Lampiran 3: Perhitungan

Perhitungan Larutan Baku, Pereaksi, Seri Konsentrasi dan Faktor Pengenceran.

- Perhitungan Larutan Baku

  µg/mL = $\frac{bobot\ (mg)}{volume\ labu\ (L)}$

  µg/mL = $\frac{100\ mg}{0{,}1\ L} = 1000$ µg/mL

- Perhitungan Pereaksi

  Asam oksalat 0,4 %

  $= \frac{0{,}4}{100} \times 100\ mL = 0{,}4\ g \rightarrow 400\ mg$

  Natrium Bikarbonat (NaHCO3) 0,084 %

  $= \frac{0{,}084}{100} \times 100\ mL = 0{,}084\ g \rightarrow 84\ mg$

- Faktor Pengenceran

  V1.N1 = V2. N2

  V1. 1000 = 25. 5

  V1 = $\frac{125}{1000} = 0{,}125\ mL$

  FP = $\frac{volume\ labu}{volume\ pipet}$

  FP = $\frac{25}{0{,}125} = 200$ x pengenceran

- Seri Konsentrasi

  2 µg/mL
  V1N1 = V2N2
  V1. 1000 = 10. 2
  V1 = $\frac{20}{1000} = 0{,}02\ mL$

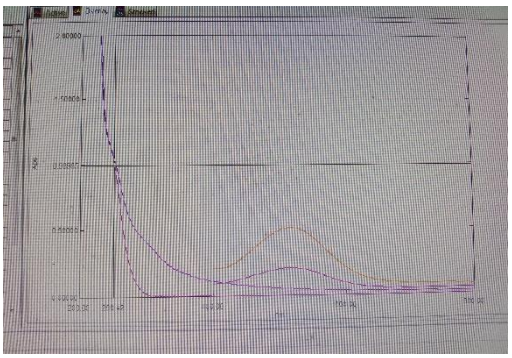
  4 µg/mL
  V1N1 =V2N2
  V1.1000 = 10. 4
  V1 = $\frac{40}{1000} = 0{,}04\ mL$

  6 µg/mL
  V1N1 =V2N2
  V1. 1000 = 10. 6
  V1 = $\frac{60}{1000} = 0{,}06\ mL$

  8 µg/mL
  V1N1 = V2N2
  V1. 1000 = 10. 8
  V1 = $\frac{80}{1000} = 0{,}08\ mL$

  10 µg/mL
  V1N1 = V2N2
  V1. 1000 = 10. 10
  V1 = $\frac{100}{1000} = 0{,}1\ mL$

  12 µg/mL
  V1N1 = V2N2
  V1. 1000 = 10. 12
  V1 = $\frac{120}{1000} = 0{,}12\ mL$

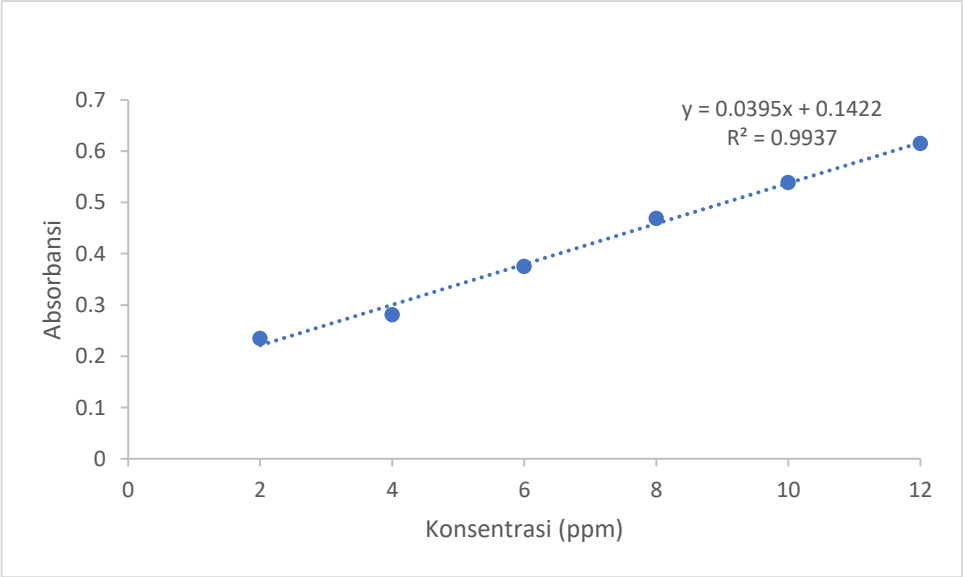


Gambar Uji Selektivitas

Keterangan : spektrum ungu vit C 250 nm, spektrum biru vit C + sampel 250 nm, spektrum merah vit C + pereaksi 2,6 dikloro 516 nm, spektrum ungu pereaksi 2,6 dikloro 516 nm.

Tabel Uji Linieritas 3 kali percobaan

Konsentrasi (ppm)	Uji Linieritas Percobaan 1 Absorbansi	Uji Linieritas Percobaan 2 Absorbansi	Uji Linieritas Percobaan 3 Absorbansi
2	0,235	0,235	0,235
4	0,272	0,278	0,281
6	0,368	0,375	0,375
8	0,469	0,469	0,469
10	0,536	0,536	0,539
12	0,613	0,613	0,615



Gambar Grafik Uji Linieritas

Tabel Batas Deteksi dan Batas Kuantitasi

Konsentrasi (µg/mL)	y	y'	y-y'	(y-y')^2
2	0,235	0,2212	0,0138	0,00019044
4	0,281	0,3002	-0,0192	0,00036864
6	0,375	0,3792	-0,0042	1,764E-05
8	0,469	0,4582	0,0108	0,00011664
10	0,539	0,5372	0,0018	3,24E-06
12	0,615	0,6162	-0,0012	1,44E-06
7	0,419		∑	0,000698

- Contoh perhitungan Batas Deteksi dan Batas Kuantitasi

Sy/x = $\sqrt{\frac{\sum(y-y')2}{n-2}}$ = $\sqrt{\frac{0,000698}{6-2}}$ = 0,0132

Sx0 = $\frac{Sy}{b}$ = $\frac{0,0132}{0,0395}$ = 0,334

Vx0 = $\frac{Sxo}{x}$ = $\frac{0,334}{7}$x100% = 4,777 %

BD = $\frac{3\ SD}{Slope}$ = $\frac{3 \times 0,0132}{0,0395}$ = 1,003 µg/mL

BK = $\frac{10\ SD}{slope}$ =$\frac{10 \times 0,0132}{0,0395}$ = 3,342 µg/mL

Tabel Uji Akurasi

Pengulangan	Sampel non adisi	sampel (+ standar)	C Sampel	C Spike	Konsentrasi Standar	% Rec 98-102	%Rata² Rec	SD
1	0,245	0,402	2,6025	6,5772	4	99,367		
2	0,244	0,403	2,5772	6,6025	4	99,999	99,99	0,633
3	0,246	0,404	2,6278	6,6278	4	100,632		
	Rata²	0,403	2,6025	6,6025				
1	0,245	0,562	2,6025	10,6329	8	100,379		
2	0,244	0,563	2,5772	10,6632	8	100,759	100,69	0,290
3	0,246	0,564	2,6278	10,6784	8	100,949		
	Rata²	0,563	2,6025	10,6582				
1	0,245	0,716	2,6025	14,5265	12	99,367		
2	0,244	0,718	2,5772	14,5772	12	99,789	99,71	0,322
3	0,246	0,719	2,6278	14,6025	12	99,999		
	Rata²	0,718	2,6025	14,5687				

Contoh perhitungan uji akurasi

- Perhitungan C Sampel
  C sampel = $\frac{y-a}{b}$
  C sampel = $\frac{0,245-0,1422}{0,0395} = 2,6025$
- Perhitungan C spike
  C spike = $\frac{y-a}{b}$
  C spike = $\frac{0,402-0,1422}{0,0395} = 6,5772$
- Perhitungan % Recovery
  % Rec = $\frac{Konsentrasi\ pengukuran - Konsentrasi\ sampel}{Konsentrasi\ yang\ ditambahkan}$ x 100

  % Rec = $\frac{6,5772-2,6025}{4}\ x\ 100 = 99,367\ \%$
- Perhitungan rata² % Rec
  Rata² % Rec = $\frac{Rec\ 1 + Rec\ 2 + Rec\ 3}{3}$
  Rata² % Rec = $\frac{99,367 + 99,999 + 100,632}{3} = 99,99\ \%$

Tabel Uji Presisi 4 µg/mL Intraday

	Konsentrasi Pengukuran (µg/mL)		
	Hari ke 1	Hari ke 2	Hari ke 3
	6,5772	6,5772	6,5772
	6,5772	6,6025	6,6025
	6,6025	6,6025	6,6025
	6,6025	6,6025	6,6025
	6,6025	6,6278	6,6025
	6,6278	6,6278	6,6278
Rata²	6,598	6,606	6,602
SD	0,019	0,019	0,016
%KV	0,289	0,288	0,243

Tabel Uji Presisi Interday 4 µg/mL

Absorbansi	Konsentrasi Pengukuran
0,402	6,5772
0,402	6,5772
0,403	6,6025
0,403	6,6025
0,403	6,6025
0,404	6,6278
0,402	6,5772
0,403	6,6025
0,403	6,6025
0,403	6,6025
0,404	6,6278
0,404	6,6278
0,402	6,5772
0,403	6,6025
0,403	6,6025
0,403	6,6025
0,403	6,6025
0,404	6,6278
Rata – Rata	6,6025
SD	0,017
%KV	0,263

Contoh Perhitungan Uji Presisi

Sy/x = $\sqrt{\frac{\sum(x - x')2}{n - 1}} = \sqrt{\frac{0,0018}{6-1}} = 0,019$

%KV = $\frac{SD}{rata - rata\ konsentrasi} \times 100$

%KV = $\frac{0,019}{6,598} \times 100 = 0,288\ \%$

Tabel Penetapan Kadar

No	Perlakuan	Absorbansi	Konsentrasi Sampel (µg/mL)
1	Ekstrak kulit segar	0,741	15,159
		0,742	15,184
		0,743	15,210
2	Ekstrak kulit manisan	0,485	8,678
		0,486	8,703
		0,485	8,678

- Contoh Perhitungan Konsentrasi Sampel
  Cs = $\frac{y-a}{b}$
  Cs = $\frac{0,741-0,1422}{0,0395} = 15,159$
- Rata – Rata Kadar
  Rata- rata = $\frac{Kadar\ 1 + Kadar\ 2 + Kadar\ 3}{3}$
  Rata- rata = $\frac{15,159 + 15,184 + 15,210}{3}$ = 14.184
- Penurunan Kadar
  = $\frac{Rata-rata\ kulit\ segar - rata-rata\ manisan\ kulit}{100} \times 100\ \%$
  = $\frac{15,184 - 8,686}{100} \times 100\ \% = 6,5\ \%$
- Kadar (mg/g)

  Kadar =15µg /mL $\times \frac{10}{2} \times 100$ = 7500 µg = 7,5 mg/100 g ekstrak kulit

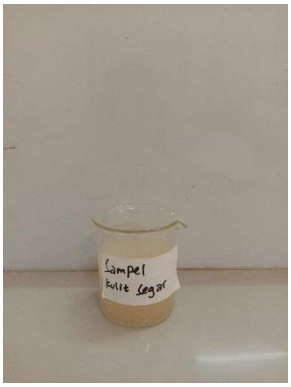
  Kadar= 8 µg /mL $\times \frac{10}{2} \times 100$ = 4000 µg = 4 mg/100 g ekstrak manisan kulit

Lampiran 4: Dokumentasi

- Sampel Kulit segar dan Manisan Kulit
  Dokumentasi saat penimbangan

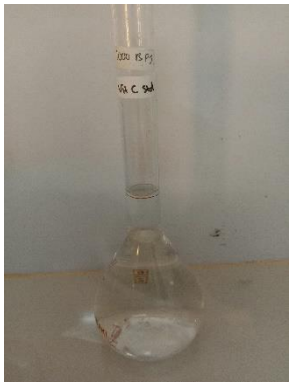
Gambar Kulit segar Gambar Manisan kulit

Dokumentasi Ekstrak Sampel



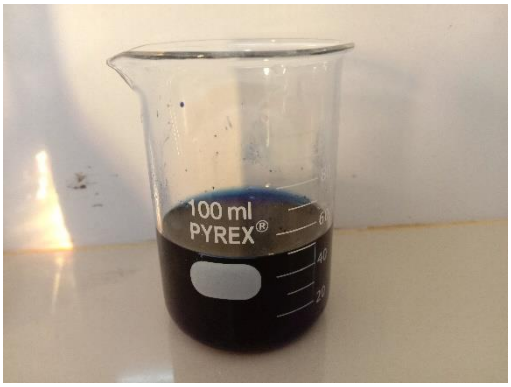
Ekstrak kulit segar Ekstrak Manisan kulit

- Larutan Baku Standar 1000 µg/mL



Larutan Baku Standar Vitamin C

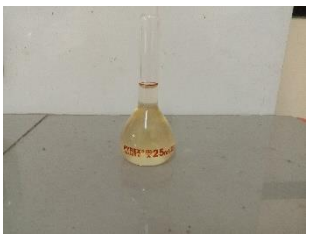
- Pereaksi 2,6-diklorofenol indofenol



Gambar pereaksi 2,6-diklorofenol indofenol (berwarna biru)

- Selektivitas

Gambar 1 Vit C add asam oksalat



Gambar 2 Vit C + sampel

Gambar 3 vit C + 2,6-dikloro add asam oksalat

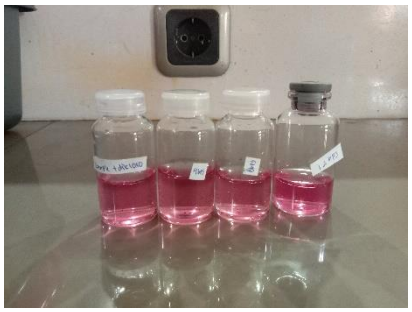
Gambar 4 2,6-dikloro add asam oksalat

- Linieritas

Gambar Uji Linieritas

Keterangan 2, 4, 6, 8, 10, dan 12 µg/mL

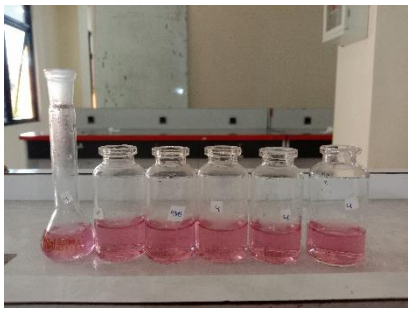
- Akurasi



Gambar Uji Akurasi

Keterangan gambar :
Dari botol vial sebelah kiri sampel + 2,6 dikloro add asam oksalat
Botol vial kedua dari sebelah kiri sampel + Vit C 4 µg/mL+ 2,6-dikloro add asam oksalat
Botol vial ketiga dari sebelah kiri sampel + Vit C 8 µg/mL+ 2,6-dikloro add asam oksalat
Botol vial terakhir dari sebelah kiri sampel + Vit C 12 µg/mL+ 2,6-dikloro add asam oksalat

- Presisi



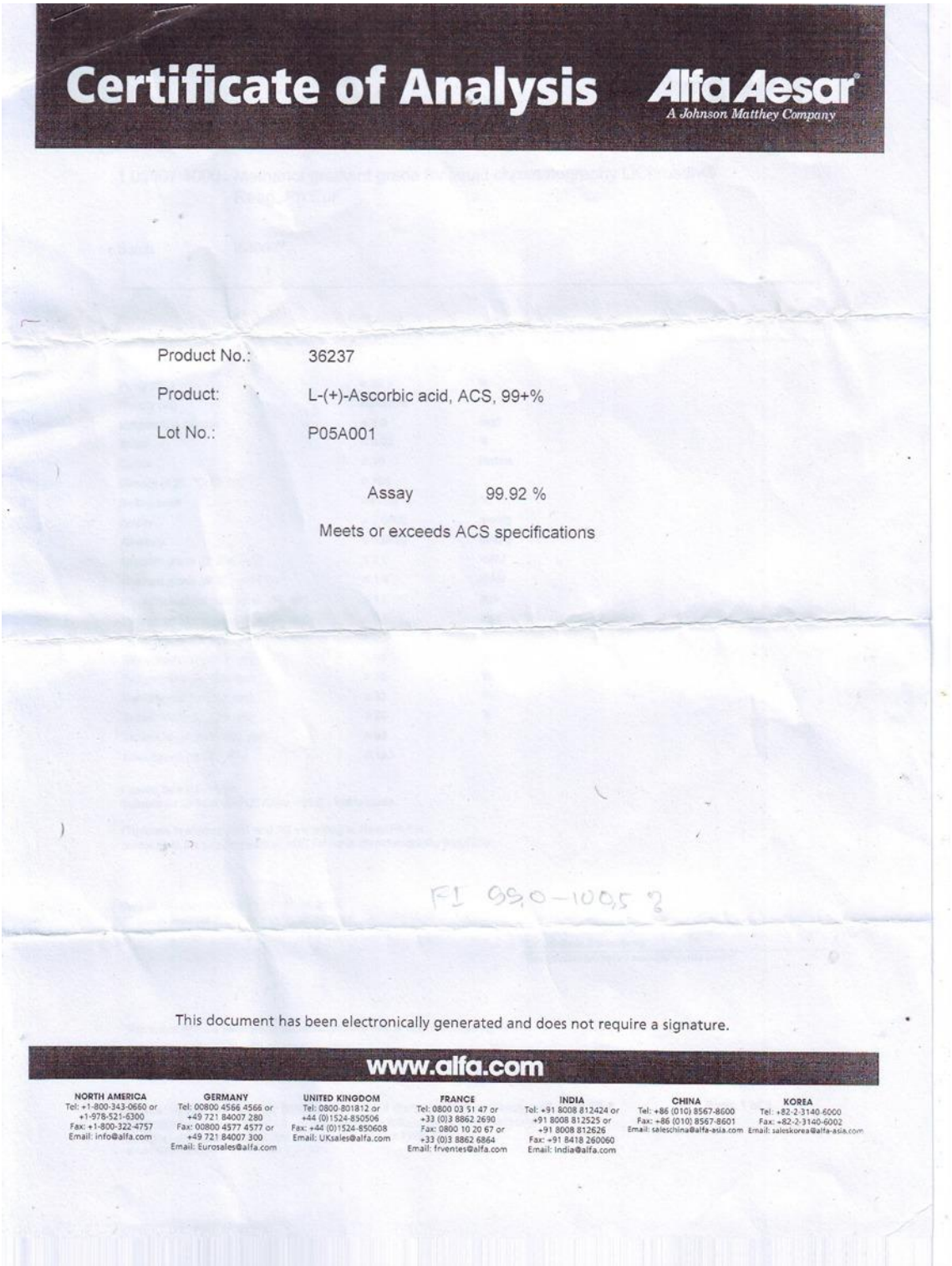
Gambar Uji Presisi 4 µg/mL

- Penetapan Kadar

Gambar Penetapan Kadar Sampel

Keterangan :
Sebelah kiri ekstrak manisan kulit
Sebelah kana ekstrak kulit segar

Lampiran 5: Surat Bahan
Surat Bahan Asam Askorbat



Certificate of Analysis

Alfa Aesar
A Johnson Matthey Company

Product No.: 36237

Product: L-(+)-Ascorbic acid, ACS, 99+%

Lot No.: P05A001

Assay 99.92 %

Meets or exceeds ACS specifications

FI 99,0-100,5 %

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Surat Bahan Pereaksi 2,6-dikloro fenol indofenol

Specification

1.03028.0005 2,6-Dichlorophenol-indophenol sodium salt dihydrate GR for analysis for the determination of ascorbic acid

	Specification	
Assay (perchloric acid titration, calculated on dried substance)	≥ 98	%
Identity (IR-spectrum)	passes test	
TLC-Test	passes test	
Foreign coloring agents	passes test	
Loss on drying (120 °C)	≤ 12.0	%

Ioannis Chartomatsidis
Responsible laboratory manager quality control

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SALSA Version 824327 /000000000000/ Date: 03.04.2019

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Surat Bahan Asam Oksalat

Specification

1.00495.0500 Oxalic acid dihydrate for analysis EMSURE® ACS,ISO,Reag. Ph Eur

	Spec. Values.	
Assay (manganometric)	99.5 - 102.0	%
Insoluble matter	≤ 50	ppm
Chloride (Cl)	≤ 5	ppm
Sulfate (SO_4)	≤ 50	ppm
Total nitrogen (N)	≤ 10	ppm
Heavy metals (as Pb)	≤ 5	ppm
Heavy metals (ACS)	≤ 5	ppm
Ca (Calcium)	≤ 10	ppm
Fe (Iron)	≤ 2	ppm
Readily carbonisable substance	passes test	
Residue on ignition (as sulfate)	≤ 100	ppm

Corresponds to ACS,ISO,Reag. Ph Eur

Claudia Wiegand
Responsible laboratory manager quality control

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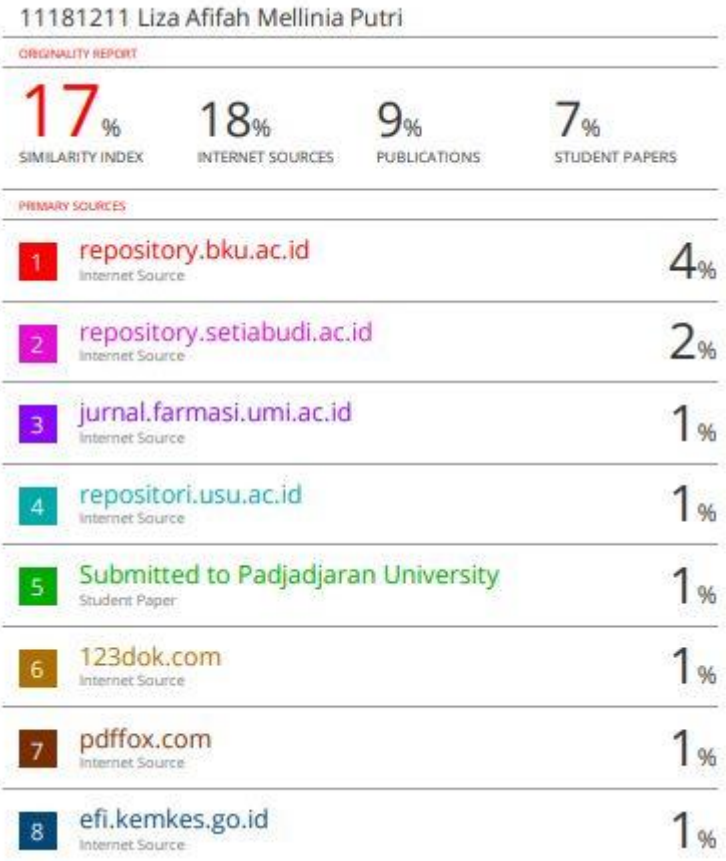
Lampiran 6: Plagiasi



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