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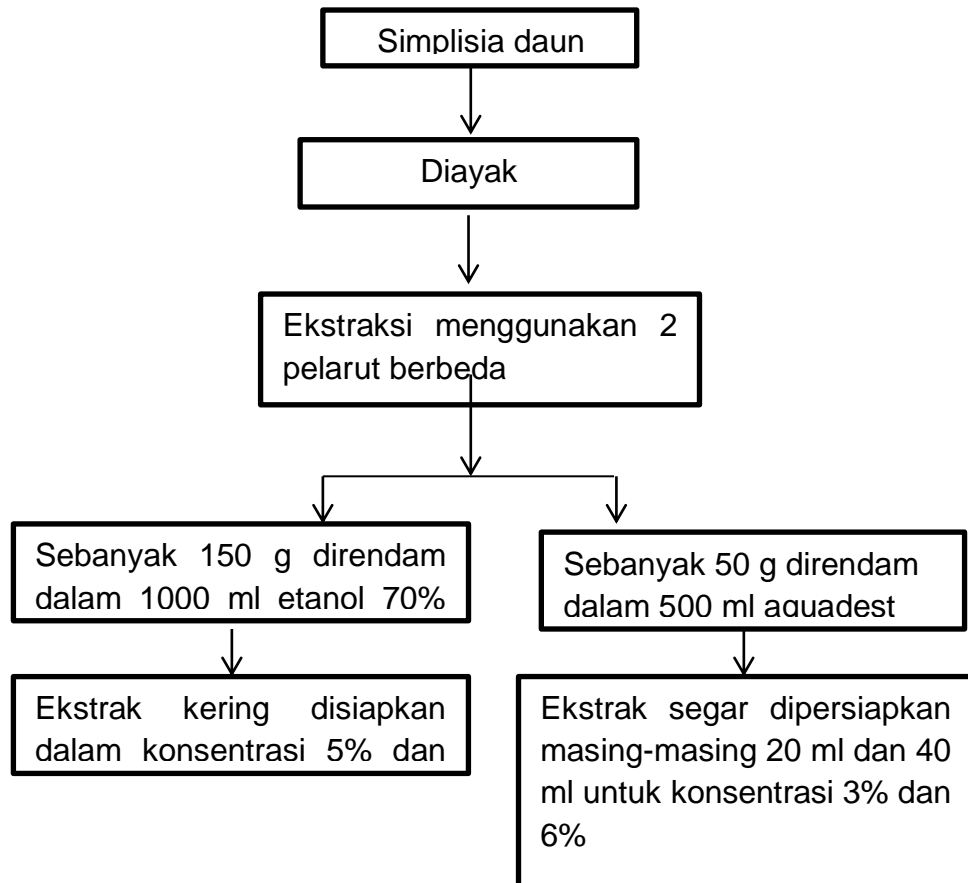
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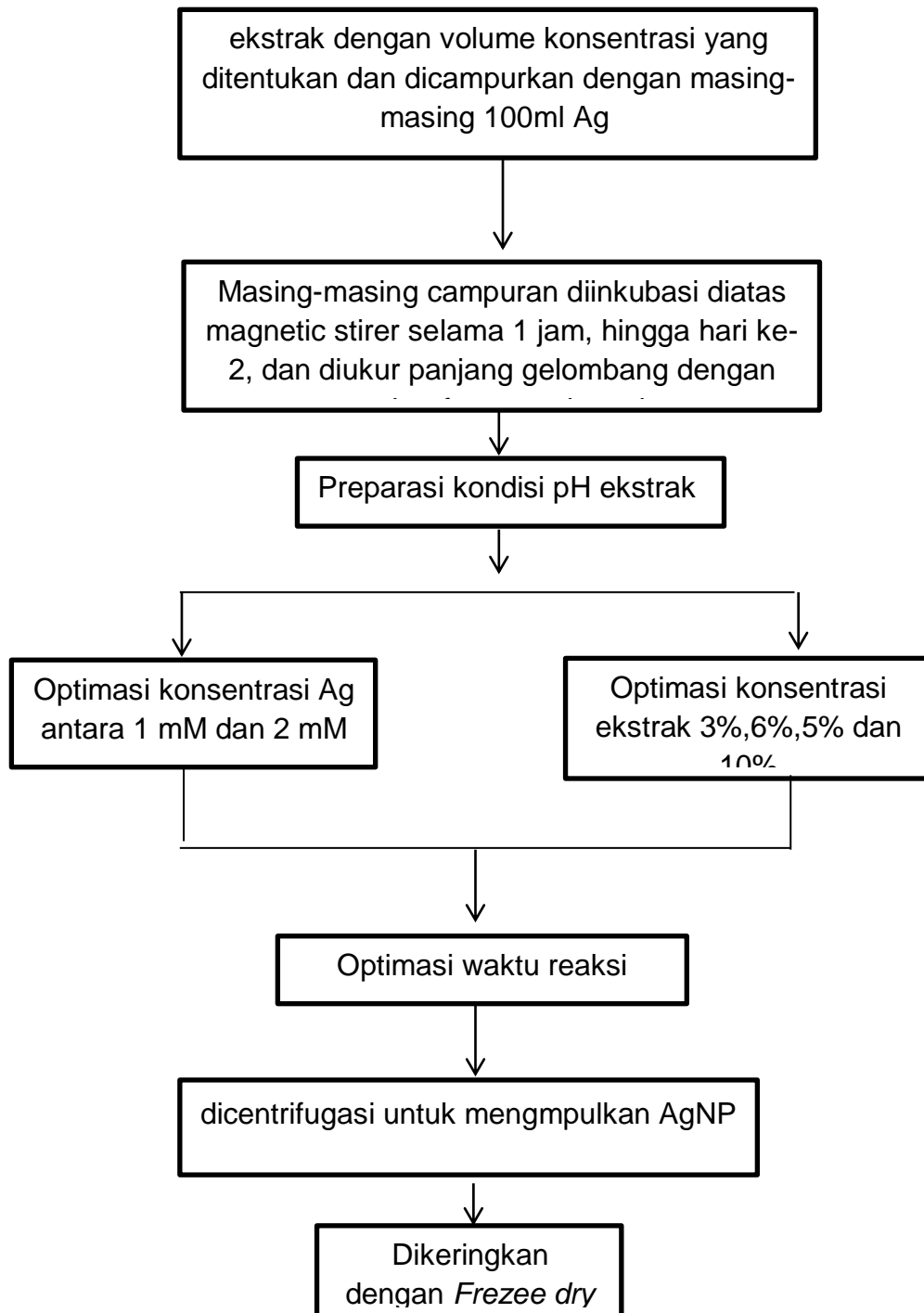
LAMPIRAN

Lampiran 1. Skema kerja

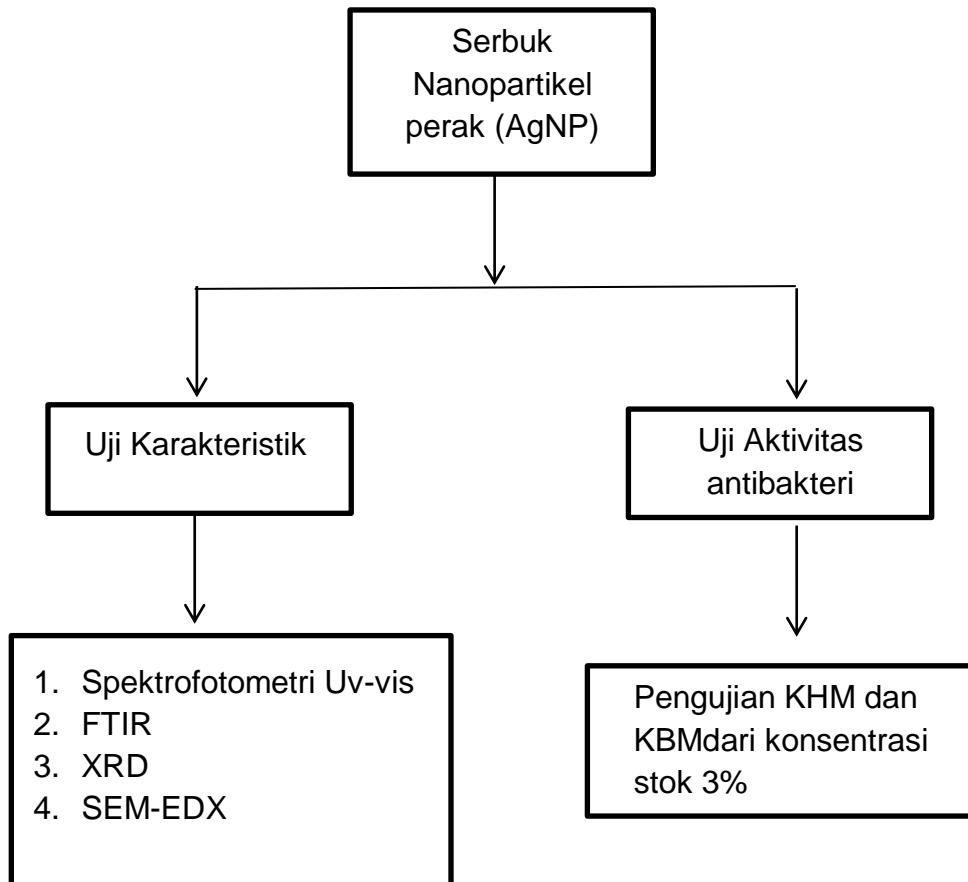
a. Penyiapan ekstrak.



b. Sintesis Hijau



c. Uji karakteristik dan uji aktivitas



Lampiran 2. Perhitungan

- a. Perhitungan pembuatan Ag 2 mM dan 1 mM dalam 500 ml

$$2 \text{ mM} = \frac{\text{mg}}{\text{Mr}} \times \frac{1000 \text{ ml}}{500 \text{ ml}}$$

$$2 \text{ mM} = \frac{\text{mg}}{169.87} \times \frac{1000 \text{ ml}}{500 \text{ ml}}$$

$$\text{mg} = \frac{84935 \times 2}{1000}$$

$$\text{mg} = 169.87$$

$$= 0.1698 \text{ g}$$

$$1 \text{ mM} = \frac{\text{mg}}{\text{Mr}} \times \frac{1000 \text{ ml}}{500 \text{ ml}}$$

$$\text{mg} = \frac{84935 \times 1}{1000}$$

$$\text{mg} = 84.935$$

$$= 0.0849 \text{ g}$$

- b. Perhitungan penimbangan NaOH 1%

NaOH 1% adalah 1 g NaOH dicukupkan dengan 100 ml aquadest.

- c. Perhitungan pembuatan larutan stok AgNP 0,0053 g dalam 5 ml untuk uji aktivitas antibakteri

$$\frac{x}{100} = \frac{0,0053 \text{ g}}{5 \text{ ml}}$$

$$x = \frac{0,053}{5 \text{ ml}}$$

$$x = 0.106 \%$$

keterangan = X adalah % AgNP yang ditentukan berdasarkan berat sampel yang ditimbang.

- d. Perhitungan % rendamen ekstrak

$$\% \text{ Rendamen} = \frac{\text{Berat ekstrak etanol}}{\text{Berat Simplisia}} \times 100\%$$

$$\% \text{ Rendamen} = \frac{22.69 \text{ g}}{100 \text{ g}} \times 100\%$$

$$\% \text{ Rendamen} = 22.69\%$$

e. Perhitungan konsentrasi ekstrak

1. Ekstrak etanol

$$\frac{5}{100} = \frac{X}{20 \text{ ml}}$$

$$X = \frac{100}{100}$$

$$X = 1 \text{ g}$$

Ditimbang 1 g ekstrak lalu dilarutkan kedalam 20 ml aquades untuk konsentrasi 5%

$$\frac{10}{100} = \frac{X}{20 \text{ ml}}$$

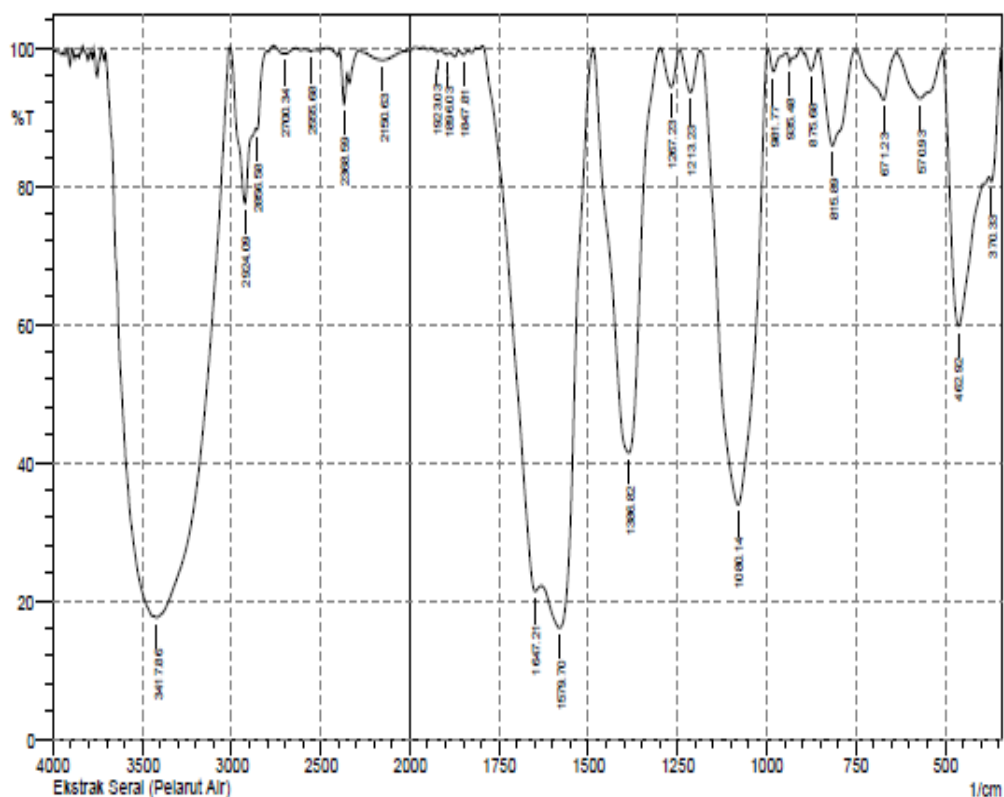
$$X = \frac{200}{100}$$

$$X = 2 \text{ g}$$

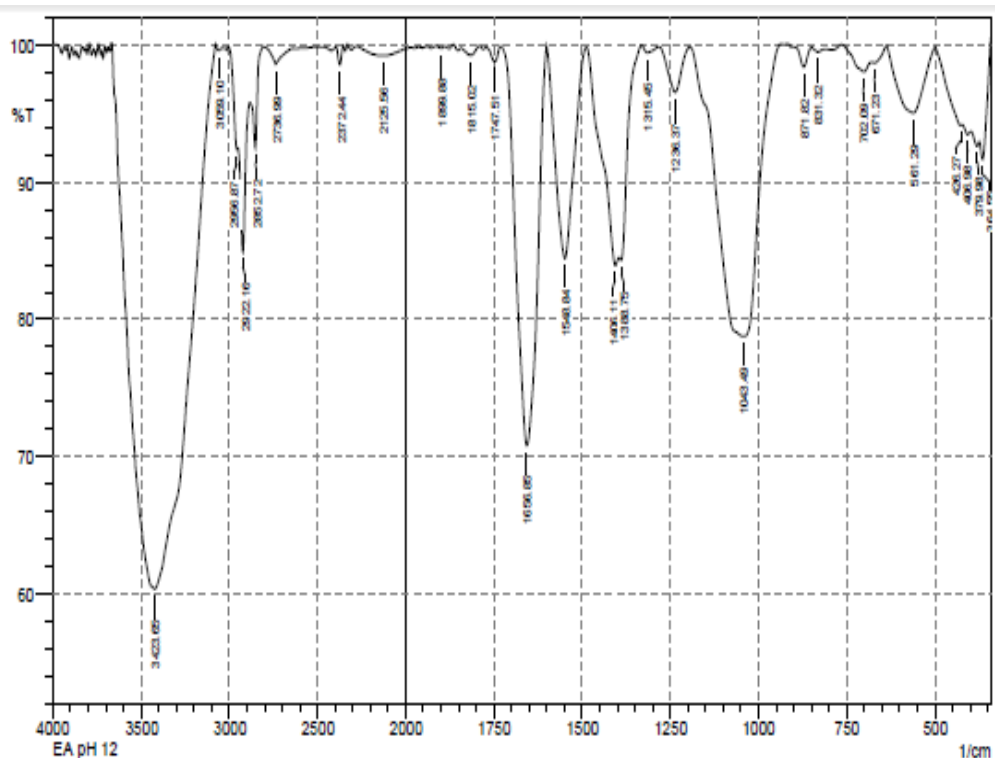
Ditimbang 2 g ekstrak lalu dilarutkan kedalam 20 ml aquades untuk konsentrasi 10%

Lampiran 3. Hasil FTIR

a. Hasil Uji Ftir Ekstrak air serai (*Cymbopogon citratus*)



No.	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	370.33	80.615	3.889	376.12	343.33	1.908	0.488
2	462.92	59.752	32.577	505.35	393.48	15.956	10.461
3	570.93	92.608	6.95	636.51	507.28	2.762	2.513
4	671.23	92.447	7.01	750.31	638.44	2.083	1.854
5	815.89	85.832	13.864	854.47	752.24	3.74	3.604
6	875.68	96.754	2.671	894.97	854.47	0.333	0.233
7	935.48	97.644	1.759	945.12	902.69	0.219	0.141
8	981.77	96.564	3.114	997.2	945.12	0.398	0.298
9	1080.14	33.89	65.835	1186.22	997.2	46.526	46.286
10	1213.23	93.519	6.122	1244.09	1186.22	0.891	0.802
11	1267.23	94.282	5.533	1298.09	1244.09	0.724	0.684
12	1386.82	41.395	58.493	1485.19	1298.09	31.586	31.494
13	1579.7	16.077	34.099	1631.78	1487.12	67.583	22.047
14	1647.21	21.353	7.334	1795.73	1633.71	44.996	1.867
15	1847.81	98.94	0.594	1861.31	1840.09	0.075	0.032
16	1896.03	98.981	0.436	1913.39	1888.31	0.083	0.027
17	1923.03	99.349	0.425	1940.39	1913.39	0.048	0.026
18	2150.63	98.206	1.383	2285.65	2036.83	1.313	0.872
19	2368.59	91.81	5.853	2393.66	2351.23	0.9	0.516
20	2555.68	99.449	0.26	2594.26	2530.61	0.102	0.024
21	2700.34	99.105	0.959	2763.99	2640.55	0.252	0.289
22	2856.58	88.114	1.19	2862.36	2798.71	1.448	0.101
23	2924.09	77.469	15.737	3007.02	2864.29	8.992	5.089
24	3417.86	17.591	81.991	3705.26	3008.95	307.732	306.679



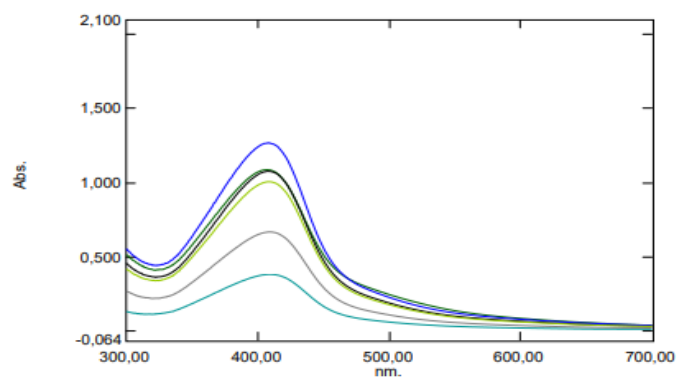
	Peak	Intensity	Corr. Intensity	Base (H)	Base (L)	Area	Corr. Area
1	364.55	91.68	3.516	374.19	341.4	0.789	0.309
2	379.98	92.618	0.536	397.34	374.19	0.724	0.031
3	406.98	93.492	0.408	422.41	397.34	0.702	0.023
4	426.27	94.156	0.317	499.56	422.41	1.172	0.131
5	561.29	95.07	4.827	636.51	501.49	1.805	1.75
6	671.23	98.729	0.263	678.94	636.51	0.158	0.044
7	702.09	98.061	1.044	765.74	678.94	0.418	0.191
8	831.32	99.512	0.28	848.68	812.03	0.057	0.024
9	871.82	98.413	1.457	904.61	848.68	0.165	0.135
10	1043.49	78.782	21.216	1193.94	937.4	13.032	13.011
11	1236.37	96.586	3.296	1282.66	1193.94	0.638	0.593
12	1315.45	99.471	0.496	1330.88	1282.66	0.069	0.058
13	1388.75	84.319	1.645	1394.53	1332.81	1.711	0.098
14	1406.11	83.945	2.193	1487.12	1396.46	3.689	0.305
15	1548.84	84.435	15.333	1598.99	1489.05	4.055	3.946
16	1656.85	70.809	29.126	1728.22	1600.92	9.119	9.081
17	1747.51	98.799	1.097	1770.65	1728.22	0.114	0.095
18	1815.02	99.275	0.146	1818.87	1791.87	0.055	0.014
19	1899.88	99.799	0.137	1911.46	1888.31	0.014	0.008
20	2125.56	99.229	0.601	2274.07	2009.83	0.625	0.443
21	2372.44	98.573	1.378	2393.66	2355.08	0.128	0.119
22	2736.99	98.618	1.223	2802.57	2636.69	0.454	0.332
23	2852.72	92.512	4.792	2881.65	2802.57	1.103	0.441
24	2922.16	84.917	8.944	2949.16	2883.58	2.823	1.12
25	2956.87	92.399	0.866	3007.02	2951.09	0.873	-0.087
26	3059.1	99.619	0.34	3078.39	3032.1	0.049	0.036
27	3423.65	60.339	39.8	3666.68	3078.39	74.976	75.31

Lampiran 4. Hasil pengukuran panjang gelombang dan absorbansi campuran pada preparasi nanopartikel perak.

- a. Monitoring pektrum AgNP4 dan AgNP7 waktu reaksi

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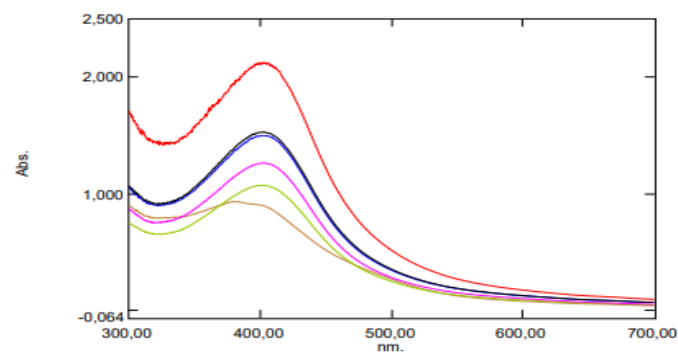
Gedung Pusat Kegiatan Penelitian Lantai IV Wing B



No.	P/V	Wavelength	Abs.	Description
1	●	407,00	1,088	
2	●	322,00	0,408	

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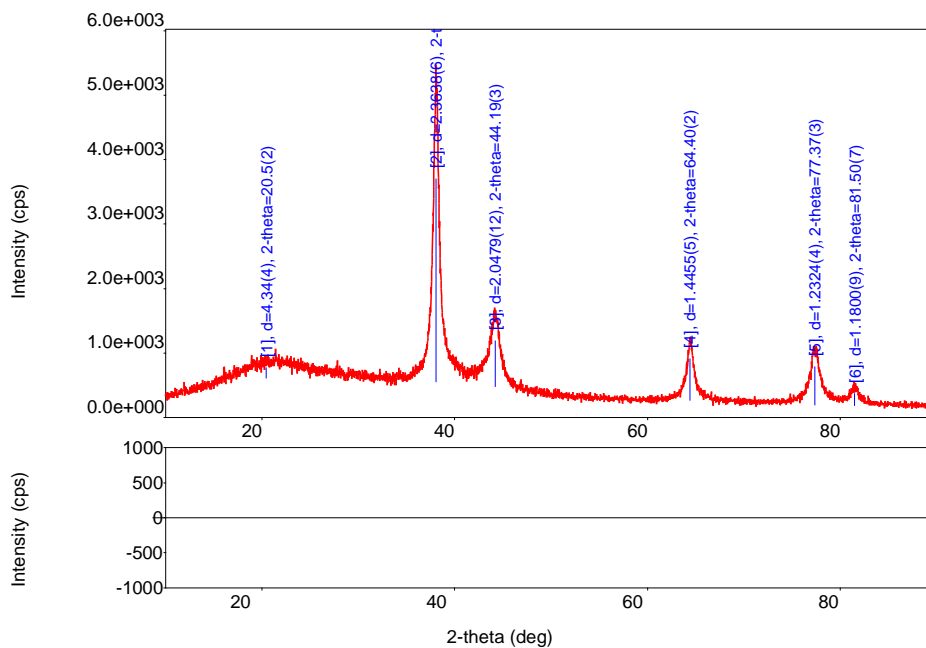
Gedung Pusat Kegiatan Penelitian Lantai IV Wing B



No.	P/V	Wavelength	Abs.	Description
1	●	403,00	2,128	
2	●	326,50	1,414	

Lampiran 5 . Hasil Analisis XRD

a. Measurement profile



b. Measurement condition

X-Ray	30 kV , 15 mA	Scan speed / Duration time	4.0000 deg./min.
Goniometer		Step width	0.0200 deg.
Attachment	-	Scan axis	2Theta/Theta
Filter	Kb filter	Scan range	10.0000 -
CBO selection slit	-	Incident slit	1.25 deg.
Diffrected beam		Length limiting slit	-
Detector	MiniFlex2	Receiving slit #1	1.25 deg.
Scan mode	CONTINUOUS	Receiving slit #2	0.3mm

c. Hasil Analisis kuantitatif

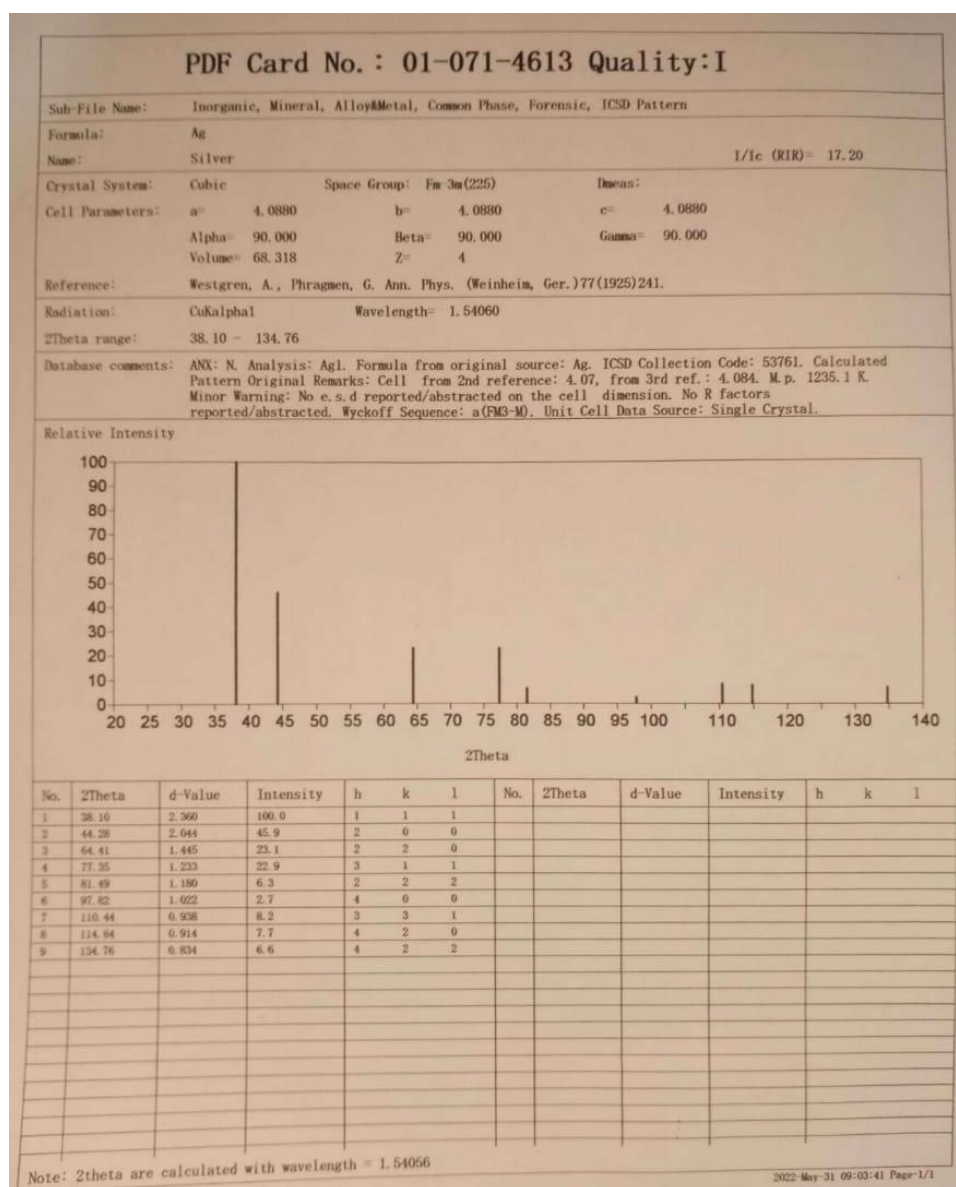
Phase name	Formula	Figure of merit	Phase reg. detail	DB card number
Silver	Ag	0.393	ICDD (PDF-2/Release 2011	01-071-4613

Phase name	Formula	Space group	Phase reg. detail	DB card number
Silver	Ag	225 : Fm-	ICDD (PDF-2/Release 2011	01-071-4613

Phase name	Content(%)
Silver	100.0(6)

d. List peak

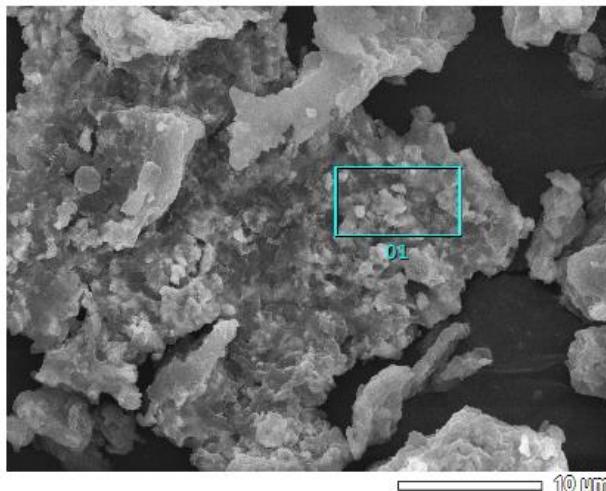
No.	2-theta(deg)	d(ang.)	Height(cps)	FWHM(d eg)	Int. I(cps deg)	Int. W(deg)	Asym. factor
1	20.5(2)	4.34(4)	161(23)	7.3(2)	1375(42)	8.5(15)	0.65(9)
2	38.036(10)	2.3638(	3149(102)	0.660(13)	3422(20)	1.09(4)	0.86(6)
3	44.19(3)	2.0479(	707(49)	1.24(4)	1379(19)	1.95(16)	1.12(13)
4	64.40(2)	1.4455(	652(47)	0.71(3)	806(10)	1.24(10)	0.89(15)
5	77.37(3)	1.2324(	598(45)	1.07(4)	1112(12)	1.86(16)	1.14(18)
6	81.50(7)	1.1800(	185(25)	0.86(11)	276(9)	1.5(2)	1.4(6)



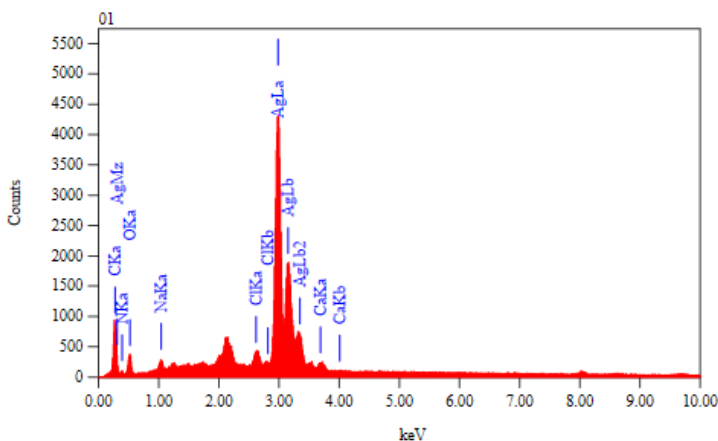
Lampiran 6. Hasil analisis EDX

Nanopartikel perak

JEOL 1/1



Title	: IMG1
Instrument	: 6510 (LA)
Volt	: 15.00 kV
Mag.	: x 3,000
Date	: 2022/03/31
Pixel	: 1024 x 768



Acquisition Parameter

Instrument	: 6510 (LA)
Acc. Voltage	: 15.0 kV
Probe Current	: 1.00000 nA
PHA mode	: T3
Real Time	: 51.87 sec
Live Time	: 50.00 sec
Dead Time	: 3 %
Counting Rate	: 3851 cps
Energy Range	: 0 - 20 keV

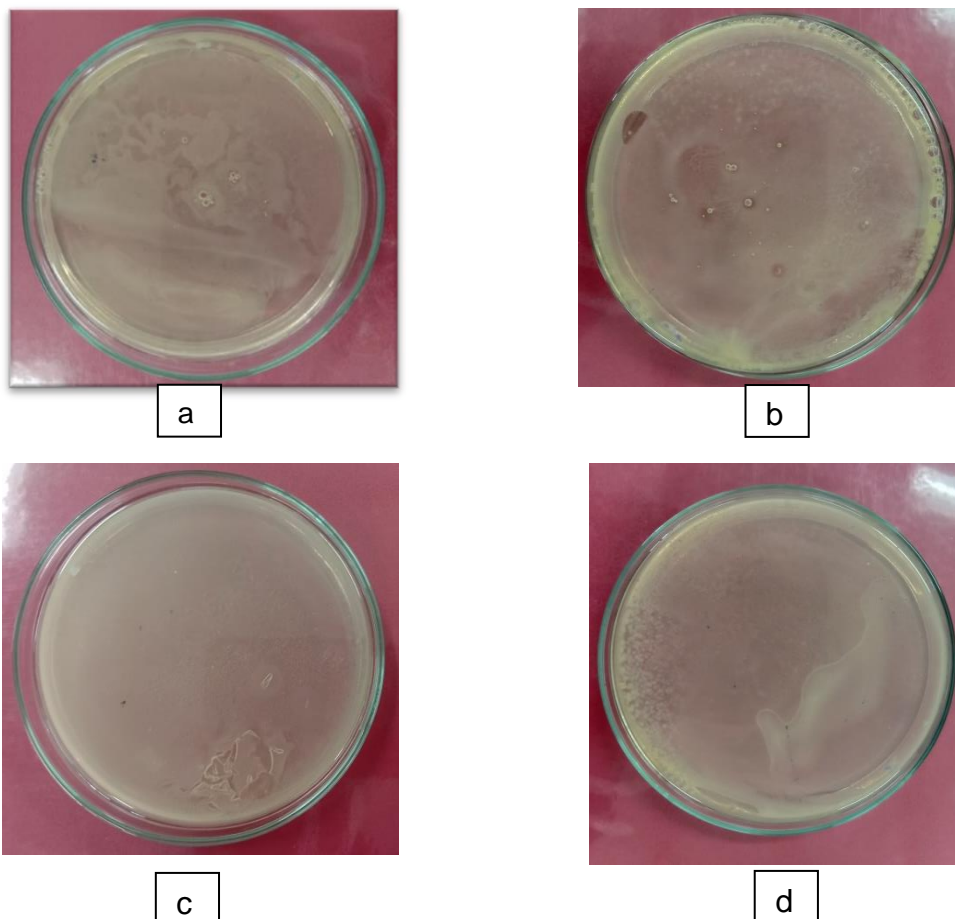
ZAF Method Standardless Quantitative Analysis
Fitting Coefficient : 0.0557

Element	(keV)	Mass%	Sigma	Atom%	Compound	Mass%	Cation	K
C	0.277	9.65	0.06	29.97				8.2983
N	0.392	6.68	0.22	17.78				5.3967
O	0.525	10.58	0.21	24.67				4.9337
Na	1.041	1.01	0.04	1.64				0.7493
Cl	2.621	0.52	0.03	0.55				0.7726
Ca	3.690	1.10	0.06	1.02				1.3328
Ag	2.983	70.46	0.34	24.36				78.5167
Total		100.00		100.00				

Lampiran 7. Hasil uji aktivitas antibakteri



Gambar 20. Penentuan (konsentrasi hambat minimum terhadap bakteri, a. *Staphylococcus aureus*, b. *Escherichia coli*.



Gambar 21. Penentuan KBM, a. AgNP 1,5% bakteri *E.coli*, b. AgNP 0,75% bakteri *E.coli*, c. AgNP 1,5% bakteri *S.Aureus*, d. AgNP 0,75% bakteri *S.aureus* AgNp 0,75% bakteri *S.Aureus*.

Lampiran 8. Surat hasil determinasi sampel



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN,
RISET DAN TEKNOLOGI

UNIVERSITAS NEGERI MAKASSAR (UNM)
FAKULTAS MATEMATIKA DAN ILMU PENGETAHUAN ALAM
LABORATORIUM BIOLOGI

Alamat : Kampus UNM Parangtambung Jl. Mallengkeri, Makassar 90224
Tlp. (0411) 840610 Fax. (0411) 841504
Laman : <http://bio.fmipa.unm.ac.id>

4 April 2022

No : 011/UN36.1.4/Lab.Biologi/IV/2022
Lamp : -
Hal : Hasil Identifikasi Tanaman

Kepada Yth.
Siti Qurrataayun
Program Magister S2 Farmasi
Universitas Hasanuddin

Dengan Hormat,

Bersama ini, kami sampaikan hasil identifikasi Tanaman yang saudara(i) kirimkan. Identifikasi dilakukan oleh staf peneliti laboratorium Botani Jurusan Biologi FMIPA UNM dengan hasil sebagai berikut:

Kingdom : Plantae
Divisi : Magnoliophyta
Kelas : Liliopsida
Ordo : Poales
Famili : Poaceae
Genus : *Cymbopogon*
Spesies : *Cymbopogon citratus* (DC.) Stapf.

Kunci determinasi : 1b – 14a – Group XIV – 2b – 10b – 11a – 12a – 13a – Fam. Poaceae/Gramineae – *Cymbopogon* – *Cymbopogon citratus* (DC.) Stapf.

Sumber pustaka :

1. <http://plantamor.com/species/info/cymbopogon/citratus>
2. <https://www.cabi.org/isc/datasheet/17377>
3. <https://www.gbif.org/species/2705275>
4. <https://www.nparks.gov.sg/florafaunaweb/flora/1/9/1918>
5. <https://indiabiodiversity.org/species/show/243249>
6. Cullen, James. 2006. Practical Plant Identification Including A Key To Native And Cultivated Flowering Plants in North Temperate Regions. Cambridge University Press, New York.

Demikian untuk diketahui dan dipergunakan sebagaimana mestinya.

Kepala laboratorium Biologi
UNM

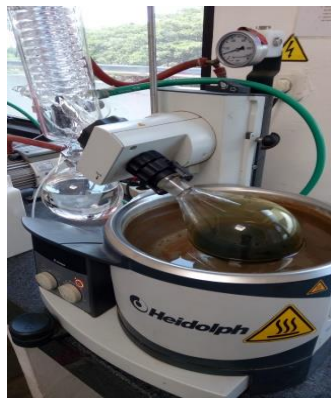
Prof. Oslan Jumadi, S.SI., M.Phil., Ph.D
NIP. 19701016 199702 1 001

Lampiran 9. Dokumentasi kegiatan penelitian

Ekstraksi dengan pelarut etanol 70%



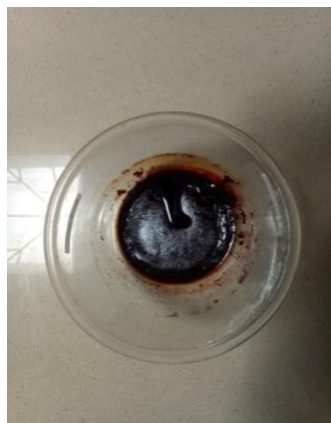
Ekstraksi dengan pelarut aquadest



Proses evaporasi



Proses penyaringan dengan vakum



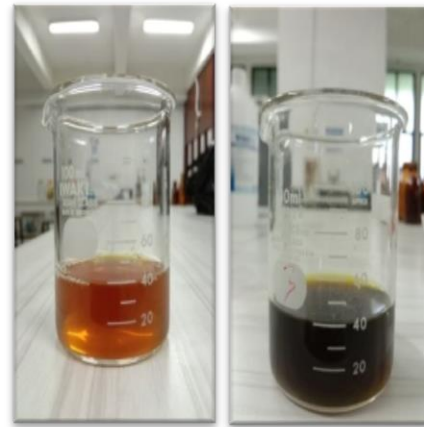
Ekstrak etanol



Proses penimbangan Ag



Proses pengecekan pH



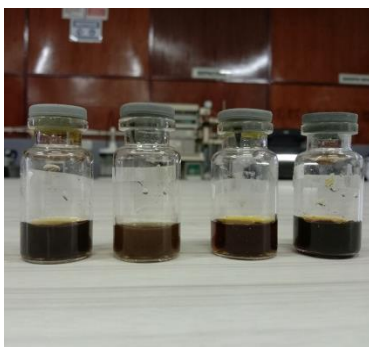
Sebelum dan setelah pengaturan pH pada ekstrak



Proses sintesis dengan *Hot plate*



Campuran pada proses sintesis setelah 1 jam



Optimasi variasi konsentrasi Ag dan Ekstrak



Optimasi waktu cuplik berdasarkan panjang gelombang



Proses sentriugasi



Hasil sintesis setelah sentrifugasi



Hasil sentrifugasi yang telah dikumpulkan



Serbuk nanopartikel perak ekstrak 40 ml dan Ag 2 mM



Proses pembuatan suspensi bakteri



Proses penentuan nilai KHM dan KBM



Proses inkubasi tabung untuk penentuan KHM



Sampel daun serai yang telah dikumpulkan

Gambar 22. Dokumentasi penelitian sintesis hijau nanopartikel perak