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Lampiran 1. COA etanol p.a



Certificate of Analysis

1.00983.2500 Ethanol absolute for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Batch K52687883

	Spec. Values		Batch Values	
Purity (GC)	≥ 99.9	%	99.9	%
Identity (IR)	conforms		conforms	
Appearance	conforms		conforms	
Color	≤ 10	Hazen	< 5	Hazen
Solubility in water	conforms		conforms	
Acidity or alkalinity	≤ 30	ppm	≤ 30	ppm
Titration acid	≤ 0.0002	meq/g	0.0001	meq/g
Titration base	≤ 0.0002	meq/g	< 0.0002	meq/g
Density (d 20 °C/20 °C)	0.790 - 0.793		0.791	
UV absorption	conforms		conforms	
Aldehydes (as Acetaldehyde)	≤ 0.001	%	≤ 0.001	%
Fusel oils	conforms		conforms	
Substances reducing potassium permanganate (as O)	≤ 0.0002	%	≤ 0.0002	%
Substances reducing permanganate (ACS)	conforms		conforms	
Carbonyl compounds (as CO)	≤ 0.003	%	≤ 0.003	%
Readily carbonizable substances	conforms		conforms	
Acetone, Isopropyl Alcohol (ACS)	conforms		conforms	
Acetone (GC)	≤ 0.001	%	< 0.001	%
Ethylmethylketone (GC)	≤ 0.02	%	< 0.01	%
Isoamyl alcohol (GC)	≤ 0.05	%	< 0.01	%
2-Propanol (GC)	≤ 0.01	%	< 0.01	%
Higher alcohols (GC)	≤ 0.01	%	< 0.01	%
Volatile impurities (GC) (Acetaldehyde and Acetal)	≤ 10	ppm	< 10	ppm
Volatile impurities (GC) (Benzene)	≤ 2	ppm	< 1	ppm
Volatile impurities (GC) (Methanol)	≤ 100	ppm	< 50	ppm
Volatile impurities (GC) (Total of other impurities)	≤ 300	ppm	< 100	ppm
Volatile impurities (GC) (disregard limit)	≤ 9	ppm	9	ppm
Chloride (Cl)	≤ 0.3	ppm	< 0.1	ppm
Nitrate (NO ₃)	≤ 0.3	ppm	< 0.1	ppm
Phosphate (PO ₄)	≤ 0.3	ppm	< 0.1	ppm
Sulfate (SO ₄)	≤ 0.3	ppm	< 0.1	ppm
Ag (Silver)	≤ 0.000002	%	≤ 0.000002	%
Al (Aluminium)	≤ 0.00005	%	≤ 0.00005	%
As (Arsenic)	≤ 0.000002	%	≤ 0.000002	%
Au (Gold)	≤ 0.000002	%	≤ 0.000002	%
Ba (Barium)	≤ 0.00001	%	≤ 0.00001	%
Be (Beryllium)	≤ 0.000002	%	≤ 0.000002	%
Bi (Bismuth)	≤ 0.000002	%	≤ 0.000002	%
Ca (Calcium)	≤ 0.00005	%	≤ 0.00005	%

Certificate of Analysis

1.00983.2500 Ethanol absolute for analysis EMSURE® ACS,ISO,Reag. Ph Eur
Batch K52687883

Cd (Cadmium)	≤ 0.000005	%	≤ 0.000005	%
Co (Cobalt)	≤ 0.000002	%	≤ 0.000002	%
Cr (Chromium)	≤ 0.000002	%	≤ 0.000002	%
Cu (Copper)	≤ 0.000002	%	≤ 0.000002	%
Fe (Iron)	≤ 0.00001	%	≤ 0.00001	%
Ga (Gallium)	≤ 0.000002	%	≤ 0.000002	%
In (Indium)	≤ 0.000002	%	≤ 0.000002	%
Li (Lithium)	≤ 0.000002	%	≤ 0.000002	%
Mg (Magnesium)	≤ 0.00001	%	≤ 0.00001	%
Mn (Manganese)	≤ 0.000002	%	≤ 0.000002	%
Mo (Molybdenum)	≤ 0.000002	%	≤ 0.000002	%
Ni (Nickel)	≤ 0.000002	%	≤ 0.000002	%
Pb (Lead)	≤ 0.00001	%	≤ 0.00001	%
Pt (Platinum)	≤ 0.000002	%	≤ 0.000002	%
Sb (Antimony)	≤ 0.000002	%	≤ 0.000002	%
Sn (Tin)	≤ 0.00001	%	≤ 0.00001	%
Ti (Titanium)	≤ 0.000002	%	≤ 0.000002	%
Tl (Thallium)	≤ 0.000002	%	≤ 0.000002	%
V (Vanadium)	≤ 0.000002	%	≤ 0.000002	%
Zn (Zinc)	≤ 0.00001	%	≤ 0.00001	%
Zr (Zirconium)	≤ 0.000002	%	≤ 0.000002	%
Evaporation residue	≤ 0.0005	%	0.0001	%
Water	≤ 0.1	%	< 0.1	%

Date of release (DD.MM.YYYY) 03.08.2020
Minimum shelf life (DD.MM.YYYY) 30.06.2025

Jeannette David
Responsible laboratory manager quality control

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**Lampiran 2. Formula sampel krim tabir surya dengan kode
sunscreen A,B, dan C**

Sunscreen A

DRAFT

Cust: Bu Ismi

No.	Inci Nam e	Range %	Cas No	Fungsi
1	Polyacrylamide		9003-05-08	Emulsifying
2	Aqua		7732-18-5	Base
3	C13-14 Isoparaffin		64742-47-8	Emulsifying
4	laureth-7		3055-97-8	Emulsifying
5	Xanthan Gum		11138-66-2	Thickener
6	Aqua		7732-18-5	Base
7	PARSOL HS	2	27503-81-7	UV Filter
8	Triethanolamine		102-71-6	pH Adjuster
9	Aqua		7732-18-5	Base
10	PARSOL® 340	10		
11	PARSOL® HMS	10		
12	PARSOL® SLX	3		
13	PARSOL® EHS	5		
14	PARSOL® 1789	5		
15	Caprylic/Capric Triglycerides		65381-09-1	Skin Conditioning
16	Glycerin		56-81-5	*Moisturising
17	Diglycerin		59113-36-9/ 25618-55-7	Humectant
18	Propanediol		504-63-2	Moisturising
19	Aqua		7732-18-5	Solvent
20	Disodium Edta		139-33-3	Chelating Agent

21	Aqua		7732-18-5	Base
22	Methylsilanol Mannuronate		102397-69-3	Skin Conditioning
23	Saccharide Isomerate		50-99-7	Moisturizer
24	Aqua		7732-18-5	base
25	Citric acid		77-92-9	ph adjuster
26	Phenoxyethanol		122-99-6	Preservative
27	Benzyl Alcohol		100-51-6	Preservative
28	Ethylhexylglycerin		70445-33-9	Skin Conditioning
29	Tocopherol		10191-41-0	Antioxidant

Sunscreen B

DRAFT

Cust: Bu Ismi

No.	Inci Name	Range %	Cas No	Fungsi
1	Polyacrylamide		9003-05-08	Emulsifying
2	Aqua		7732-18-5	Base
3	C13-14 Isoparaffin		64742-47-8	Emulsifying
4	laureth-7		3055-97-8	Emulsifying
5	Xanthan Gum		11138-66-2	Thickener
6	Aqua		7732-18-5	Base
7	PARSOL HS	2	27503-81-7	UV Filter
8	Triethanolamine		102-71-6	pH Adjuster
9	Aqua		7732-18-5	Base
10	PARSOL® 340	8		
11	PARSOL® HMS	8		
12	PARSOL® SLX	2		
13	PARSOL® 1789	2		
14	Caprylic/Capric Triglycerides		65381-09-1	Skin Conditioning
15	Glycerin		56-81-5	*Moisturising
16	Diglycerin		59113-36-9/ 25618-55-7	Humectant
17	Propanediol		504-63-2	Moisturising
18	Aqua		7732-18-5	Solvent
19	Disodium Edta		139-33-3	Chelating Agent
20	Aqua		7732-18-5	Base
21	Methylsilanol Mannuronate		102397-69-3	Skin Conditioning
22	Saccharide Isomerate		50-99-7	Moisturizer
23	Aqua		7732-18-5	base
24	Citric acid		77-92-9	ph adjuster
25	Phenoxyethanol		122-99-6	Preservative
26	Benzyl Alcohol		100-51-6	Preservative
27	Ethylhexylglycerin		70445-33-9	Skin Conditioning
28	Tocopherol		10191-41-0	Antioxidant

Sunscreen C

DRAFT





Cust: Bu Ismi






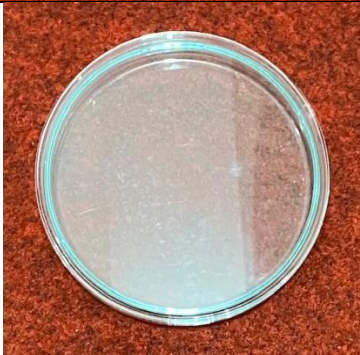
No.	Inci Name	Range %	Cas No	Fungsi
<i>1</i>	Polyacrylamide		9003-05-08	Emulsifying
<i>2</i>	Aqua		7732-18-5	Base
<i>3</i>	C13-14 Isoparaffin		64742-47-8	Emulsifying
<i>4</i>	laureth-7		3055-97-8	Emulsifying
<i>5</i>	Xanthan Gum		11138-66-2	Thickener
<i>6</i>	Aqua		7732-18-5	Base
<i>7</i>	PARSOL HS	2	27503-81-7	UV Filter
<i>8</i>	Triethanolamine		102-71-6	pH Adjuster
<i>9</i>	Aqua		7732-18-5	Base
<i>10</i>	PARSOL® 340	8		
<i>11</i>	PARSOL® 1789	4		
<i>12</i>	PARSOL® SLX	3		
<i>13</i>	Caprylic/Capric Triglycerides		65381-09-1	Skin Conditioning
<i>14</i>	Cyclopentasiloxane		541-02-6	Emollient
<i>15</i>	Caprylyl Dimethicone Ethoxy Glucoside		85554-71-4	Emulsifying
<i>16</i>	Glycerin		56-81-5	*Moisturising
<i>17</i>	Diglycerin		59113-36-9/ 25618-55-7	Humectant
<i>18</i>	Propanediol		504-63-2	Moisturising
<i>19</i>	Aqua		7732-18-5	Solvent
<i>20</i>	Disodium Edta		139-33-3	Chelating Agent
<i>21</i>	Aqua		7732-18-5	Base
<i>22</i>	Methylsilanol Mannuronate		102397-69-3	Skin Conditioning
<i>23</i>	Saccharide Isomerate		50-99-7	Moisturizer
<i>24</i>	Aqua		7732-18-5	base
<i>25</i>	Citric acid		77-92-9	ph adjuster
<i>26</i>	Phenoxyethanol		122-99-6	Preservative
<i>27</i>	Benzyl Alcohol		100-51-6	Preservative
<i>28</i>	Ethylhexylglycerin		70445-33-9	Skin Conditioning
<i>29</i>	Tocopherol		10191-41-0	Antioxidant





Lampiran 3. Foto sampel dan kontrol positif**Kontrol positif**




Sampel

Lampiran 4. Foto alat dan bahan

Nama Alat dan Bahan	Gambar
Media MSA	
Inkubator	
LAF	
Beaker glass	

Batang pengaduk	
Jarum Ose	
Pipet	
Mikropipet	
Pipet volume	
Cawan petri	

<p>Tabung reaksi</p>	
<p>Rak</p>	
<p>Erlenmeyer</p>	
<p>Corong</p>	

<p>Labu takar</p>	
<p>Tabung reaksi</p>	
<p>Bunsen</p>	

Autoklaf



Oven sterilisasi

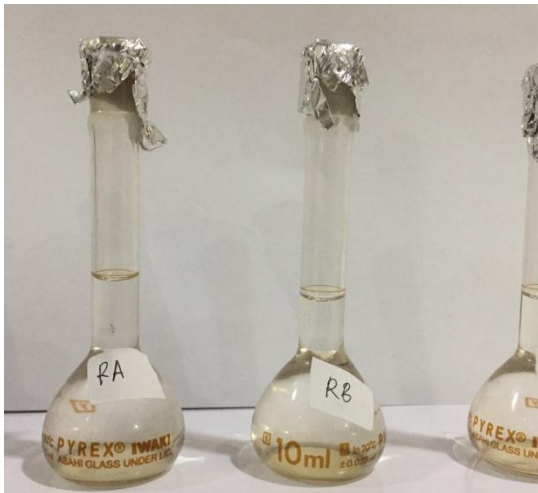
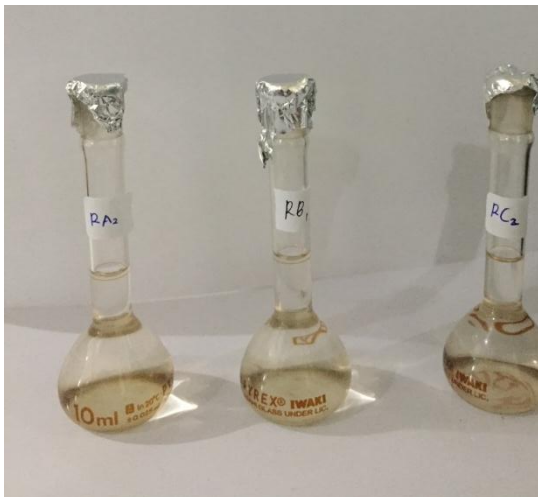


Colony counture



Lampiran 5. Hasil Timbangan sampel untuk uji SPF

Formula	Pengulangan	Timbangan
Kontrol Positif	1	0,1090
	2	0,1085
	3	0,1076
Rata-Rata		0,1084
Krim Tabir Surya A	1	0,1063
	2	0,1058
	3	0,1063
Rata-Rata		0,1061
Krim Tabir Surya B	1	0,1003
	2	0,1001
	3	0,1017
Rata-Rata		0,1007
Krim Tabir Surya C	1	0,1009
	2	0,1006
	3	0,1002
Rata-Rata		0,1006

Lampiran 6. Foto hasil preparasi sampel**Larutan baku kontrol +****Pengenceran kontrol +****Larutan baku replikasi 1****Pengenceran replikasi 1**

Larutan baku replikasi 2



Pengenceran replikasi 2



Larutan baku replikasi 3

Pengenceran replikasi 3

Lampiran 7. Perhitungan nilai SPF**KONTROL POSITIF (SEDIAAN EMINA SPF 45)**

λ	EE x I	Abs	EE x I x Abs	CF	$\frac{\sum EE \times I \times Abs}{Abs}$	FP	SPF
290	0.0150	1.2341	0.0185115		1.46076694	50	45
295	0.0817	1.3421	0.10964957				
300	0.2874	1.4265	0.4099761				
305	0.3278	1.4957	0.49029046				
310	0.1864	1.5291	0.28502424				
315	0.0839	1.4693	0.12327427				
320	0.0180	1.3356	0.0240408				
			1.46076694				

SPF	CF	$\sum EE (\lambda) \times I (\lambda) \times Abs (\lambda)$
45	CF	1.46076694
CF =	30.806	

FORMULA 1

REPLIKASI 1	Λ	EE x I	Abs	EE x I x Abs	CF	$\sum \frac{EE \times I \times Abs}{Abs}$	FP	SPF
	290	0.0150	1.3616	0.020424	30.8057	1.59341936	50	
	295	0.0817	1.4965	0.12226405				
	300	0.2874	1.5959	0.45866166				
	305	0.3278	1.6663	0.54621314				
	310	0.1864	1.5888	0.29615232				
	315	0.0839	1.4881	0.12485159				
	320	0.0180	1.3807	0.0248526				

REPLIKASI 2	Λ	EE x I	Abs	EE x I x Abs	CF	$\sum \frac{EE \times I \times Abs}{Abs}$	FP	SPF
	290	0.0150	1.3539	0.0203085	30.8057	1.59287681	50	
	295	0.0817	1.5016	0.12268072				
	300	0.2874	1.5968	0.45892032				
	305	0.3278	1.6628	0.54506584				
	310	0.1864	1.5879	0.29598456				
	315	0.0839	1.4913	0.12512007				
	320	0.0180	1.3776	0.0247968				
				1.59287681				

REPLIKASI 3	Λ	EE x I	Abs	EE x I x Abs	CF	$\sum \frac{EE \times I \times Abs}{Abs}$	FP	SPF
	290	0.0150	1.3637	0.0204555	30.8057	1.59392124	50	
	295	0.0817	1.5013	0.12265621				
	300	0.2874	1.5950	0.458403				
	305	0.3278	1.6684	0.54690152				
	310	0.1864	1.5891	0.29620824				
	315	0.0839	1.4823	0.12436497				
	320	0.0180	1.3851	0.0249318				
				1.59392124				

SPF	CF	$\sum EE (\lambda) \times I (\lambda) \times Abs (\lambda)$
SPF	30.8057	1.59392124

SPF =	49.10192		
R 1	49.0865	RATA – RATA	49.08604
R 2	49.0697		
R 3	49.1019		
	SD		0.01609

MINIMAL**FORMULA 2**

REPLIKASI 1	Λ	EE x I	Abs	EE x I x Abs	CF	$\frac{\sum EE \times I \times Abs}{Abs}$	FP	SPF
	290	0.0150	0.7894	0.011841	30.8057	0.92464888	50	
	295	0.0817	0.8762	0.07158554				
	300	0.2874	0.9353	0.26880522				
	305	0.3278	0.9779	0.32055562				
	310	0.1864	0.9074	0.16913936				
	315	0.0839	0.8266	0.06935174				
	320	0.0180	0.7428	0.0133704				
			0.92464888					

REPLIKASI 2	Λ	EE x I	Abs	EE x I x Abs	CF	$\frac{\sum EE \times I \times Abs}{Abs}$	FP	SPF
	290	0.0150	0.7883	0.0118245	30.8057	0.92216434	50	
	295	0.0817	0.8738	0.07138946				
	300	0.2874	0.9330	0.2681442				
	305	0.3278	0.9758	0.31986724				
	310	0.1864	0.9042	0.16854288				
	315	0.0839	0.8234	0.06908326				
	320	0.0180	0.7396	0.0133128				
			0.92216434					

REPLIKASI 3	Λ	EE x I	Abs	EE x I x Abs	CF	$\frac{\sum EE \times I \times Abs}{Abs}$	FP	SPF
	290	0.0150	0.7865	0.0117975	30.8057	0.92351677	50	
	295	0.0817	0.8741	0.07141397				
	300	0.2874	0.9341	0.26846034				
	305	0.3278	0.9776	0.32045728				
	310	0.1864	0.9059	0.16885976				
	315	0.0839	0.8248	0.06920072				
	320	0.0180	0.7404	0.0133272				
			0.92351677					

SPF	CF	$\sum EE (\lambda) \times I (\lambda) \times Abs (\lambda)$	
SPF	30.81	0.92351677	
SPF =	28.44961		
R 1	28.4845	RATA - RATA	28.44735
R 2	28.4080		
R 3	28.4496		
		SD	0.03832

MINIMAL**FORMULA 3**

REPLIKASI 1	Λ	EE x I	Abs	EE x I x Abs	CF	$\sum EE \times I \times Abs$	FP	SPF
	290	0.0150	0.7616	0.011424	30.8057	0.83443927	50	
	295	0.0817	0.8103	0.06620151				
	300	0.2874	0.8384	0.24095616				
	305	0.3278	0.8690	0.2848582				
	310	0.1864	0.8155	0.1520092				
	315	0.0839	0.7780	0.0652742				
	320	0.0180	0.7620	0.013716				
				0.83443927				

REPLIKASI 2	Λ	EE x I	Abs	EE x I x Abs	CF	$\sum EE \times I \times Abs$	FP	SPF
	290	0.0150	0.7604	0.011406	30.8057	0.83240422	50	
	295	0.0817	0.8087	0.06607079				
	300	0.2874	0.8363	0.24035262				
	305	0.3278	0.8663	0.28397314				
	310	0.1864	0.8140	0.1517296				
	315	0.0839	0.7773	0.06521547				
	320	0.0180	0.7587	0.0136566				
				0.83240422				

REPLIKASI 3	Λ	EE x I	Abs	EE x I x Abs	CF	$\sum EE \times I \times Abs$	FP	SPF
	290	0.0150	0.7575	0.0113625	30.8057	0.83106326	50	
	295	0.0817	0.8081	0.06602177				
	300	0.2874	0.8356	0.24015144				
305	0.3278	0.8649	0.28351422					

	310	0.1864	0.8114	0.15124496				
	315	0.0839	0.7763	0.06513157				
	320	0.0180	0.7576	0.0136368				
				0.83106326				

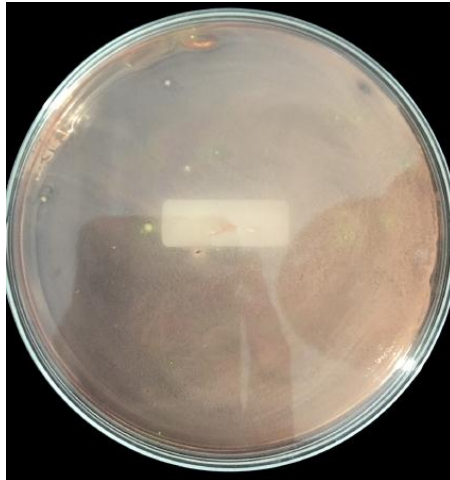
PF	CF	$\sum EE(\lambda) \times I(\lambda) \times Abs(\lambda)$		
SPF	30.8057	0.83106326		
SPF =	25.60151			
R 1	25.7055			
R 2	25.6428	RATA – RATA	25.64995	<u>MINIMAL</u>
R 3	25.6015			
		SD	0.05237	

Lampiran 8. Foto hasil uji Cemar
Sampel Tabir Surya kode *sunscreen A*

Replikasi 1



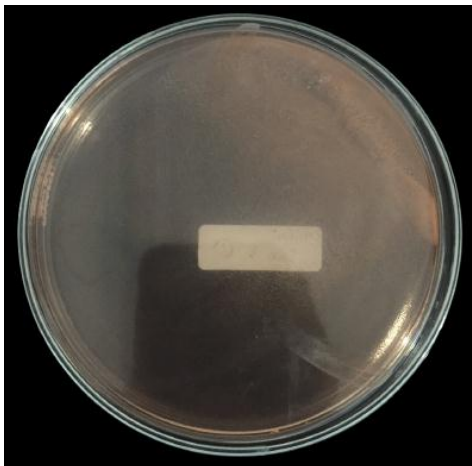
Replikasi 2



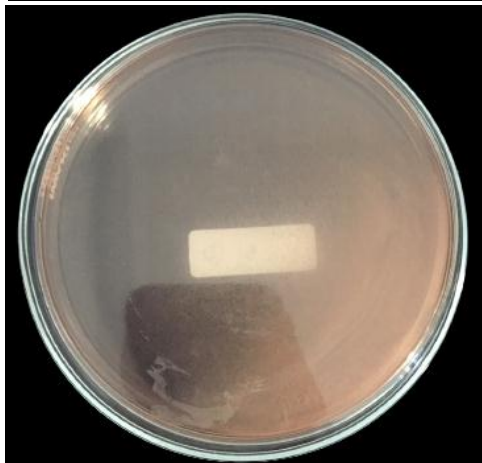
Replikasi 3



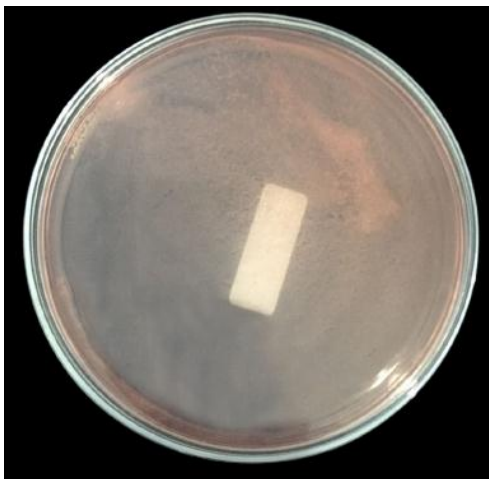
Replikasi 1



Replikasi 2

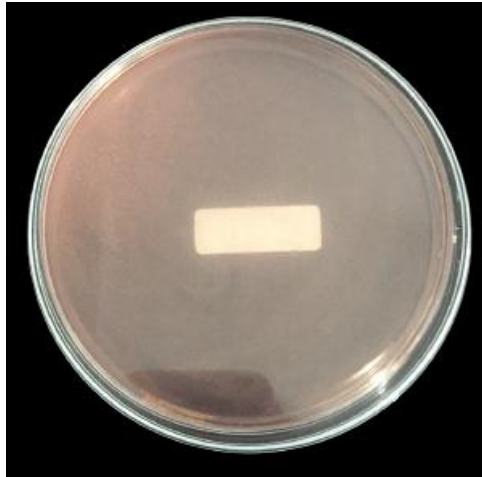


Replikasi 3

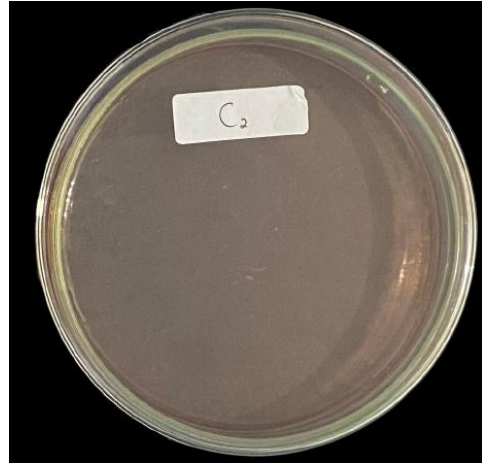


Sampel Tabir Surya kode *sunscreen C*

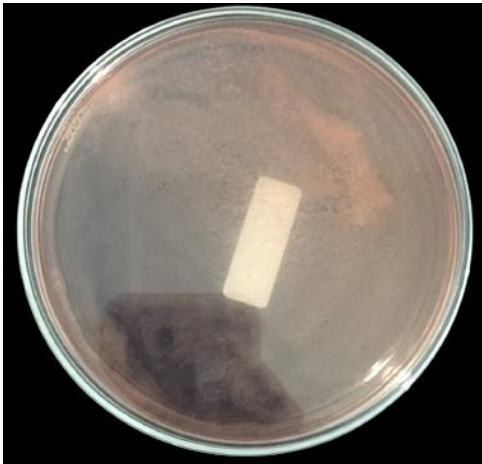
Replikasi 1



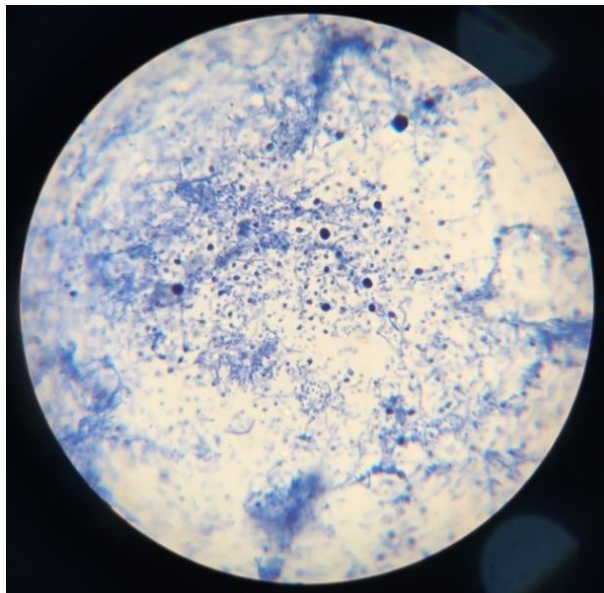
Replikasi 2



Replikasi 3



Lampiran 9. Foto hasil identifikasi pewarnaan Gram dan uji biokimia



Pewarnaan Gram



Uji katalase



Uji koagulase

Lampiran 10. Komposisi dan pembuatan media

1. *Manitol Salt Agar (MSA)*

Setiap 1 liter mengandung :

<i>Beef extrac</i>	1 gram
<i>Peptone</i>	1 gram
NaCl	75 gram
Manitol	1 gram
<i>Phenol red</i>	1,025 gram
Agar	15 gram
Aquadest	1 Liter

Bahan-bahan diatas dilarutkan dalam aquadest sebanyak 1000 mL, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit dan dituangkan dalam tabung reaksi pH 7,5.

2. *Brain Heart Infusion (BHI)*

Brain infusion	12,5 gram
Heart infusion	5,0 gram
Protease peptone	10,0 gram
Glucose	2,0 gram
Sodium chloride	5,0 gram
Di-sodium hydrogen phosphate	2,5 gram
Aquadest	ad 1000 mL

Bahan-bahan diatas dilarutkan dalam aquadest sebanyak 1000 mL, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit dan dituangkan dalam tabung reaksi pH 7,4.

Lampiran 11. Hasil SPSS

One-Sample Kolmogorov-Smirnov Test

		Unstandardized Residual
N		12
Normal Parameters ^{a,b}	Mean	0E-7
	Std. Deviation	5.28569531
	Absolute	.267
Most Extreme Differences	Positive	.267
	Negative	-.187
Kolmogorov-Smirnov Z		.924
Asymp. Sig. (2-tailed)		.360

a. Test distribution is Normal.

b. Calculated from data.

Kesimpulan : $\text{sig} > 0,05$ (H_0) diterima maka data Nilai SPF terdistribusi normal

Test of Homogeneity of Variances

Spf

Levene Statistic	df1	df2	Sig.
2.683	3	8	.118

Kesimpulan : $\text{sig} > 0,05$ (H_0) diterima maka data Nilai SPF homogen

ANOVA

Spf

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	1236.106	3	412.035	368848.699	.000
Within Groups	.009	8	.001		
Total	1236.115	11			

Kesimpulan : $\text{sig} < 0,05$ (H_0) ditolak maka terdapat perbedaan antara nilai SPF dan zat aktif

Multiple Comparisons

Dependent Variable: spf

Tukey HSD

(I) sampel	(J) sampel	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
K+	A	-4.086033*	.027290	.000	-4.17342	-3.99864
	B	16.552633*	.027290	.000	16.46524	16.64002
	C	19.350067*	.027290	.000	19.26268	19.43746
A	K+	4.086033*	.027290	.000	3.99864	4.17342
	B	20.638667*	.027290	.000	20.55128	20.72606
	C	23.436100*	.027290	.000	23.34871	23.52349
B	K+	-16.552633*	.027290	.000	-16.64002	-16.46524
	A	-20.638667*	.027290	.000	-20.72606	-20.55128
	C	2.797433*	.027290	.000	2.71004	2.88482
C	K+	-19.350067*	.027290	.000	-19.43746	-19.26268
	A	-23.436100*	.027290	.000	-23.52349	-23.34871
	B	-2.797433*	.027290	.000	-2.88482	-2.71004

*. The mean difference is significant at the 0.05 level.

spf

Tukey HSD

sampel	N	Subset for alpha = 0.05			
		1	2	3	4
C	3	25.64993			
B	3		28.44737		
K+	3			45.00000	
A	3				49.08603
Sig.		1.000	1.000	1.000	1.000

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Keterangan :

K+ : Kontrol positif

A : Sunscreen A

B : Sunscreen B

C : Sunscreen C

Kesimpulan : menunjukkan perbedaan yang signifikan