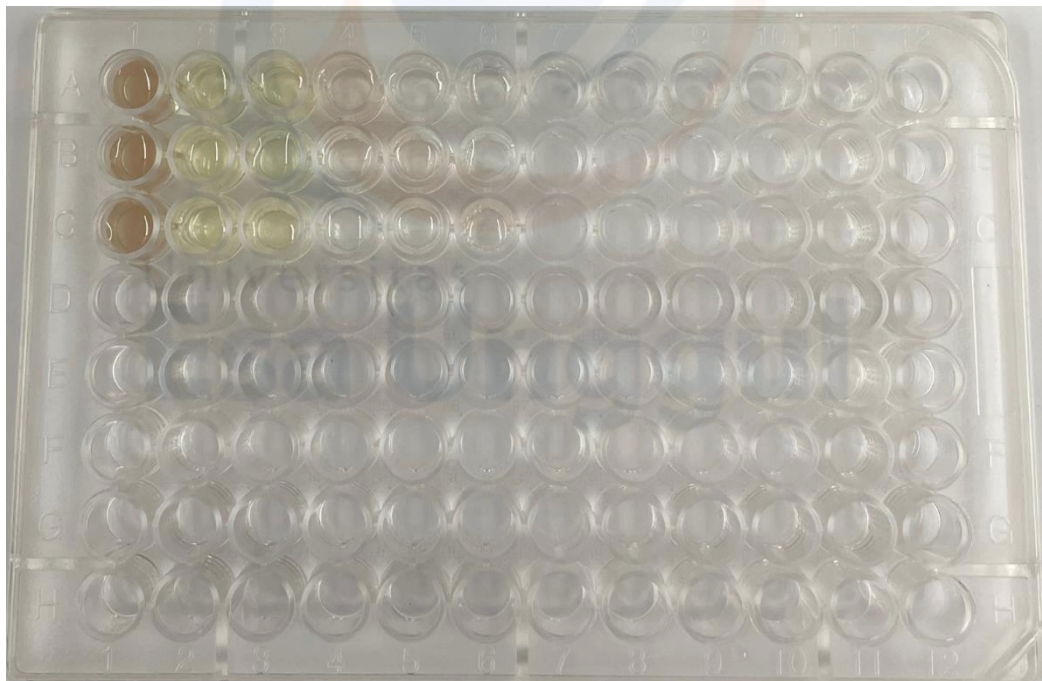
Deret Konsentrasi Nanopartikel Emas
413-0,806640625 ppm

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Esa

Lampiran 8. Analisa Kestabilan

	1	2	3	4	5	6	7	8	9	10	11	12
A	○	○	○	○	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○	○	○	○	○
D	○	○	○	○	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○



Keterangan :

- | | | | |
|------------|------------------|------------|------------------|
| A1, B1, C1 | = Formula 1 (F1) | A4, B4, C4 | = Formula 4 (F4) |
| A2, B2, C2 | = Formula 2 (F2) | A5, B5, C5 | = Formula 5 (F5) |
| A3, B3, C3 | = Formula 3 (F3) | A6, B6, C6 | = Formula 6 (F6) |

Lampiran 9. Data Absorbansi Verifikasi Nanopartikel Emas

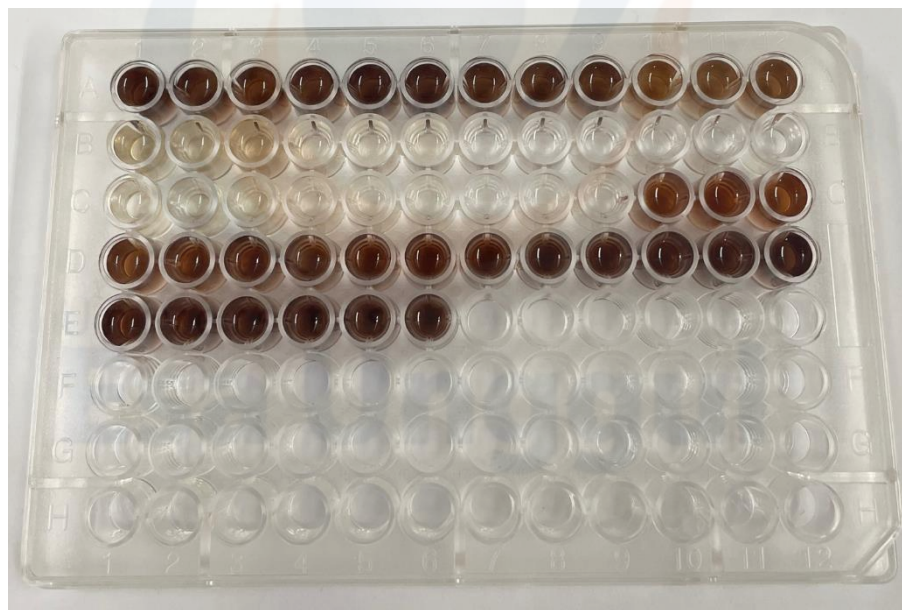
Formula (F)	Panjang Gelombang									
	475	500	525	550	575	600	625	650	675	700
F 1	0,44195	0,42870	0,45470	0,48115	0,50985	0,54070	0,56905	0,58870	0,60090	0,60520
F 2	0,09985	0,07450	0,06250	0,05580	0,05145	0,04855	0,04615	0,04445	0,04330	0,04285
F 3	0,09265	0,07205	0,06195	0,05615	0,05250	0,04960	0,04705	0,04545	0,04440	0,04415
F 4	0,05665	0,05345	0,05220	0,05120	0,05045	0,05000	0,04935	0,04890	0,04865	0,04885
F 5	0,06115	0,05800	0,05700	0,05615	0,05575	0,05595	0,05595	0,05605	0,05620	0,05675
F 6	0,05835	0,05535	0,05430	0,05340	0,05280	0,05260	0,05210	0,05175	0,05155	0,05165

Lampiran 10. Data Absorbansi Analisa Kestabilan

Minggu Ke	Panjang Gelombang									
	475	500	525	550	575	600	625	650	675	700
0	0,44195	0,42870	0,45470	0,48115	0,50985	0,54070	0,56905	0,58870	0,60090	0,60520
1	0,50550	0,49260	0,52510	0,55685	0,59050	0,62555	0,65620	0,67640	0,68780	0,69075
2	0,35615	0,34110	0,35925	0,37810	0,39895	0,42090	0,44005	0,45255	0,45975	0,46135
3	0,47885	0,46550	0,49635	0,52470	0,55655	0,58935	0,61845	0,63795	0,64910	0,65255
4	0,44975	0,43730	0,46550	0,49170	0,52120	0,55100	0,57735	0,59525	0,60540	0,60830
5	0,39045	0,38100	0,40605	0,42825	0,45325	0,47850	0,50045	0,51505	0,52290	0,52460
6	0,42305	0,40935	0,43390	0,45730	0,48305	0,51005	0,53360	0,54915	0,55780	0,55995
7	0,44690	0,43340	0,46100	0,48685	0,51515	0,54415	0,56950	0,58615	0,59605	0,59895
8	0,44135	0,42850	0,45630	0,48105	0,50930	0,53765	0,56250	0,57925	0,58875	0,59150

Lampiran 11. Uji Inhibisi Tirosinase

	1	2	3	4	5	6	7	8	9	10	11	12
A	○	○	○	○	○	○	○	○	○	○	○	○
B	○	○	○	○	○	○	○	○	○	○	○	○
C	○	○	○	○	○	○	○	○	○	○	○	○
D	○	○	○	○	○	○	○	○	○	○	○	○
E	○	○	○	○	○	○	○	○	○	○	○	○
F	○	○	○	○	○	○	○	○	○	○	○	○
G	○	○	○	○	○	○	○	○	○	○	○	○
H	○	○	○	○	○	○	○	○	○	○	○	○



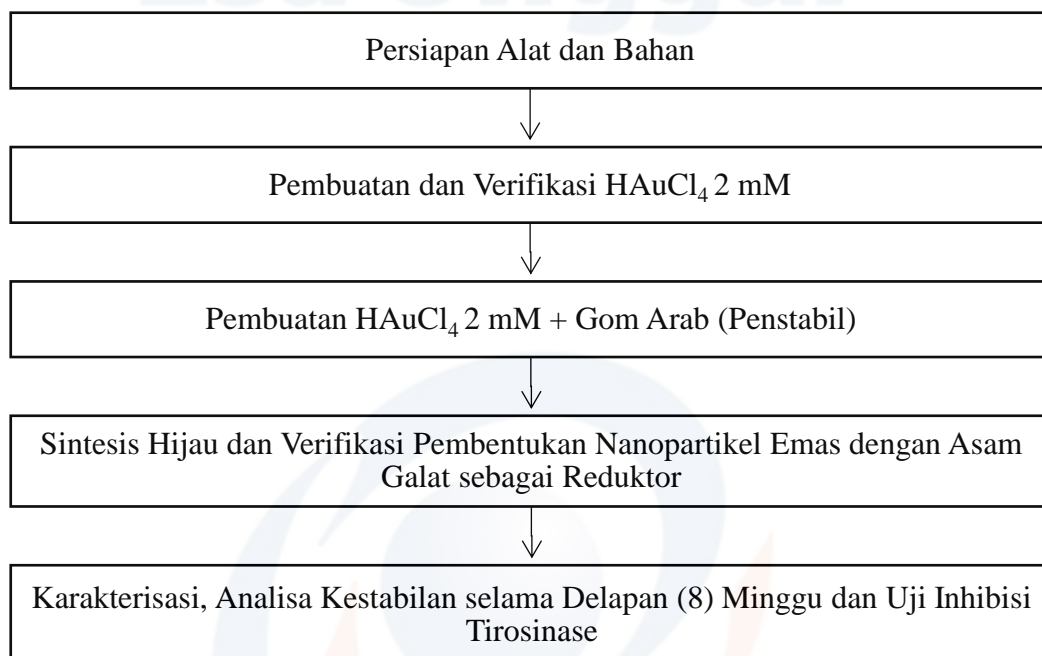
Keterangan :

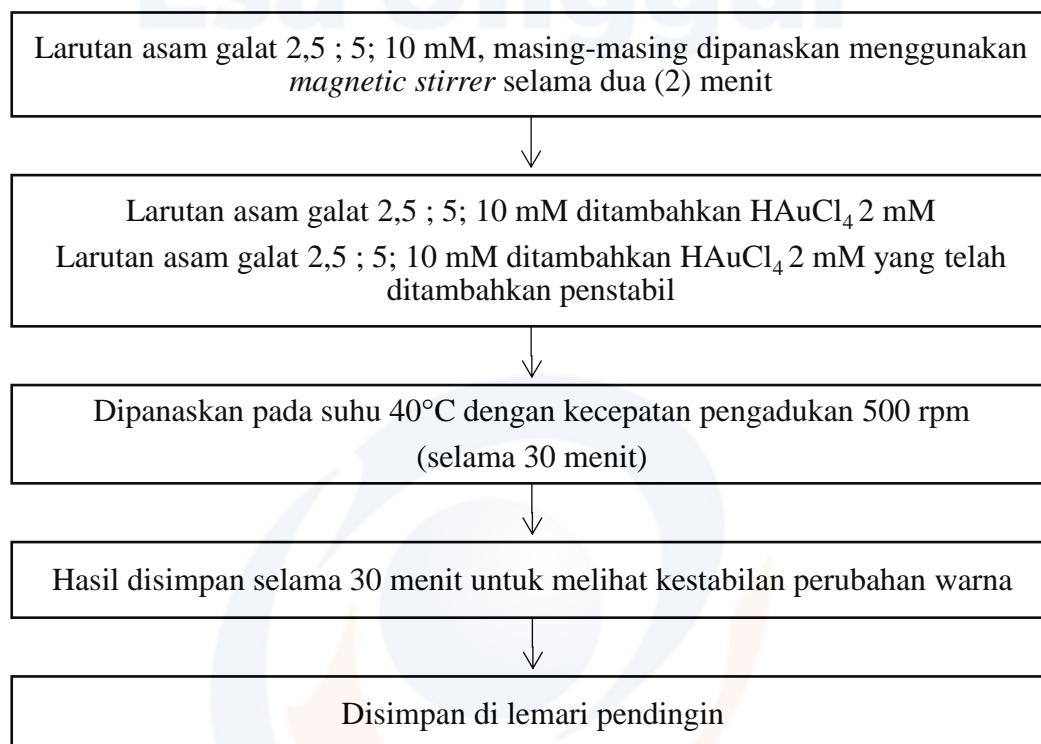
A1-A3 = Blanko

A4-B12 = Asam Kojat 7,8125-500 ppm (masing-masing triplo)

C1-E6 = Nanopartikel Emas 413-0,806640625 ppm (masing-masing triplo)

Lampiran 12. Alur Penelitian



Lampiran 13. Skema Prosedur Sintesis Hijau Nanopartikel Emas

Lampiran 14. Skema Prosedur Uji Tirosinase Nanopartikel Emas