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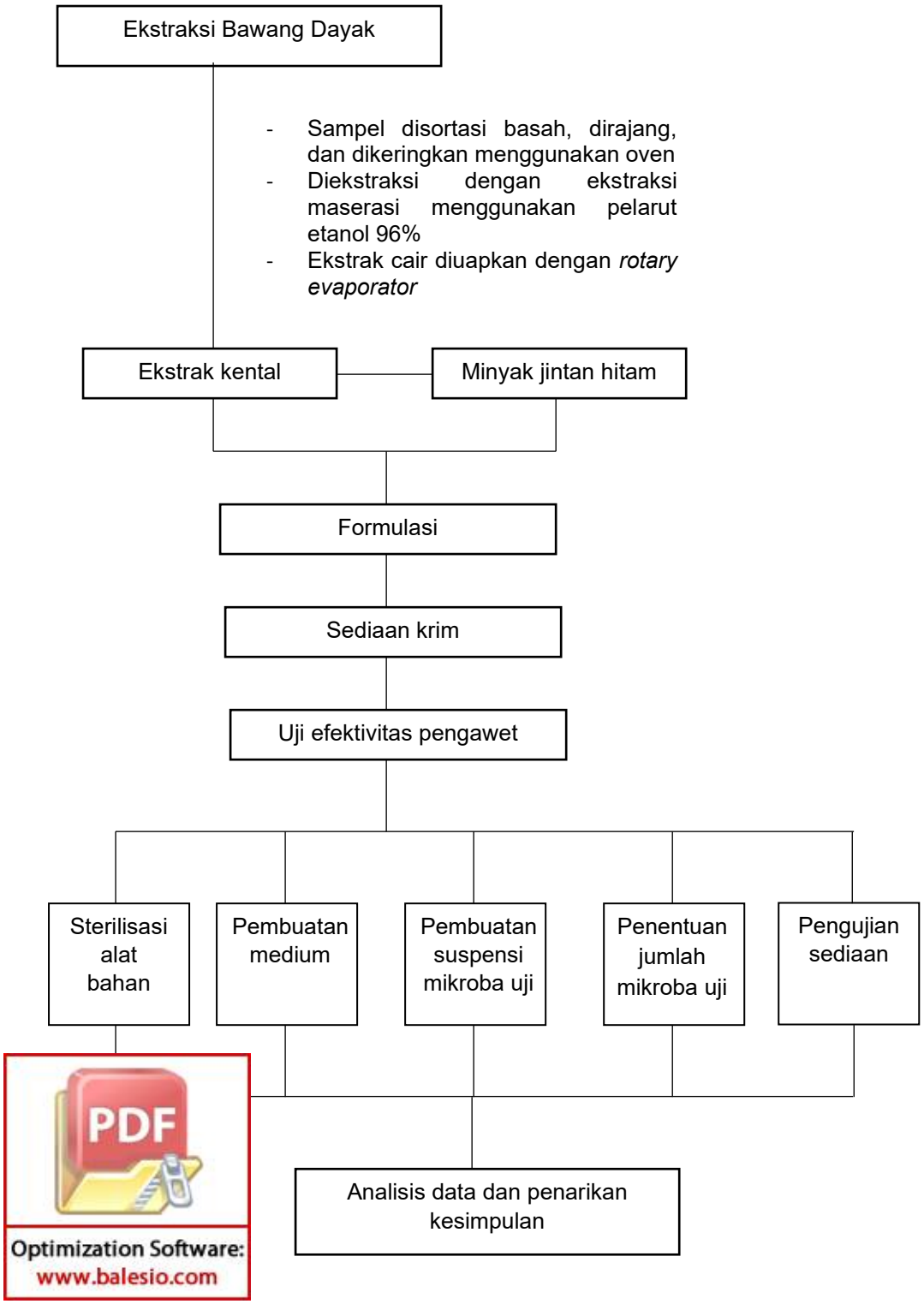
LAMPIRAN

Lampiran 1. Skema kerja penelitian



Lampiran 2. Komposisi medium

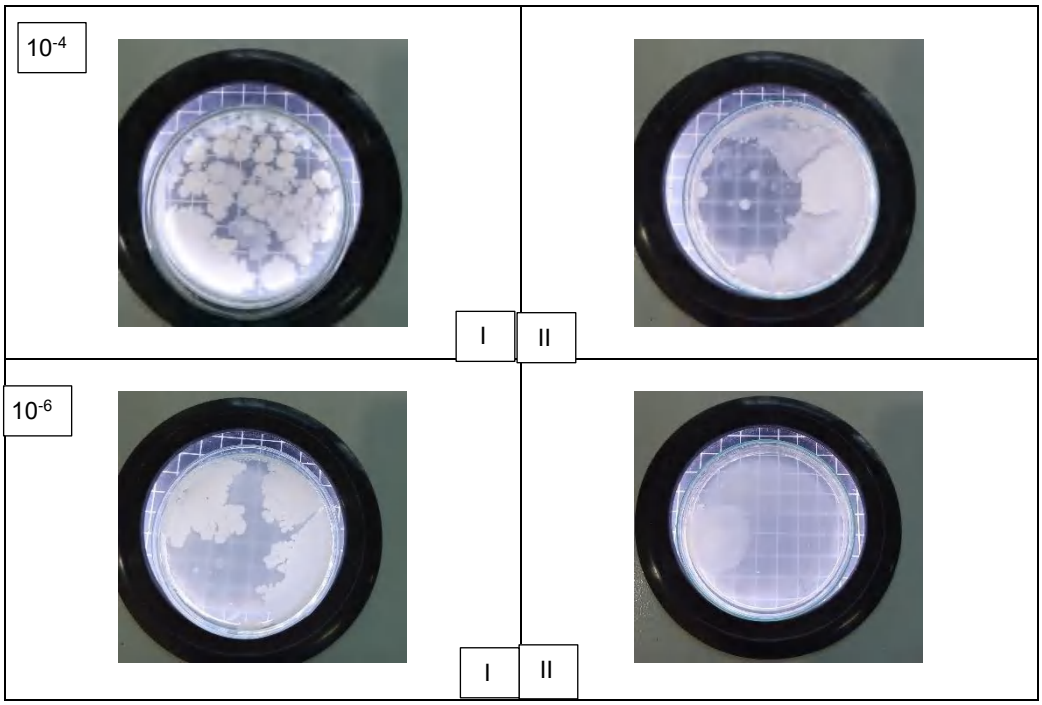
Lampiran 2.1 *Soybean-Casein Digest Agar* (SCDA)

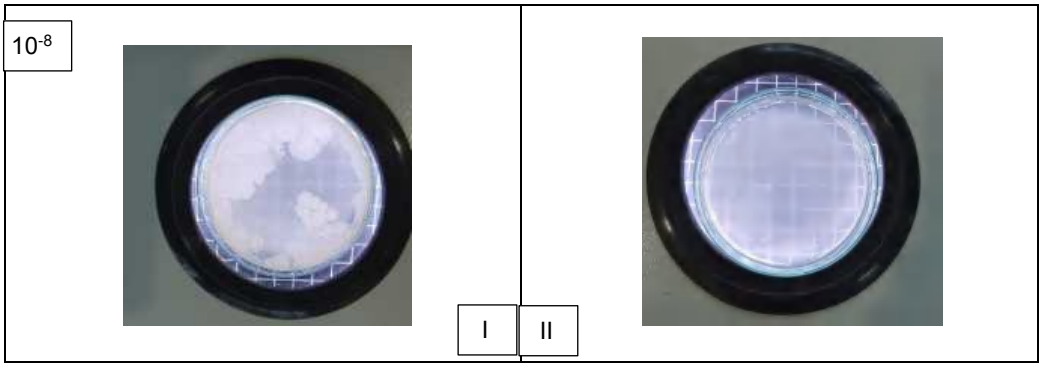
Pancreatic digest of casein	15,0 g
Papaic digest of soybean	5,0 g
Natrium klorida	5,0 g
Agar	15,0 g
Air	1000 mL

Lampiran 2.2 *Sabouraud Dextrose Agar* (SDA)

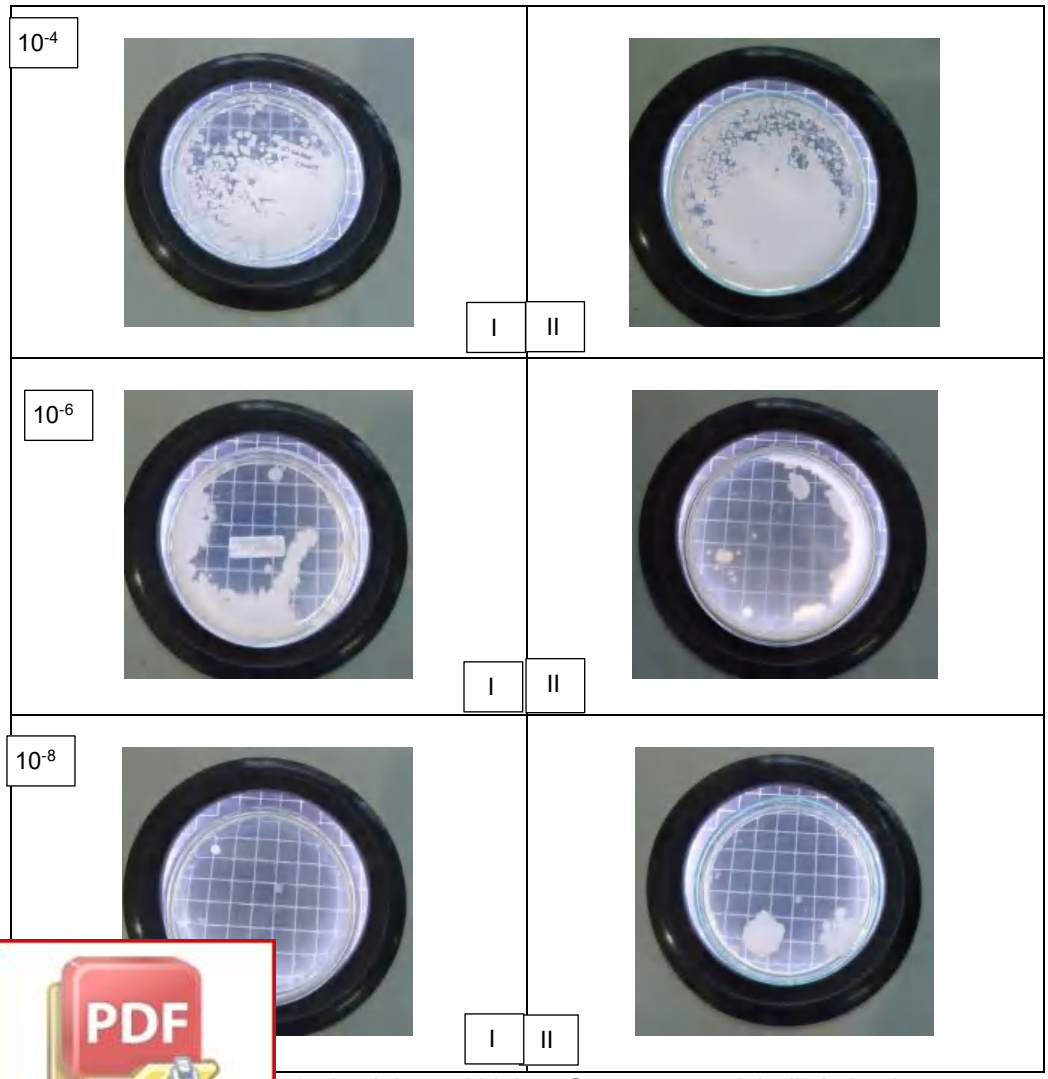
Dekstrosa	40,0 g
Mixture peptic digest of animal tissue and pancreatic digest of casein (1:1)	10,0 g
Agar	15,0 g
Air	1000 mL

Lampiran 3. Hasil pengamatan

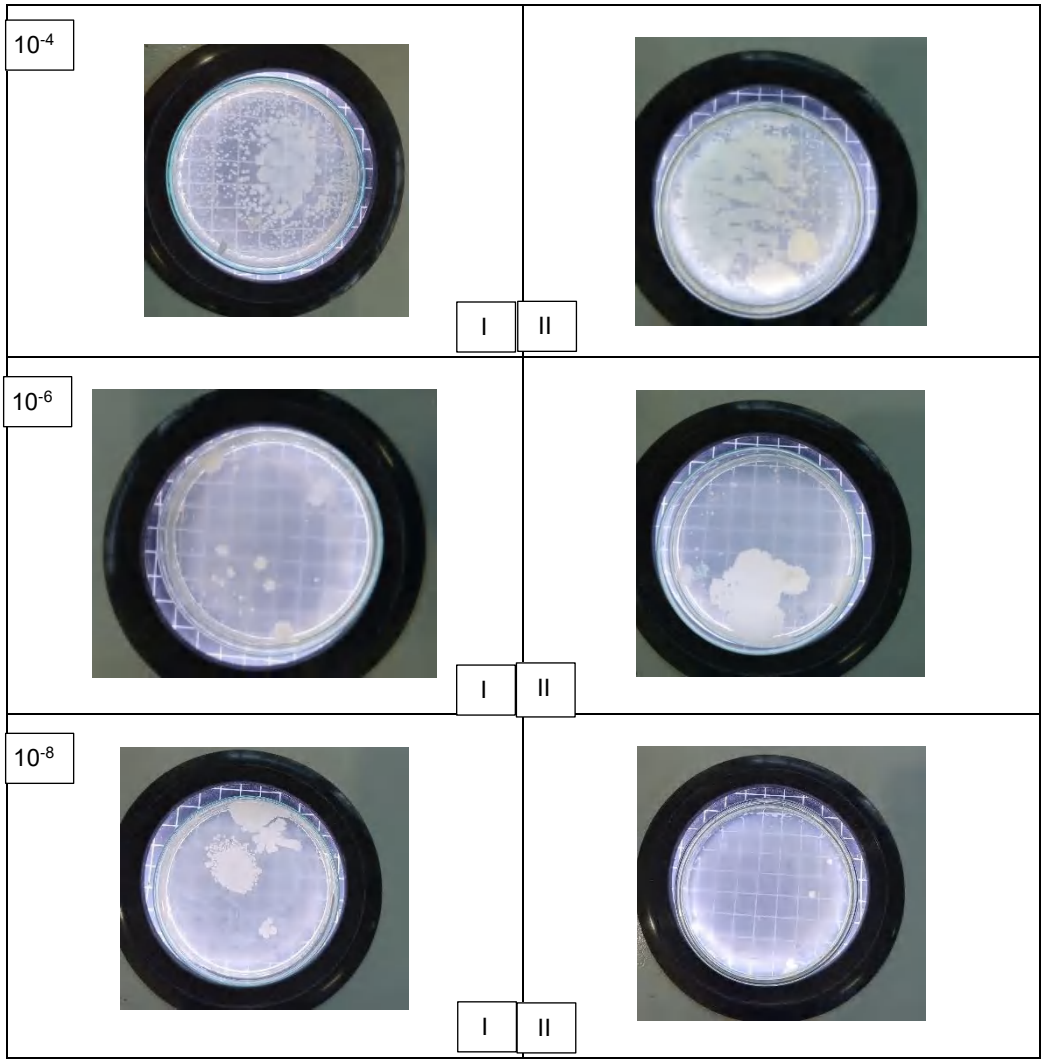




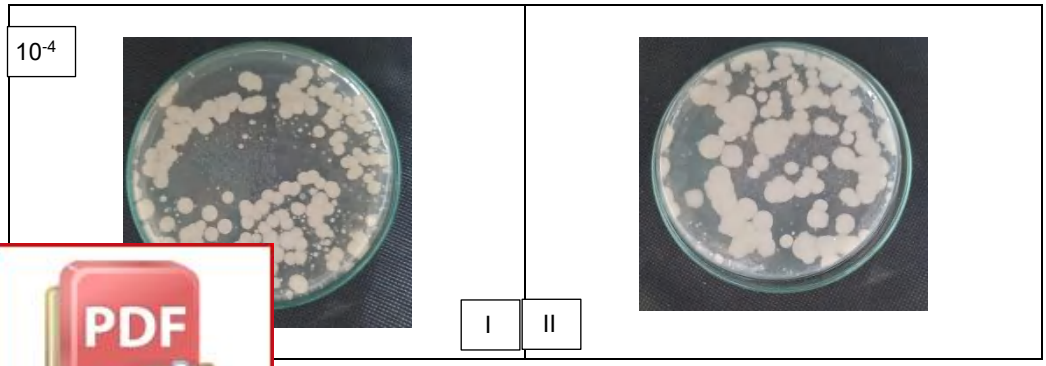
Gambar 7. Jumlah awal biakan *E. coli* setelah diinkubasi

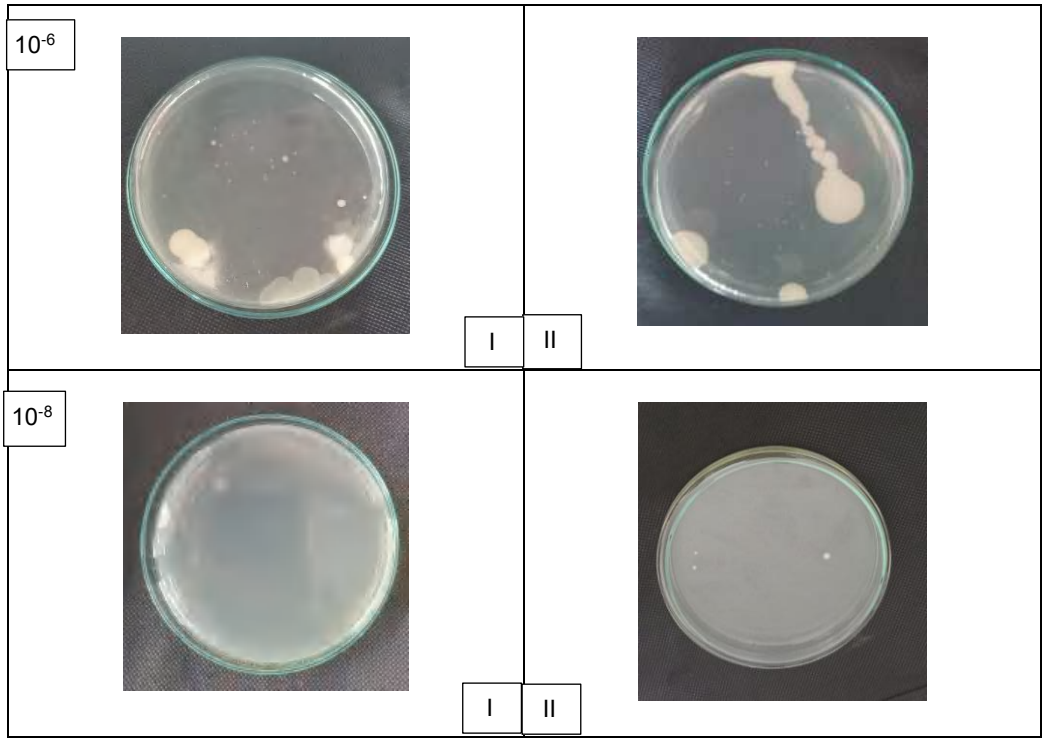


r 8. Jumlah awal biakan *S. aureus* setelah diinkubasi

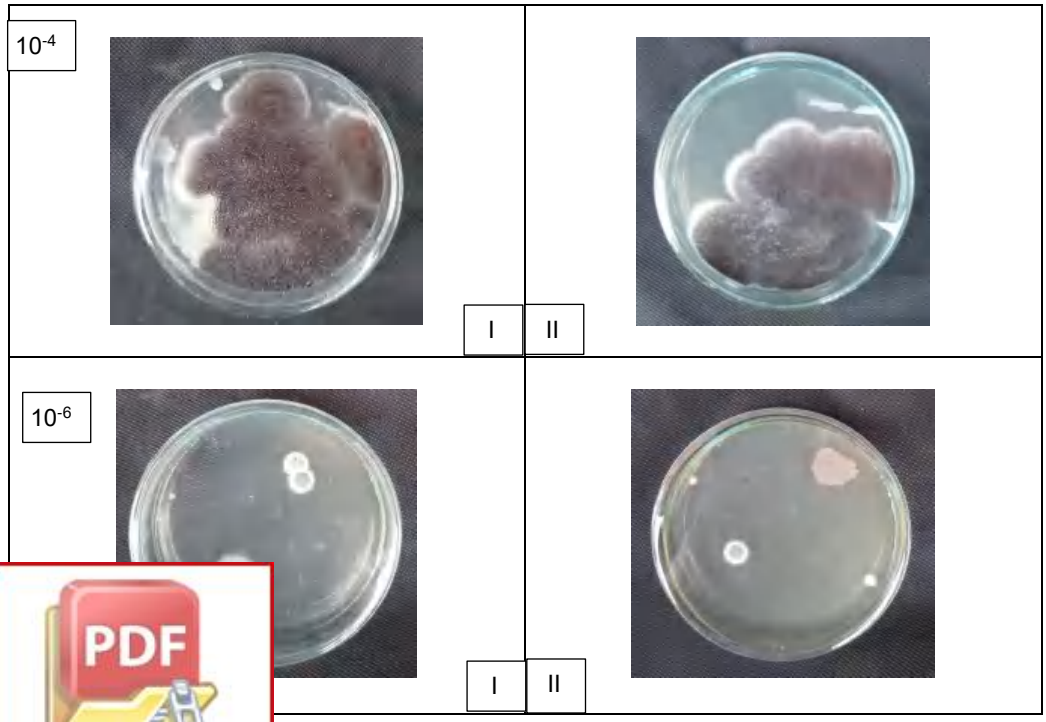


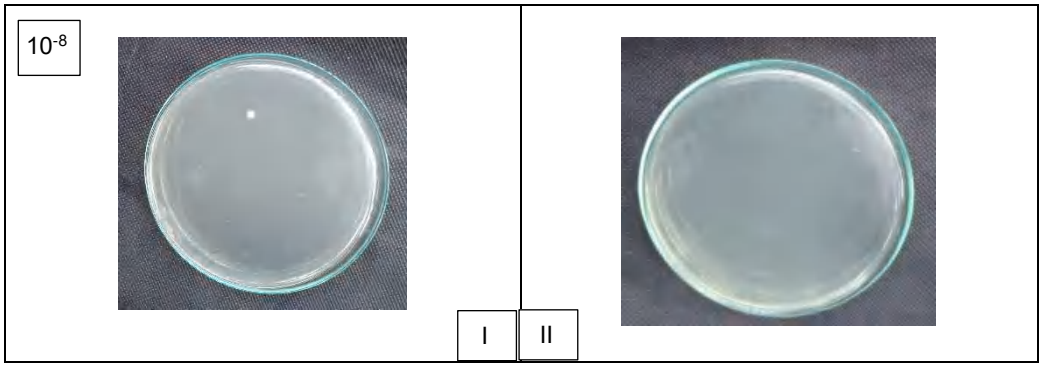
Gambar 9. Jumlah awal biakan *P. aeruginosa* setelah diinkubasi



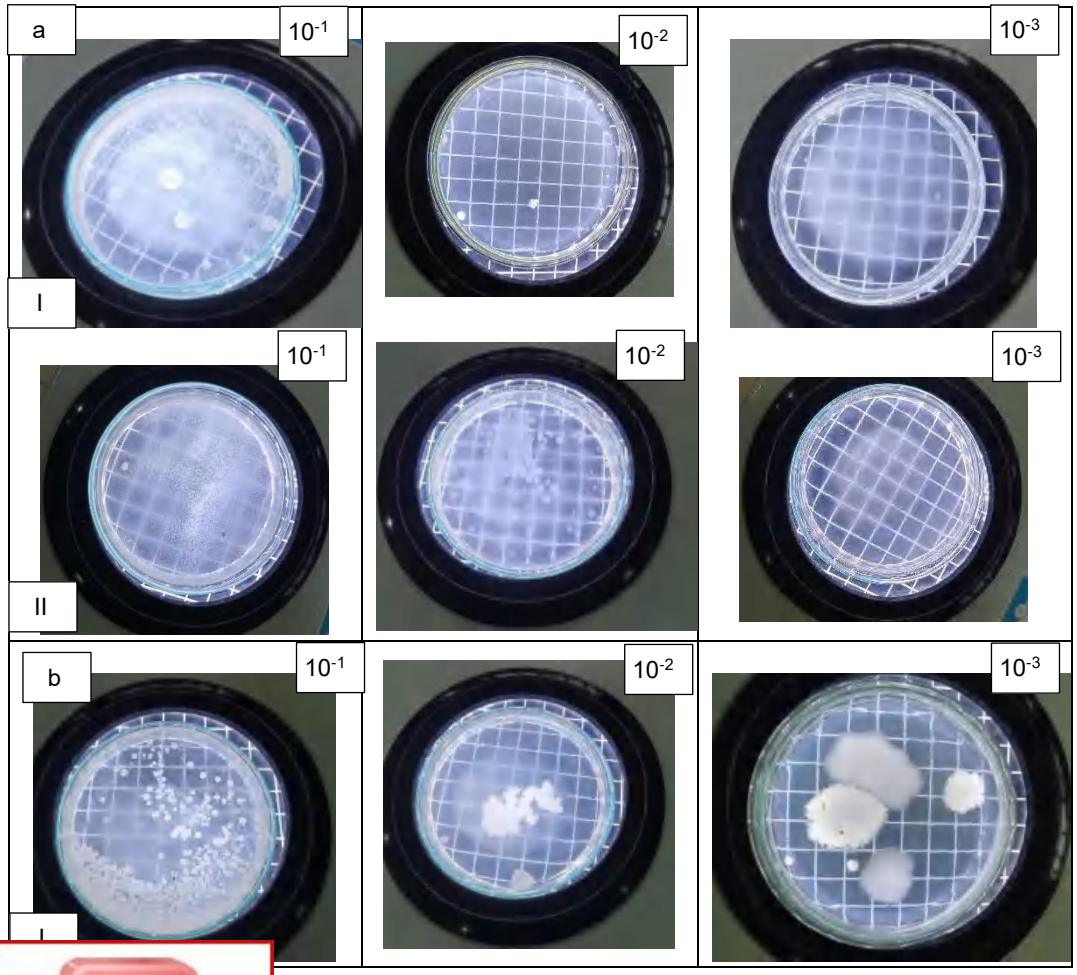


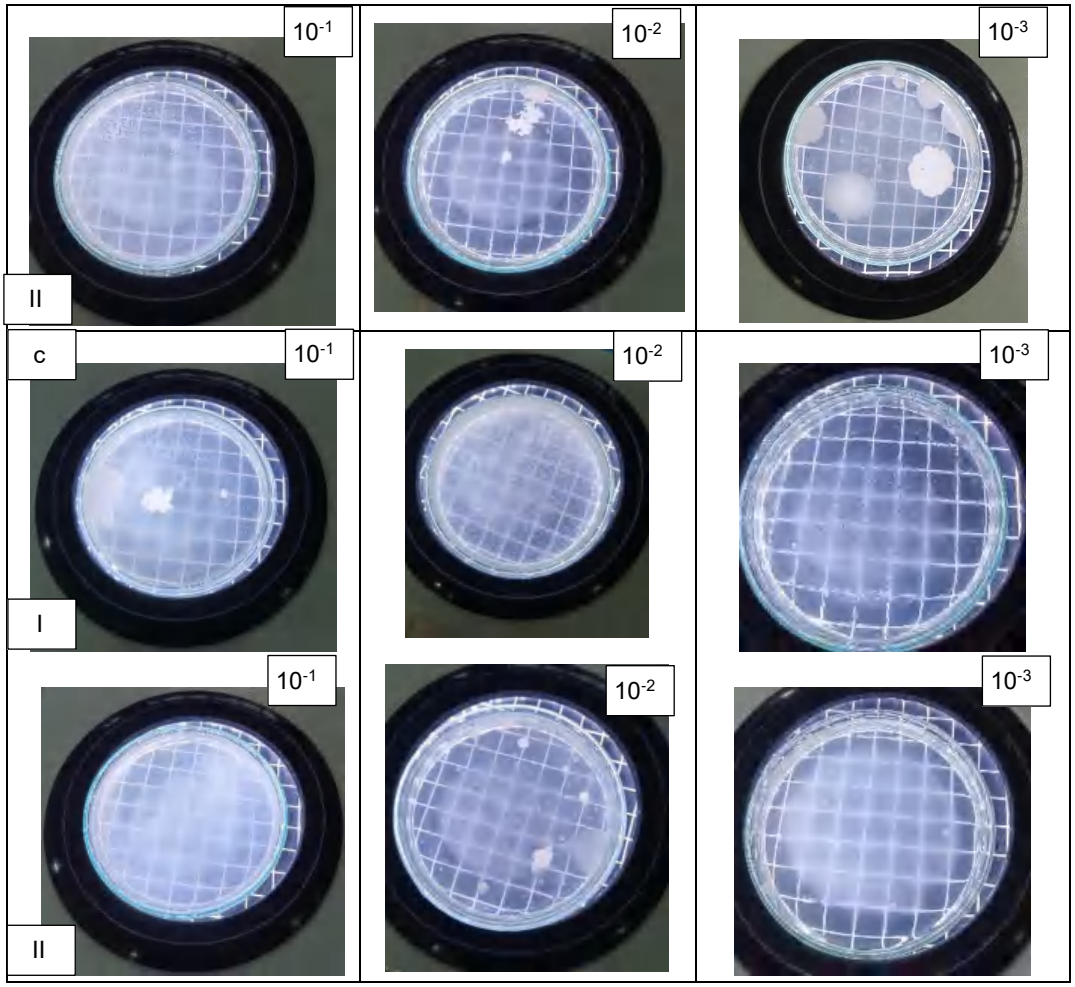
Gambar 10. Jumlah awal biakan *C. albicans* setelah diinkubasi



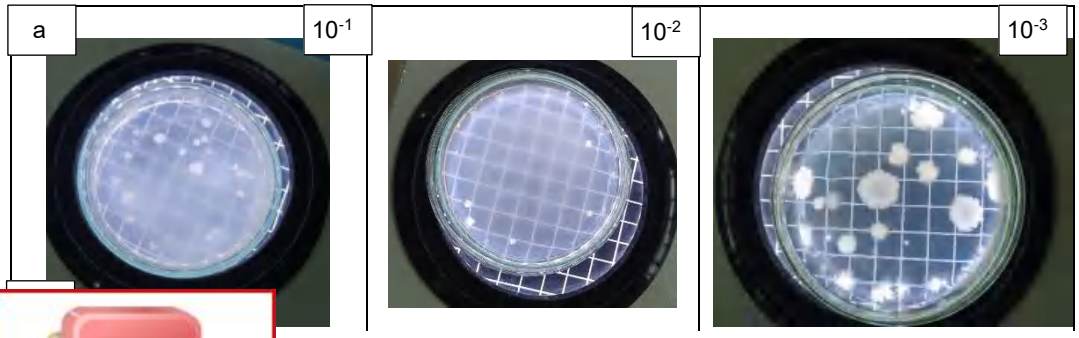


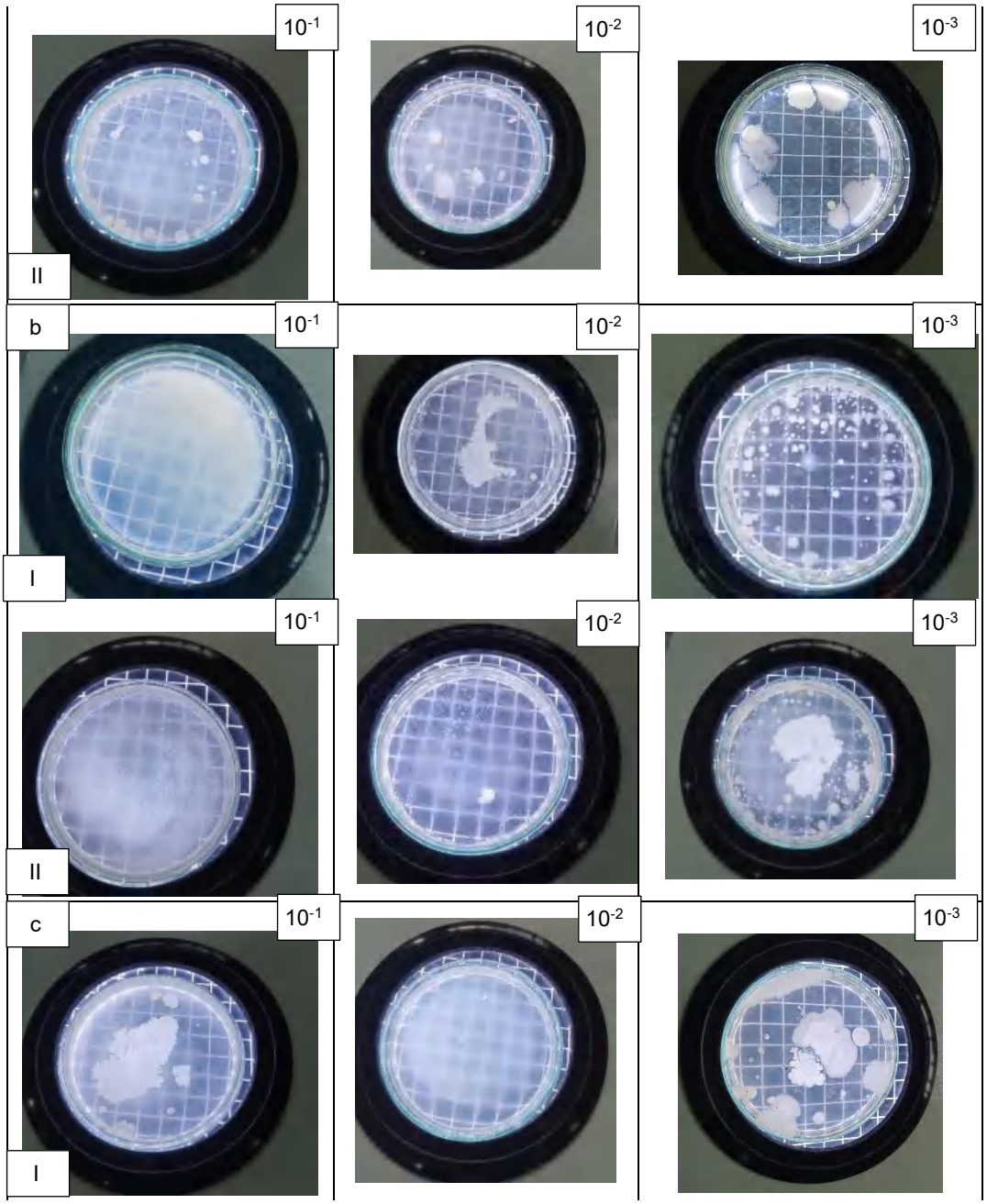
Gambar 11. Jumlah awal biakan *A. niger* setelah diinkubasi

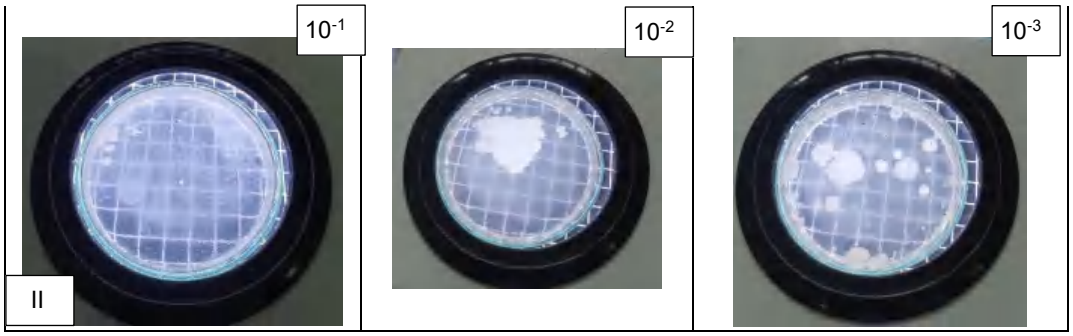




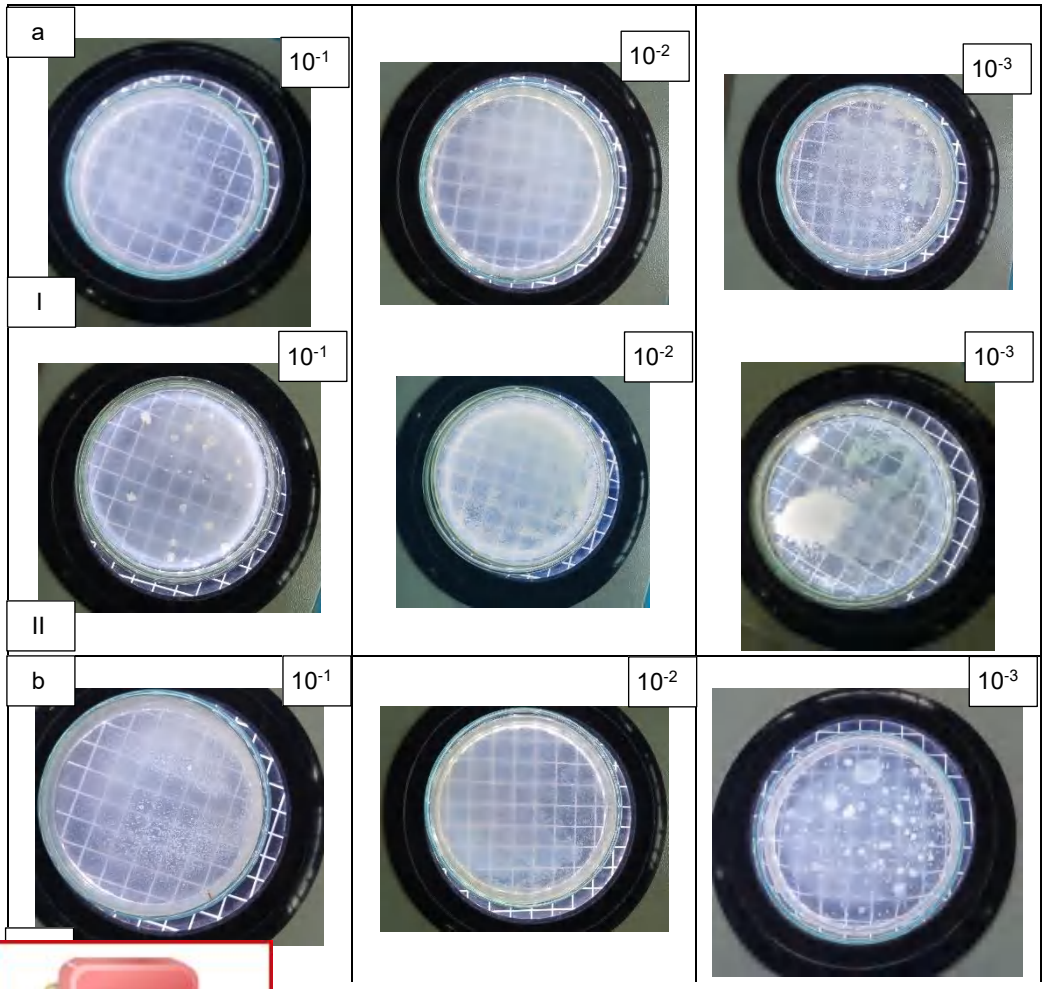
Gambar 12. Pengamatan hari ke-14 biakan *E. coli* (a) Formula 1 (b) Formula 2 (c) Formula 3

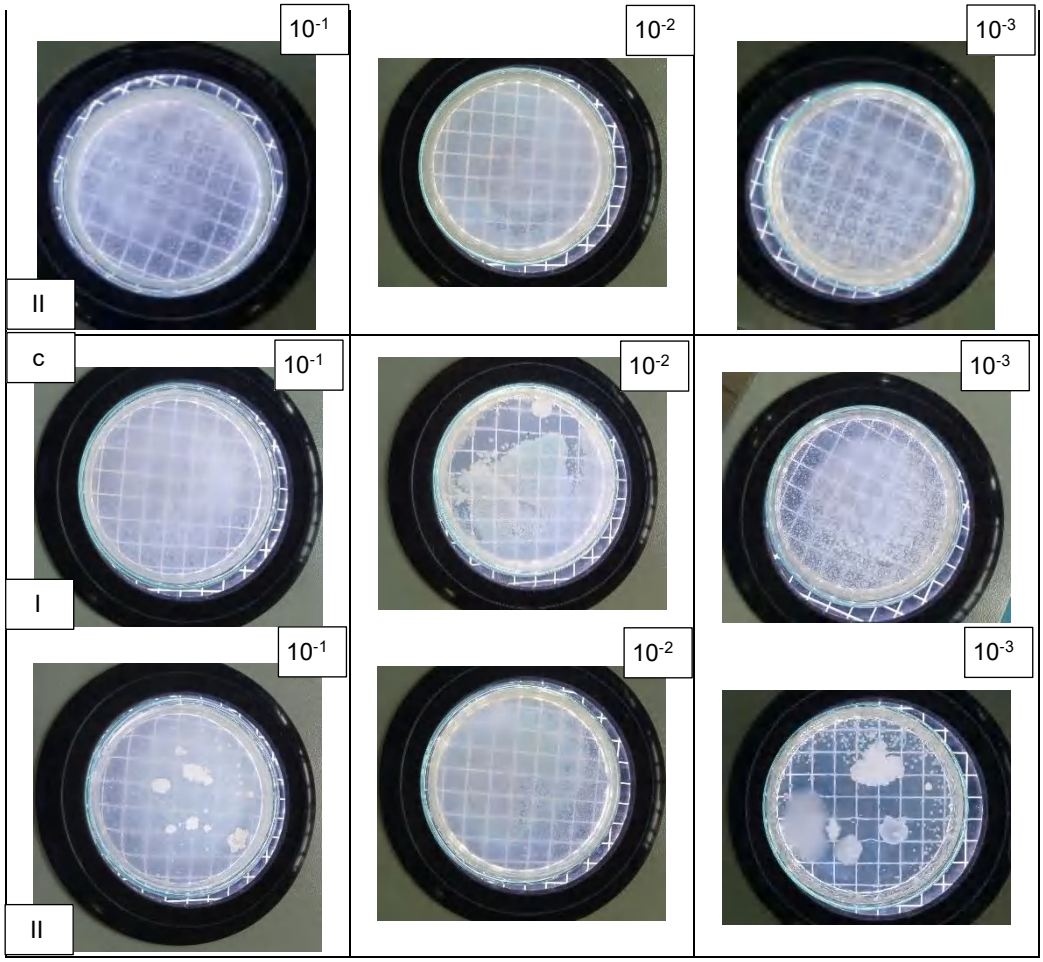




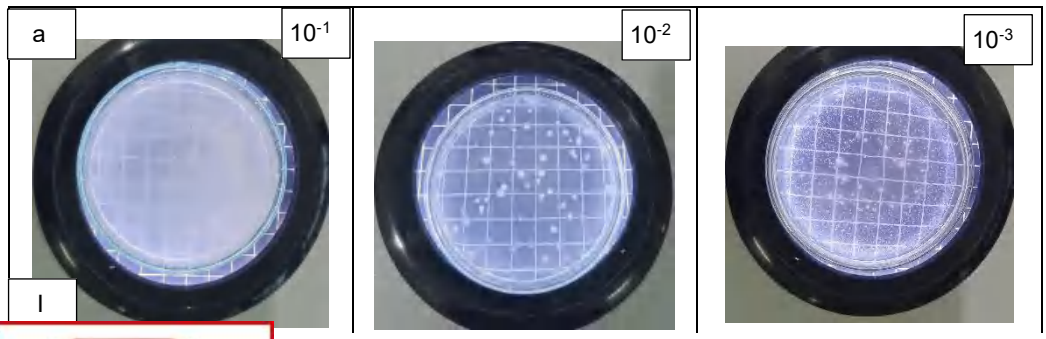


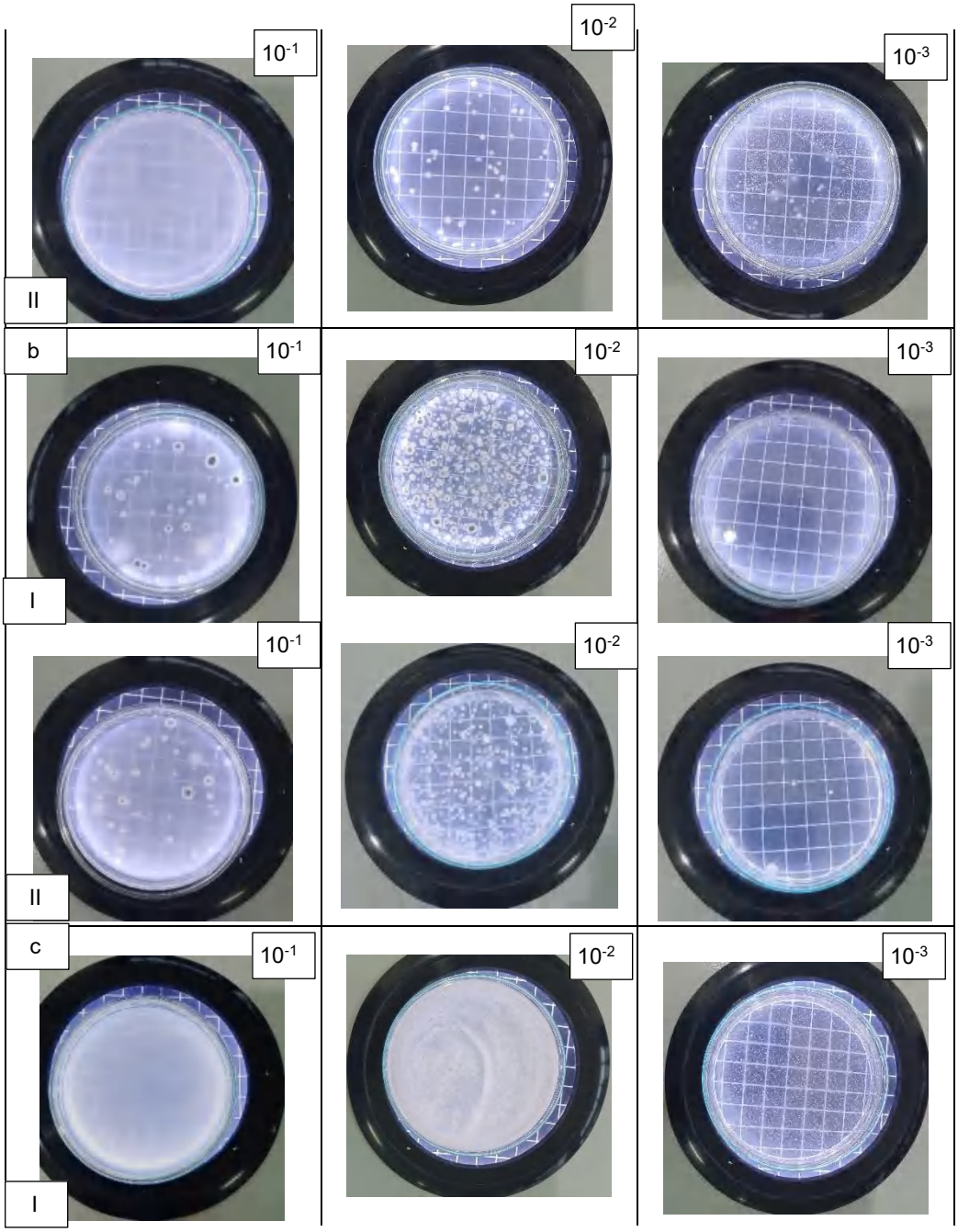
Gambar 13. Pengamatan hari ke-14 biakan *S. aureus* (a) Formula 1 (b) Formula 2 (c) Formula 3

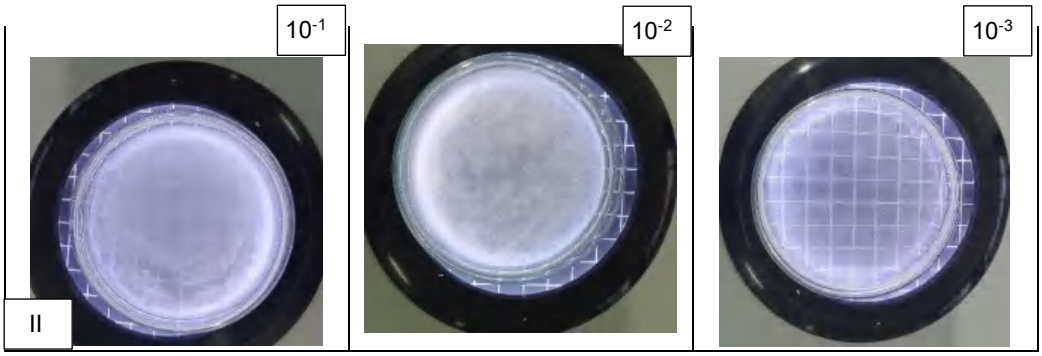




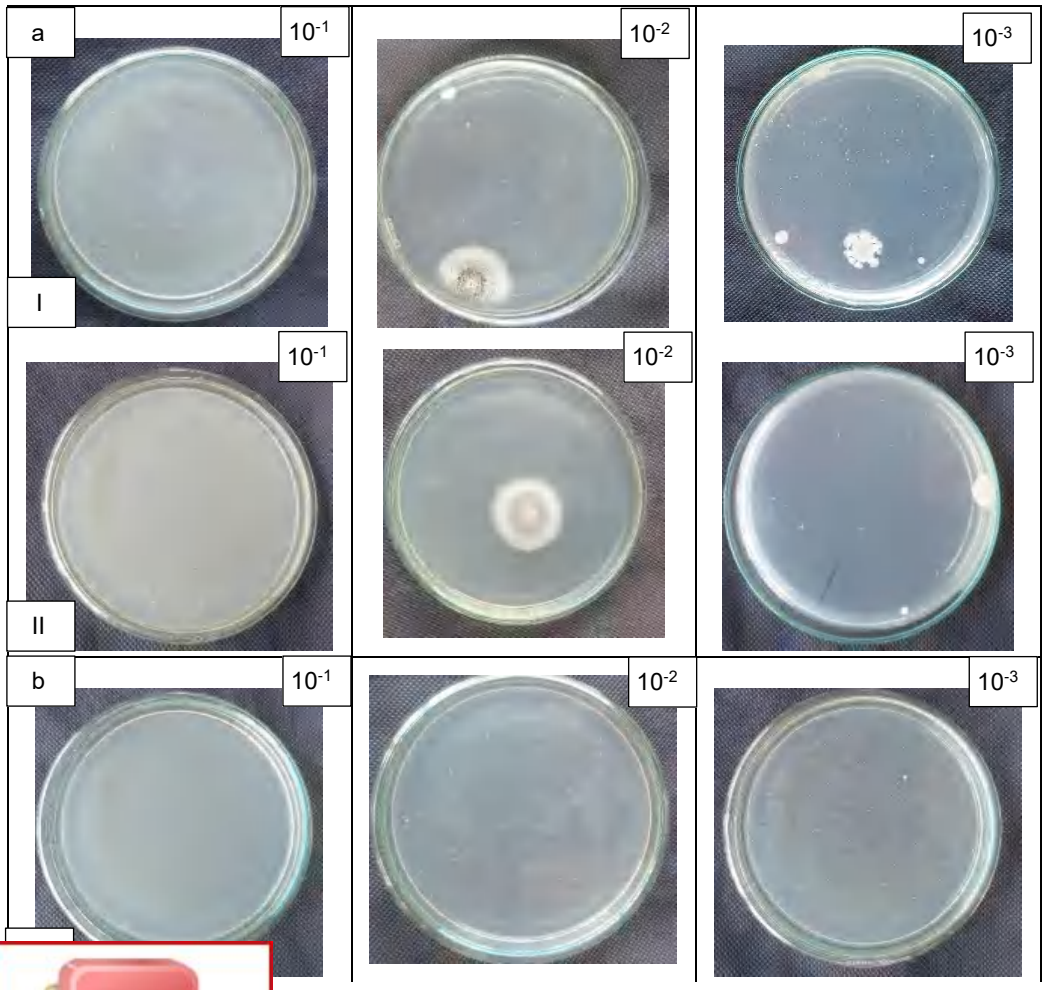
Gambar 14. Pengamatan hari ke-14 biakan *P. aeruginosa* (a) Formula 1 (b) Formula 2 (c) Formula 3

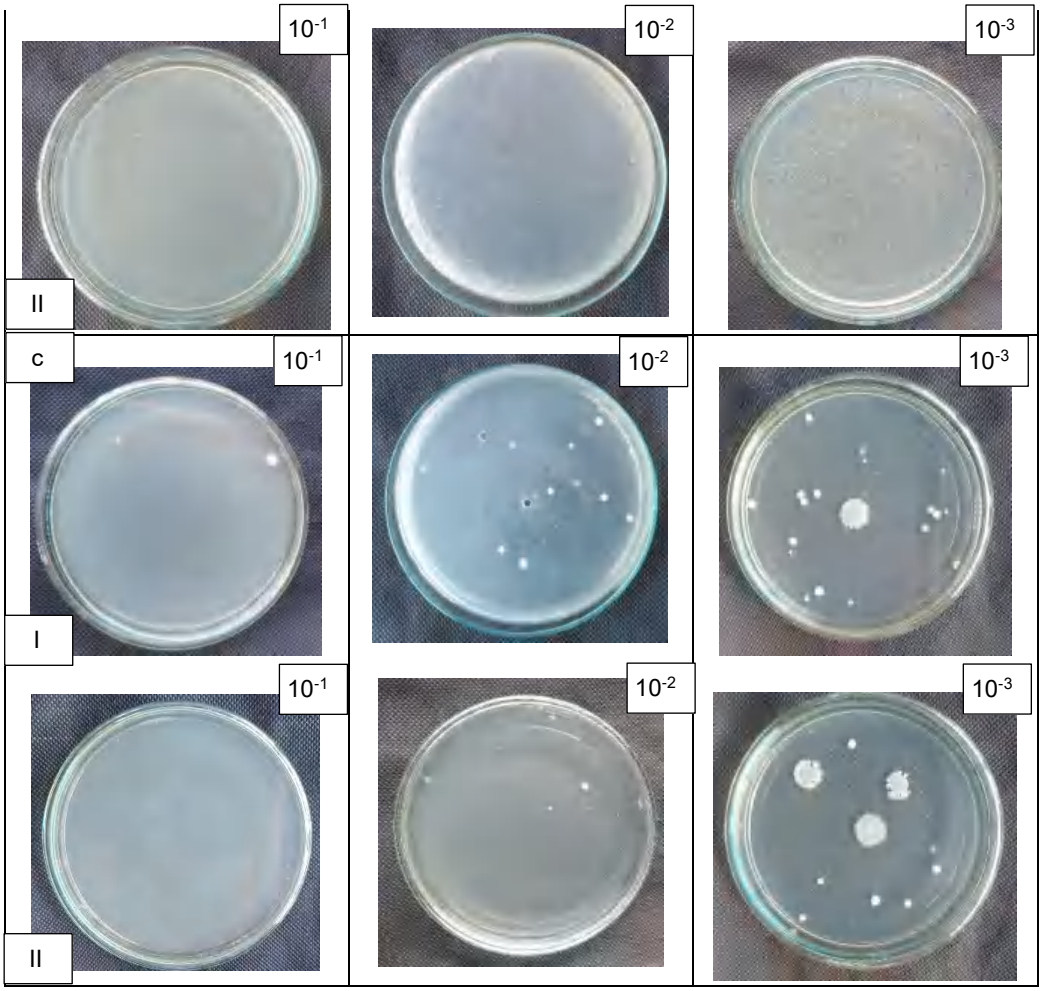




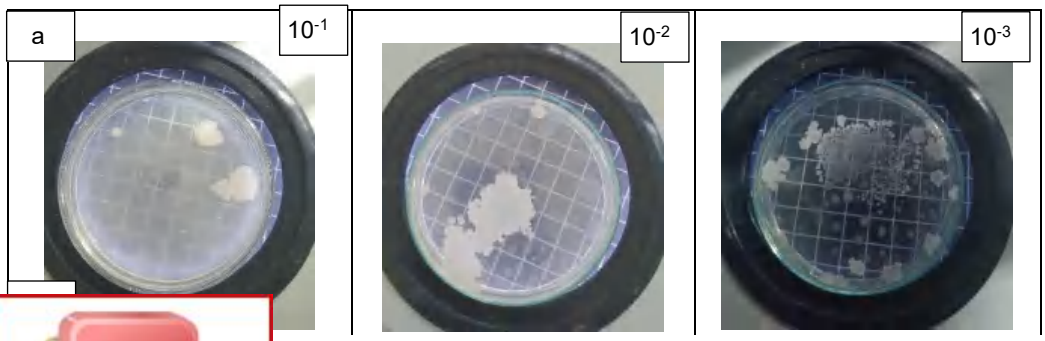


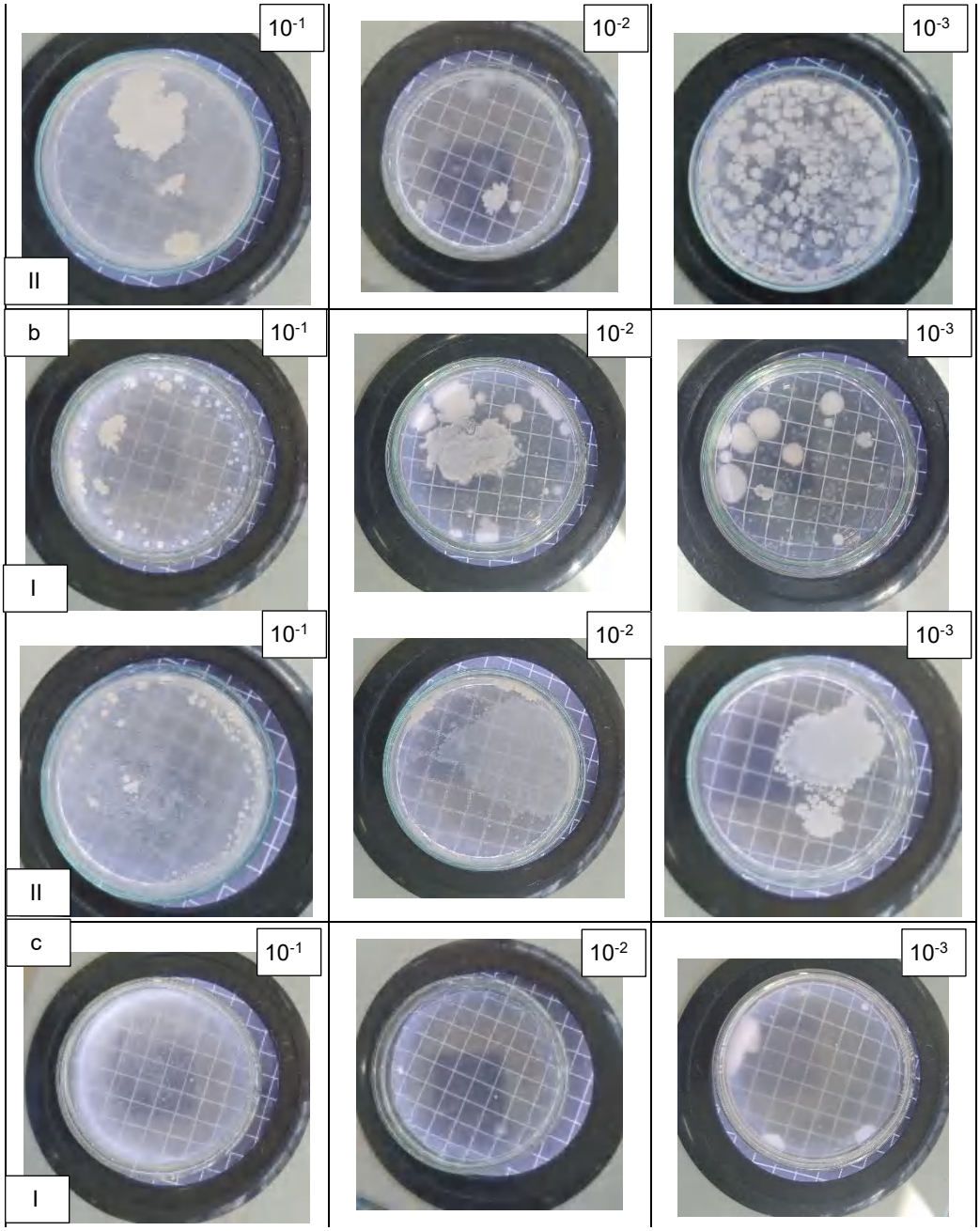
Gambar 15. Pengamatan hari ke-14 biakan *C. albicans* (a) Formula 1 (b) Formula 2 (c) Formula 3

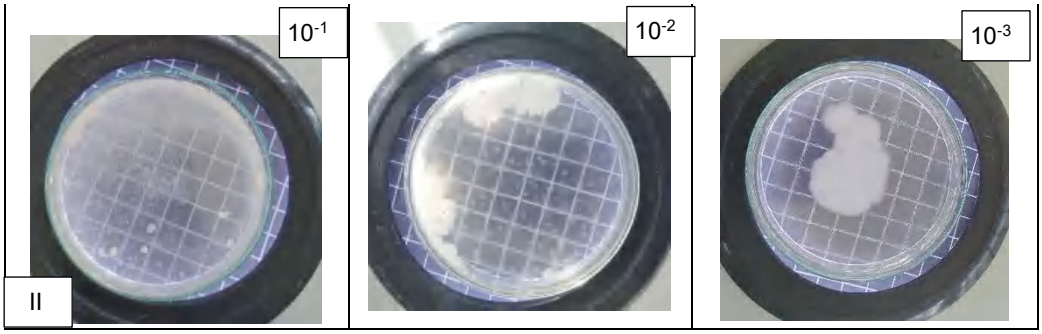




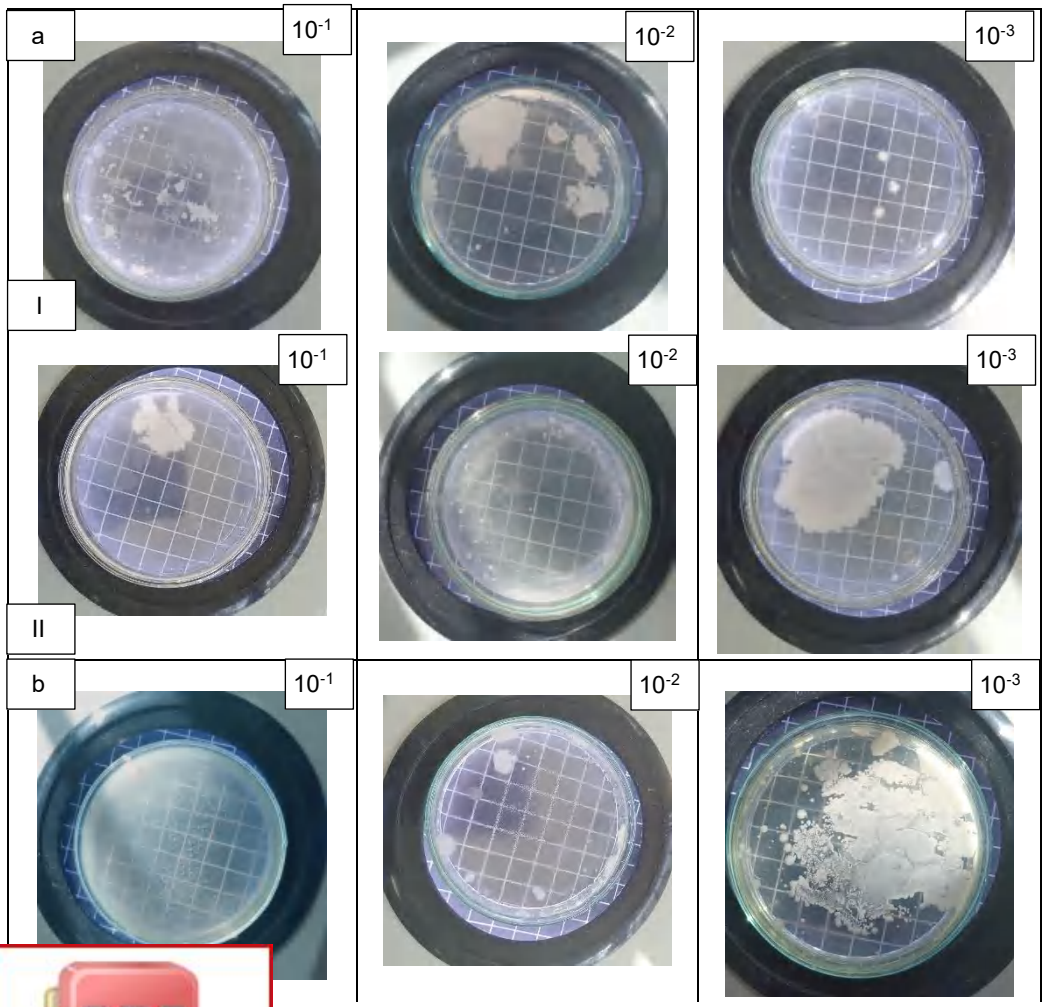
Gambar 16. Pengamatan hari ke-14 biakan *A. niger* (a) Formula 1 (b) Formula 2 (c) Formula 3

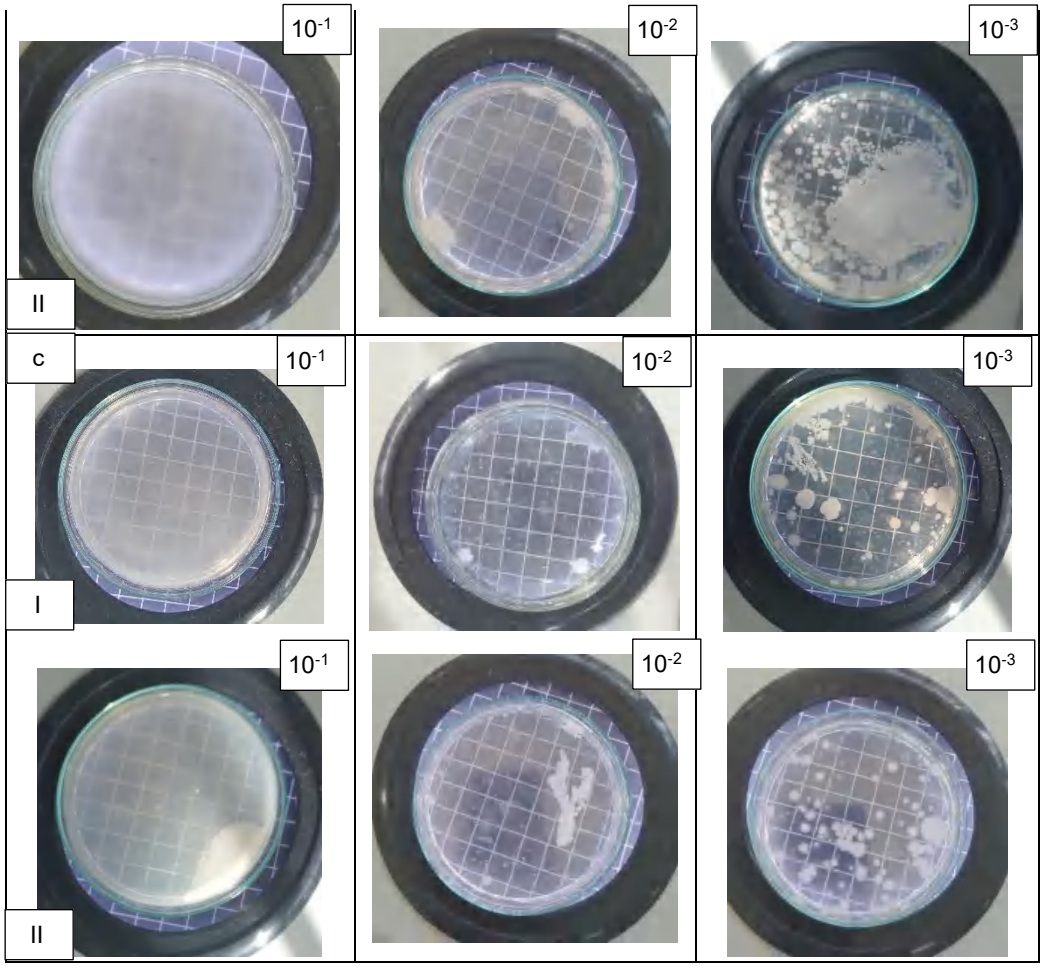




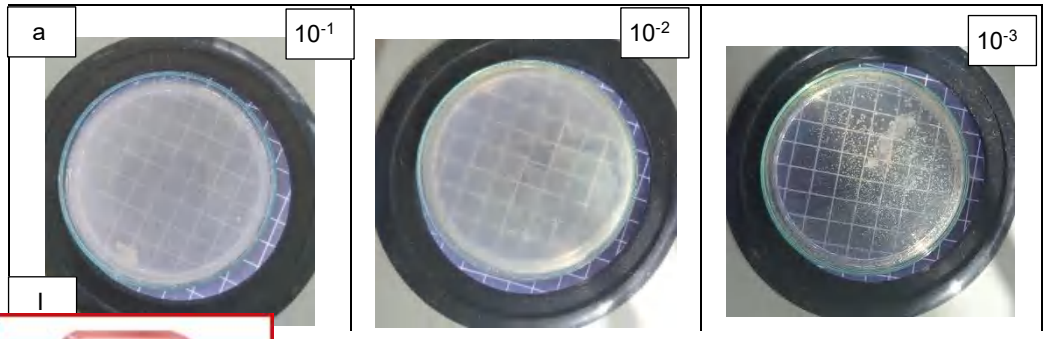


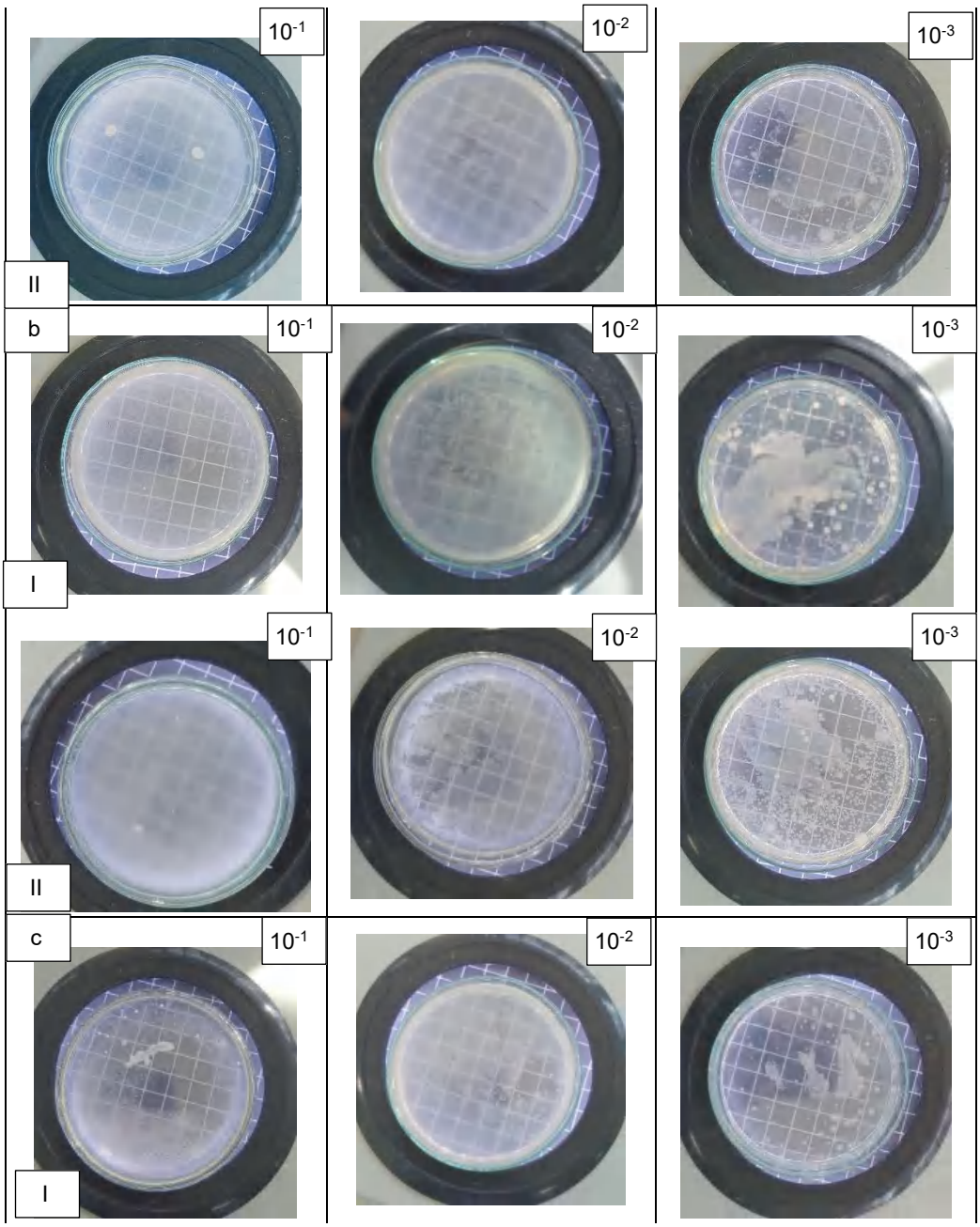
Gambar 17. Pengamatan hari ke-28 biakan *E. coli* (a) Formula 1 (b) Formula 2 (c) Formula 3

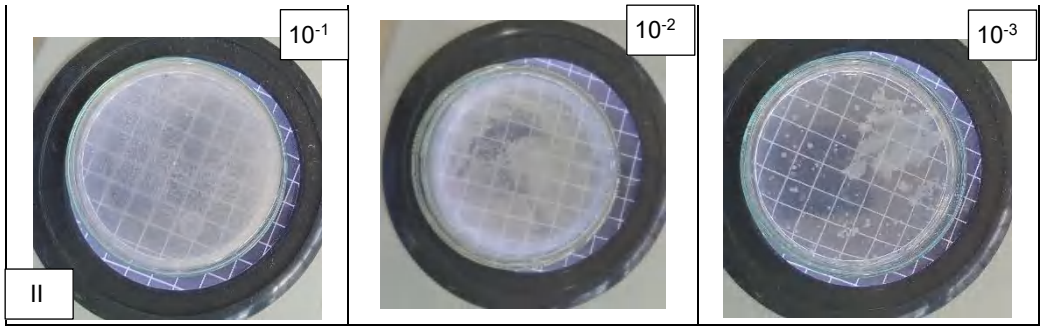




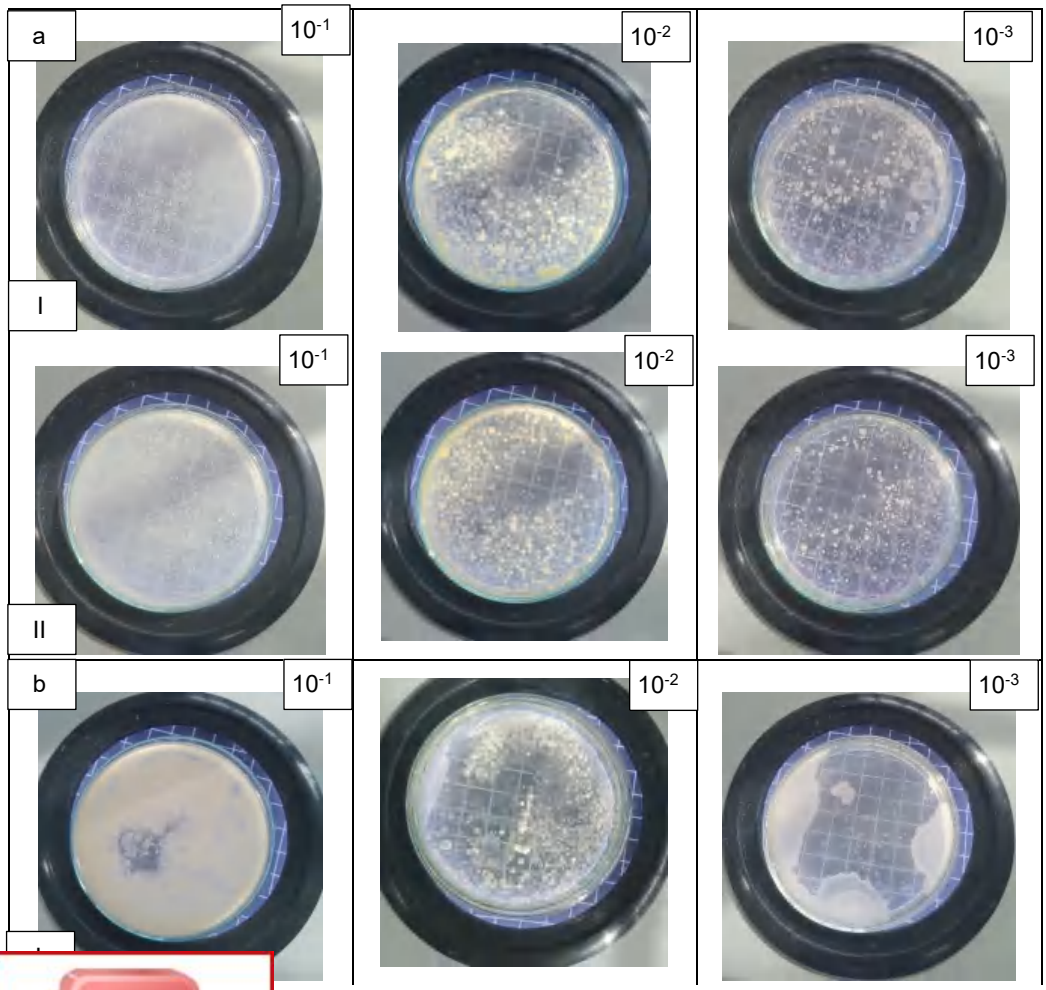
Gambar 18. Pengamatan hari ke-28 biakan *S. aureus* (a) Formula 1 (b) Formula 2 (c) Formula 3

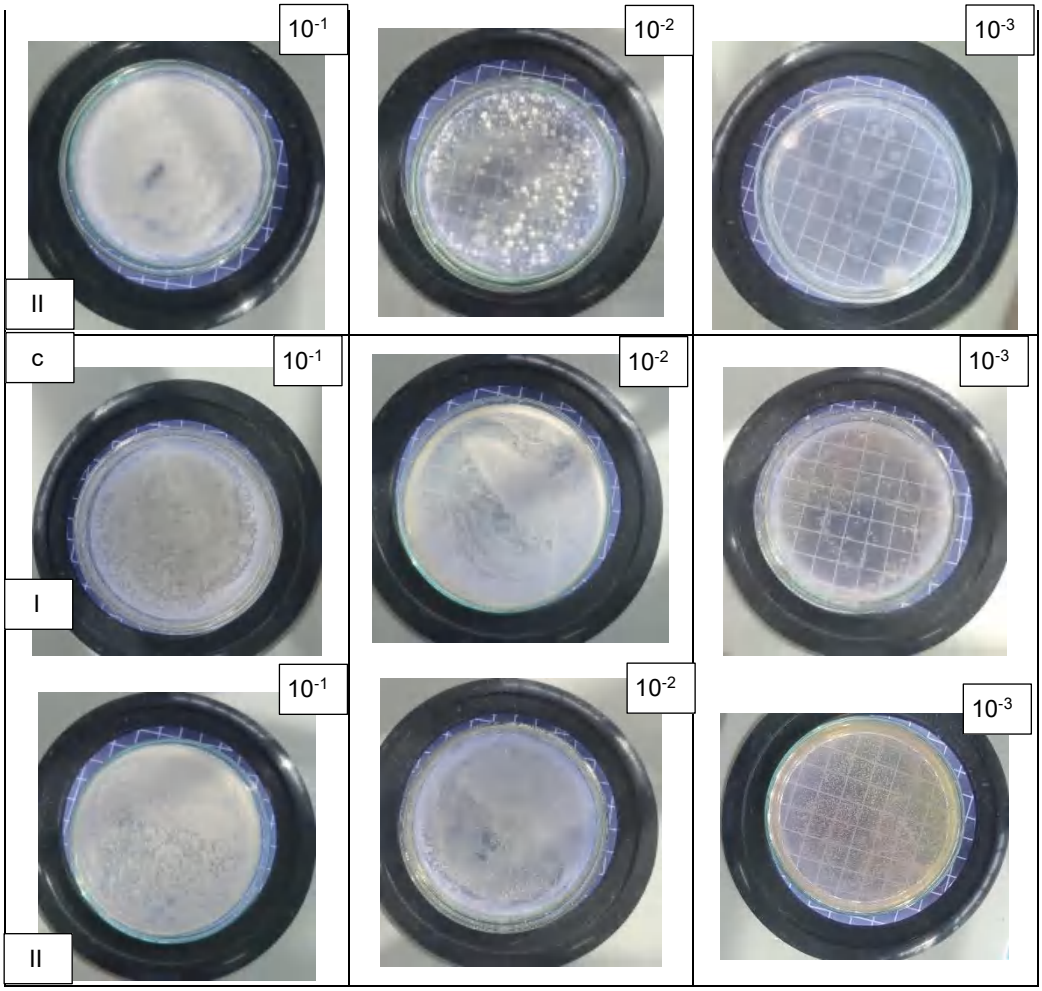




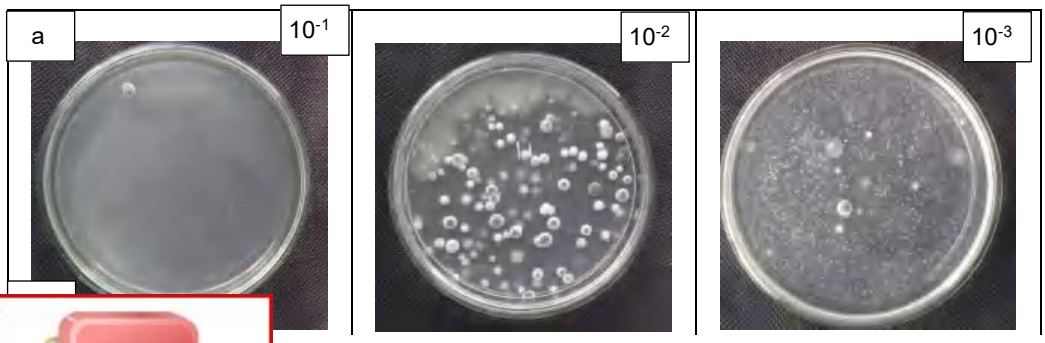


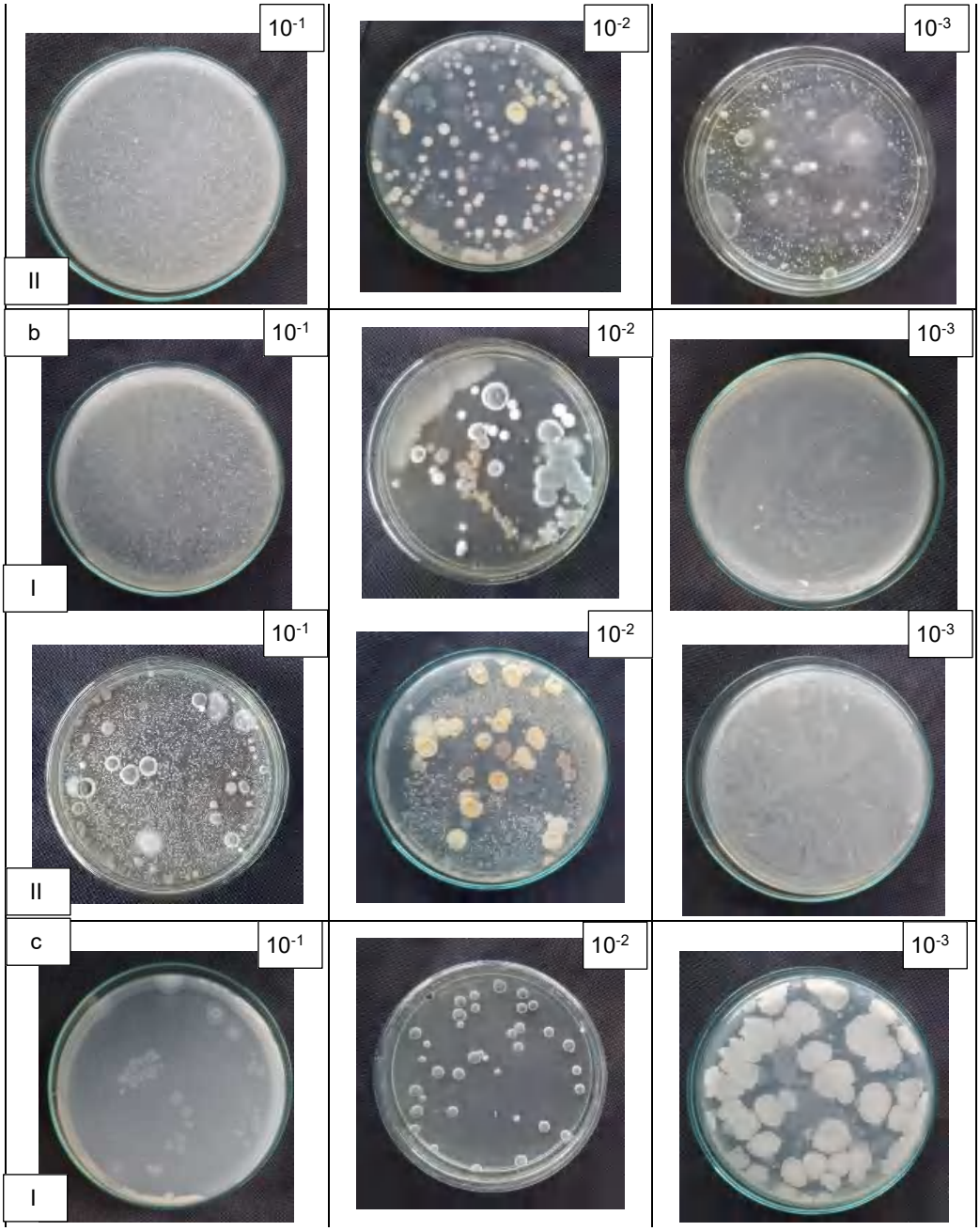
Gambar 19. Pengamatan hari ke-28 biakan *P. aeruginosa* (a) Formula 1 (b) Formula 2 (c) Formula 3

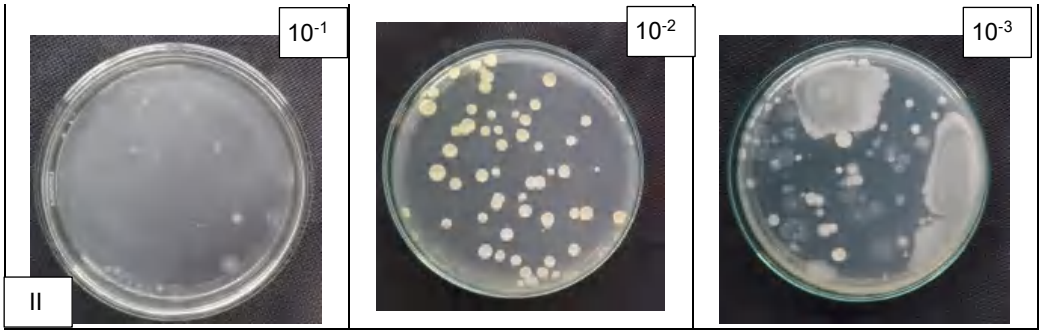




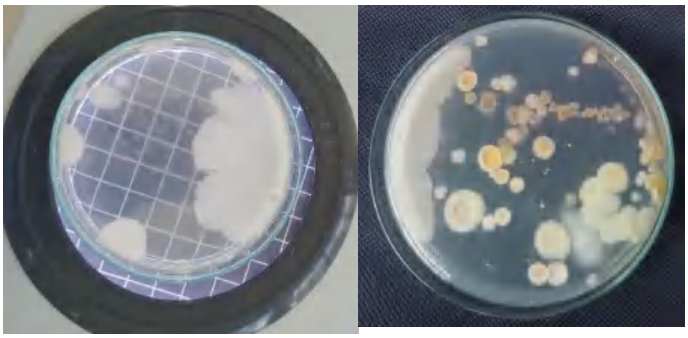
Gambar 20. Pengamatan hari ke-28 biakan *C. albicans* (a) Formula 1 (b) Formula 2 (c) Formula 3







Gambar 21. Pengamatan hari ke-28 biakan *A. niger* (a) Formula 1 (b) Formula 2 (c) Formula 3



Gambar 22. Kontrol negatif

Lampiran 4. Perhitungan data

Lampiran 4.1 Perhitungan jumlah awal mikroba

Tabel 8. Hasil pengamatan jumlah awal *E. coli*

Replikasi	Jumlah sampel per pengenceran		
	10^{-4}	10^{-6}	10^{-8}
I	35	9	2
II	27	8	11
Rata-rata	31	8.5	6.5

Nilai ALT $= 31 \times \frac{1}{10^{-4}} = 31 \times 10^4$

$= 3{,}1 \times 10^5$ cfu/mL

matan jumlah awal *S. aureus*

Jumlah sampel per pengenceran		
10^{-4}	10^{-6}	10^{-8}
55	14	3
44	12	7

Rata-rata	49.5	13	5

Nilai ALT $= 49,5 \times \frac{1}{10^{-4}}$ $= 49,5 \times 10^4$

$= 4,95 \times 10^5$ cfu/mL

$= 5,0 \times 10^6$ cfu/mL

Tabel 10. Hasil pengamatan jumlah awal *P. aeruginosa*

Replikasi	Jumlah sampel per pengenceran		
	10^{-4}	10^{-6}	10^{-8}
I	293	32	6
II	115	61	5
Rata-rata	204	46.5	5.5

Nilai ALT 10^{-4} $= 204 \times \frac{1}{10^{-4}}$ $= 204 \times 10^4$

$= 2,04 \times 10^6$ cfu/mL

Nilai ALT 10^{-6} $= 46,5 \times \frac{1}{10^{-6}}$ $= 46,5 \times 10^6$

$= 46,5 \times 10^6$ cfu/mL

Nilai ALT $= \frac{46,5 \times 10^6 \text{ cfu/mL}}{2,04 \times 10^6 \text{ cfu/mL}}$

$= 22,7 > 2$ (diambil pengenceran terendah)

$= 2,04 \times 10^6$ cfu/mL

$= 2,0 \times 10^6$ cfu/mL

Tabel 11. Hasil pengamatan jumlah awal *C. albicans*

Replikasi	Jumlah sampel per pengenceran		
	10^{-4}	10^{-6}	10^{-8}
I	157	28	3
II	116	21	4
Rata-rata	136.5	24.5	3.5

$6,5 \times \frac{1}{10^{-4}}$ $= 136,5 \times 10^4$

$= 1,365 \times 10^6$ cfu/mL

$5 \times \frac{1}{10^{-6}}$ $= 24,5 \times 10^6$

$= 24,5 \times 10^6$ cfu/mL

Nilai AKK $= \frac{24{,}5 \times 10^6 \text{ cfu/mL}}{1{,}365 \times 10^6 \text{ cfu/mL}}$

= 17,9 > 2 (diambil pengenceran terendah)

= $1{,}365 \times 10^6$ cfu/mL

= $1{,}4 \times 10^6$ cfu/mL

Tabel 12. Hasil pengamatan jumlah awal *A. niger*

Replikasi	Jumlah sampel per pengenceran		
	10^{-4}	10^{-6}	10^{-8}
I	14	4	0
II	16	6	4
Rata-rata	15	5	2

Nilai AKK $= 15 \times \frac{1}{10^{-4}}$ $= 15 \times 10^4$

$= 1{,}5 \times 10^5$ cfu/mL

Lampiran 4.2 Perhitungan log reduksi

Tabel 13. Hasil pengamatan jumlah *E. coli* dalam rentang waktu pengamatan

Jenis Pengawet	Hari Pengamatan	Pengenceran		
		10^{-1}	10^{-2}	10^{-3}
F1	14	9	41	92
		2	6	1
	Rata-rata	5.5	23.5	46.5
	28	15	38	TBUD
		8	11	45
	Rata-rata	11.5	24.5	TBUD
F2	14	1	7	5
		8	9	25
	Rata-rata	4.5	8	15
	28	TBUD	14	11
		TBUD	51	90
	Rata-rata	TBUD	32.5	50.5
F3	14	2	38	9
		3	71	4
	Rata-rata	2.5	54.5	6.5
	28	11	15	7
		36	70	3

	Rata-rata	23.5	42.5	5

Keterangan: TBUD = Tidak bisa untuk dihitung

Perhitungan log reduksi

Log reduksi = log jumlah inokulum t_0 – log jumlah pada interval produk t_i

t_0 = Jumlah koloni awal

t_i = Jumlah koloni yang diperoleh dari hasil pengujian hari ke-i (hari ke-14)

- Metil paraben & Propil paraben
  a. 10^{-1}
     Log reduksi = Log ($3,1 \times 10^5$) – Log ($5,5 \times 10^1$)
     = 5,49 – 1,74
     = 3,75
  b. 10^{-2}
     Log reduksi = Log ($3,1 \times 10^5$) - Log ($23,5 \times 10^2$)
     = 5,49 – 3,37
     = 2,12
  c. 10^{-2}
     Log reduksi = Log ($3,1 \times 10^5$) - Log ($46,5 \times 10^3$)
     = 5,49 – 4,66
     = 0,83
- Euxyl® PE9010
  a. 10^{-1}
     Log reduksi = Log ($3,1 \times 10^5$) - Log ($4,5 \times 10^1$)
     = 5,49 – 1,65
     = 3,84
  b. 10^{-2}
     Log reduksi = Log ($3,1 \times 10^5$) - Log (8×10^2)
     = 5,49 – 2,90
     = 2,59
  c. 10^{-3}
     Log reduksi = Log ($3,1 \times 10^5$) - Log (15×10^3)
     = 5,49 – 4,17
     = 1,32
- Natrium benzoat & kalium sorbat
  a. 10^{-1}
     Log reduksi = Log ($3,1 \times 10^5$) - Log ($2,5 \times 10^1$)
     = 5,49 – 1,39
     = 4,1

     = Log ($3,1 \times 10^5$) - Log ($54,5 \times 10^2$)
     = 5,49 – 3,73
     = 1,76

c. 10^{-3}

Log reduksi = Log ($3,1 \times 10^5$) - Log ($6,5 \times 10^3$)
= 5,49 – 3,81
= 1,68

Tabel 14. Hasil pengamatan jumlah *S. aureus* dalam rentang waktu pengamatan

Jenis Pengawet	Hari Pengamatan	Pengenceran		
		10^{-1}	10^{-2}	10^{-3}
F1	14	25	75	19
		26	8	31
	Rata-rata	25.5	41.5	25
	28	TBUD	15	15
		TBUD	5	40
	Rata-rata	TBUD	10	27.5
F2	14	0	4	60
		10	4	107
	Rata-rata	5	4	83.5
	28	2	29	51
		TBUD	24	TBUD
	Rata-rata	TBUD	26.5	TBUD
F3	14	12	6	24
		9	5	38
	Rata-rata	10.5	5.5	31
	28	11	TBUD	61
		6	TBUD	TBUD
	Rata-rata	8.5	TBUD	61

Keterangan: TBUD = Tidak bisa untuk dihitung

Perhitungan log reduksi

Log reduksi = log jumlah inokulum t_0 – log jumlah pada interval produk t_i

t_0 = Jumlah koloni awal

t_i = Jumlah koloni yang diperoleh dari hasil pengujian hari ke-i (hari ke-14)

- Metil paraben & Propil paraben

a. 10^{-1}

Log reduksi = Log ($5,0 \times 10^6$) - Log ($25,5 \times 10^1$)
= 6,69 – 4,29
= 3.09

b. 10^{-2}

= Log ($3,1 \times 10^5$) - Log ($41,5 \times 10^2$)
= 6,69 – 3,61
= 3,08

= Log ($3,1 \times 10^5$) - Log (25×10^3)
= 6,69 – 4,39
= 2,3

- Euxyl® PE9010
  a. 10^{-1}
     Log reduksi = Log ($5,0 \times 10^6$) - Log (5×10^1)
     = 6,69 – 1,69
     = 5
  b. 10^{-2}
     Log reduksi = Log ($5,0 \times 10^6$) - Log (4×10^2)
     = 6,69 – 2,60
     = 4,09
  c. 10^{-3}
     Log reduksi = Log ($5,0 \times 10^6$) - Log ($83,5 \times 10^3$)
     = 6,69 – 4,92
     = 1,77
- Natrium benzoat & kalium sorbat
  a. 10^{-1}
     Log reduksi = Log ($5,0 \times 10^6$) - Log ($10,5 \times 10^1$)
     = 6,69 – 2,02
     = 4,67
  b. 10^{-2}
     Log reduksi = Log ($5,0 \times 10^6$) - Log ($5,5 \times 10^2$)
     = 6,69 – 2,74
     = 3,95
  c. 10^{-3}
     Log reduksi = Log ($5,0 \times 10^6$) - Log (31×10^3)
     = 6,69 – 4,49
     = 2,2

Tabel 15. Hasil pengamatan jumlah *P. aeruginosa* dalam rentang waktu pengamatan

Jenis Pengawet	Hari Pengamatan	Pengenceran		
		10^{-1}	10^{-2}	10^{-3}
F1	14	7	TBUD	TBUD
		38	108	TBUD
	Rata-rata	22.5	TBUD	TBUD
	28	TBUD	TBUD	TBUD
		TBUD	TBUD	TBUD
	Rata-rata	TBUD	TBUD	TBUD
	14	4	TBUD	119
		3	TBUD	137
	Rata-rata	3.5	TBUD	128
	28	TBUD	TBUD	TBUD
		TBUD	TBUD	2T8
	Rata-rata	TBUD	TBUD	TBUD

F3	14	TBUD	TBUD	TBUD
		51	19	TBUD
	Rata-rata	TBUD	TBUD	TBUD
	28	TBUD	TBUD	73
		TBUD	TBUD	78
	Rata-rata	TBUD	TBUD	75.5

Keterangan: TBUD = Tidak bisa untuk dihitung

Perhitungan log reduksi

Log reduksi = log jumlah inokulum t_0 – log jumlah pada interval produk t_i

t_0 = Jumlah koloni awal

t_i = Jumlah koloni yang diperoleh dari hasil pengujian hari ke-i (hari 14)

- Metil paraben & Propil paraben
  a. 10^{-1}
     Log reduksi = Log ($2,0 \times 10^6$) - Log ($22,5 \times 10^1$)
     = 6,30 – 2,35
     = 3,95
  b. 10^{-2}
     Hasil yang didapatkan tidak bisa untuk dihitung (TBUD)
  c. 10^{-3}
     Hasil yang didapatkan tidak bisa untuk dihitung (TBUD)
- Euxyl® PE9010
  a. 10^{-1}
     Log reduksi = Log ($2,0 \times 10^6$) - Log ($3,5 \times 10^1$)
     = 6,30 – 1,54
     = 4,76
  b. 10^{-2}
     Hasil yang didapatkan tidak bisa untuk dihitung (TBUD)
  c. 10^{-3}
     Log reduksi = Log ($2,0 \times 10^6$) - Log (128×10^3)
     = 6,30 – 5,10
     = 1,1
- Natrium benzoat & kalium sorbat

Hasil yang didapatkan tidak bisa untuk dihitung (TBUD)

Lampiran 4.3 Perhitungan % Rendemen

$$\text{ersen rendemen} = \frac{\text{Bobot ekstrak}}{\text{Bobot sampel awal}} \times 100\%$$

ia : 400 gram
porselen A : 5,71 gram
porselen B : 5,68 gram

Bobot ekstrak cawan porselen C : 6,03 gram
Bobot ekstrak cawan porselen D : 5,53 gram
Bobot ekstrak cawan porselen E : 6,71 gram
Bobot ekstrak cawan porselen F : 5,89 gram
Bobot ekstrak cawan porselen G : 4,86 gram

Persen rendemen $= \frac{5,71+5,68+6,03+5,53+6,71+5,89+4,86}{400\ gram} \times 100\%$

$= \frac{40,41}{400} \times 100\%$

$= 10,1025\%$

Lampiran 5. Dokumentasi penelitian

Gambar 25. Penyiapan bawang dayak

Gambar 24. Maserasi

Gambar 23. Penguapan pelarut dengan *rotary evaporator*

hasil

Gambar 27. Peremajaan mikroorganisme

Gambar 26. Pembuatan krim

Gambar 31. Pengamatan jumlah awal mikroba

Gambar 30. Inokulasi biakan

Gambar 29. Pengujian sediaan hari ke-14

Gambar 34. Pengamatan hari ke-14

Gambar 33. Pengujian sediaan hari ke-28

Gambar 32. Pengamatan hari ke-28