LAMPIRAN

Lampiran 1. Gambar tumbuhan teh hijau (*Camellia sinensis*)

Lampiran 2. Gambar simplisia dan ekstrak teh hijau (*Camellia sinensis*)
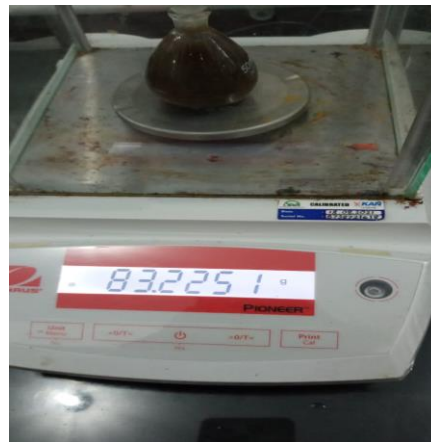

Lampiran 3. Proses Pembuatan sediaan gel

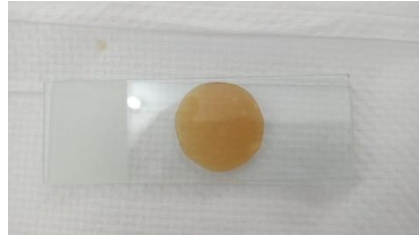**Lampiran 4. Uji kelarutan**

Lampiran 5. Uji daya sebar

Lampiran 6. Uji densitas

Lampiran 7. Uji pH
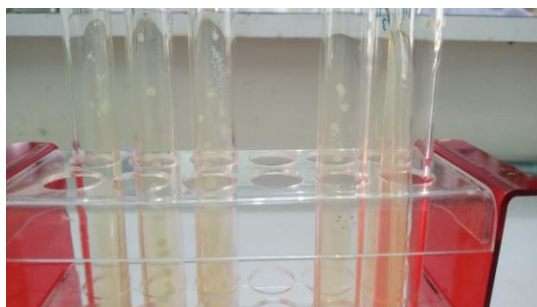
Lampiran 8. Uji homogenitas
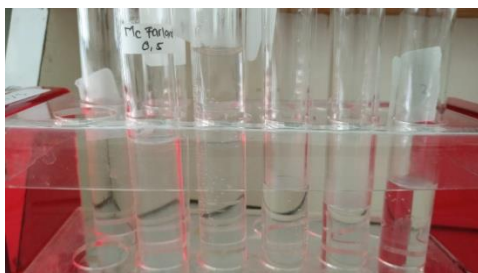

Lampiran 9. Uji viskositas

Lampiran 10. Uji daya lekat

Lampiran 11. Stok kultur bakteri *Escherichia coli*

Lampiran 12. Suspensi bakteri *Escherichia coli*

Lampiran 13. Hasil pengujian daya bunuh bakteri *Escherichia coli* sediaan formulasi 1 gel hand
sanitizer ekstrak daun teh hijau (*Camellia sinensis*)
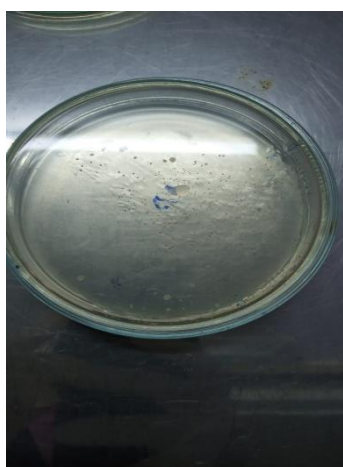
    (1A)   (1B)   (1C)

Lampiran 14. Hasil pengujian daya bunuh bakteri *Escherichia coli* sediaan formulasi 2 gel hand
sanitizer ekstrak daun teh hijau (*Camellia sinensis*)

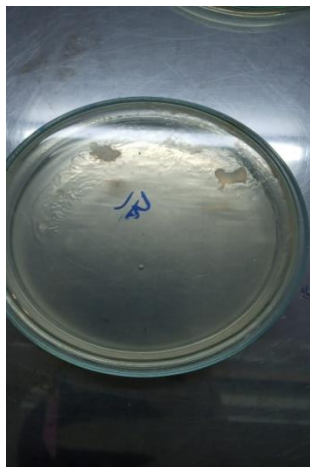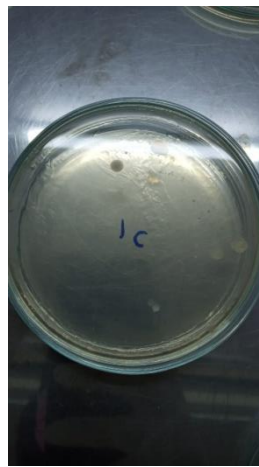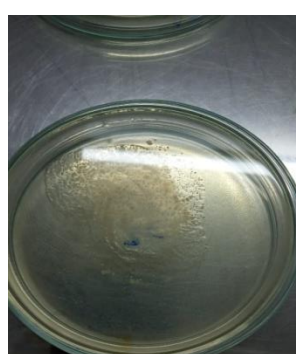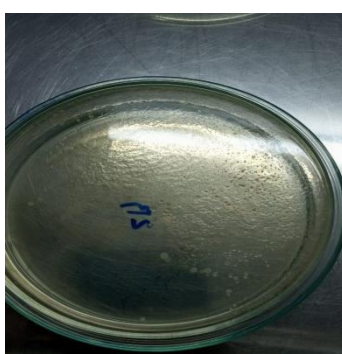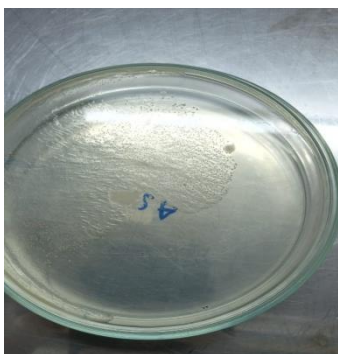(2A)   (2B)   (2C)

Lampiran 15. Hasil pengujian daya bunuh bakteri *Escherichia coli* sediaan formulasi 3 gel hand sanitizer ekstrak daun teh hijau (*Camellia sinensis*)
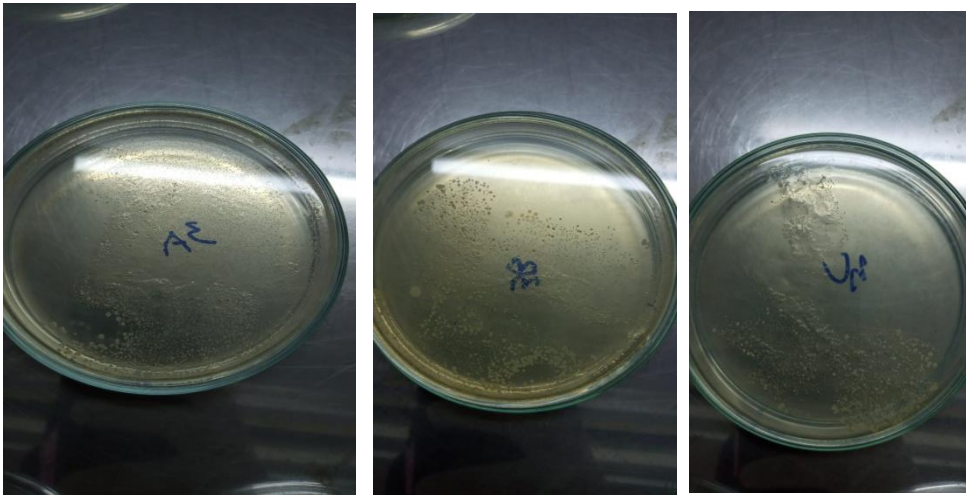
(3A)   (3B)   (3C)

Lampiran 16. Perhitungan hasil rendemen ekstrak daun teh hijau (*Camellia sinensis*)

Berat simplisia	Berat ekstrak
400 gr	50 gr

- Berat simplisia : 400 gr
- Berat ekstrak : 50 gr
- % rendemen : $\frac{\text{berat akhir}}{\text{berat awal}}$ x 100 % = $\frac{50 \text{ gr}}{400 \text{ gr}}$ x 100% → 12,5% b/b

Lampiran 16. Perhitungan densitas sediaan gel ekstrak daun teh hijau (*Camellia sinensis*) minggu 1 dan minggu 2

Minggu 1

formulasi	Berat Piknometer kosong (gr)	Volume piknometer (ml)	Berat gel + piknometer (gr)	Berat air + piknometer (gr)	Densitas
1	34.7511	50	83.1562	83.1033	1,001%
2	34.7511	50	83.2251	83.1033	1,002%
3	34.7511	50	83.4185	83.1033	1,006%

Minggu 2

formulasi	Berat Piknometer kosong (gr)	Volume piknometer (ml)	Berat gel + piknometer (gr)	Berat air + piknometer (gr)	Densitas
1	34.7511	50	83.256	83.1033	1,001%
2	34.7511	50	83.320	83.1033	1,002%
3	34.7511	50	83.553	83.1033	1,006%

a. Formulasi 1

Minggu 1

- Berat gel : 48,4051

- Berat air : 48,3522

- ρ gel : $\frac{m\,gel}{volume\,gel} = \frac{48,4051\,gr}{50\,ml} = 0,968102$

- ρ air : $\frac{m\,air}{v\,air} = \frac{48,3522\,gr}{50\,ml} = 0,967044$

- Densitas gel $= \frac{\rho\,gel}{\rho\,air} = \frac{0,968102\,m/v}{0,967044\,m/v} = 1,001$ gr/ml

Minggu 2

- Berat gel : 48,5049

- Berat air : 48,3522

- ρ gel : $\dfrac{\text{m gel}}{\text{volume gel}} = \dfrac{48{,}5049\ \text{gr}}{50\ \text{ml}} = 0{,}970098$

- ρ air : $\dfrac{\text{m air}}{\text{v air}} = \dfrac{48{,}3522\ \text{gr}}{50\ \text{ml}} = 0{,}967044$

  Densitas gel $= \dfrac{\rho\ \text{gel}}{\rho\ \text{air}} = \dfrac{0{,}970098\ \text{m/v}}{0{,}967044\ \text{m/v}} = 1{,}003\ \text{gr/ml}$

b. Formulasi 2

Minggu 1

- Berat gel : 48,474
- Berat air : 48,3522
- ρ gel : $\dfrac{\text{m gel}}{\text{volume gel}} = \dfrac{48{,}474\ \text{gr}}{50\ \text{ml}} = 0{,}96948$
- ρ air : $\dfrac{\text{m air}}{\text{v air}} = \dfrac{48{,}3522\ \text{gr}}{50\ \text{ml}} = 0{,}967044$
- Densitas gel $= \dfrac{\rho\ \text{gel}}{\rho\ \text{air}} = \dfrac{0{,}96948\ \text{m/v}}{0{,}967044\ \text{m/v}} = 1{,}002\ \text{gr/ml}$

Minggu 2

- Berat gel : 48,5689
- Berat air : 48,3522
- ρ gel : $\dfrac{\text{m gel}}{\text{volume gel}} = \dfrac{48{,}6899\ \text{gr}}{50\ \text{ml}} = 0{,}971378$
- ρ air : $\dfrac{\text{m air}}{\text{v air}} = \dfrac{48{,}3522\ \text{gr}}{50\ \text{ml}} = 0{,}967044$

  Densitas gel $= \dfrac{\rho\ \text{gel}}{\rho\ \text{air}} = \dfrac{0{,}971378\ \text{m/v}}{0{,}967044\ \text{m/v}} = 1{,}004\ \text{gr/ml}$

c. Formulasi 3

Minggu 1

- Berat gel : 48,6674
- Berat air : 48,3522
- ρ gel : $\dfrac{\text{m gel}}{\text{volume gel}} = \dfrac{48{,}6674\ \text{gr}}{50\ \text{ml}} = 0{,}973348$
- ρ air : $\dfrac{\text{m air}}{\text{v air}} = \dfrac{48{,}3522\ \text{gr}}{50\ \text{ml}} = 0{,}967044$
- Densitas gel $= \dfrac{\rho\ \text{gel}}{\rho\ \text{air}} = \dfrac{0{,}973348\ \text{m/v}}{0{,}967044\ \text{m/v}} = 1{,}006\ \text{gr/ml}$

Minggu 2

- Berat gel : 48,8019
- Berat air : 48,3522

- ρ gel : $\dfrac{\text{m gel}}{\text{volume gel}} = \dfrac{48,8019 \text{ gr}}{50 \text{ ml}} = 0,976038$

- ρ air : $\dfrac{\text{m air}}{\text{v air}} = \dfrac{48,3522 \text{ gr}}{50 \text{ ml}} = 0,967044$

  Densitas gel $= \dfrac{\rho \text{ gel}}{\rho \text{ air}} = \dfrac{0,976038 \text{ m/v}}{0,967044 \text{ m/v}} = 1,009$ gr/ml

Lampiran 17. Perhitungan uji viscometer stromer

a. Menentukan viskositas gliserin dengan viscometer VT-04

- Volume sampel untuk pengukuran = 170 ml

- Nomor rotor yang digunakan = 3

- Pembacaan skala = 8 dPas

- Viskositas gliserin = 8 x 100 = 800 cps

b. Menentukan nilai tetapan Kv viscometer stromer dengan gliserin p.a

- harga tetapan Kv Viskometer Stromer

Berat beban (g)	t =… (s) 100 putaran	Rpm (60/waktu (s) x 100 putaran) (putaran/menit)	Harga Kv (η = Kv x W/rpm) (cps/gram/menit)
50	76,46	60/76,46 x 100 putaran = 78,47	$Kv = \dfrac{\eta}{W}$ x rpm $= \dfrac{800}{50}$ x 78,47 $= 1255,56$
100	47,55	60/47,55 x 100 putaran = 126,18	$Kv = \dfrac{\eta}{W}$ x rpm $= \dfrac{800}{100}$ x 126,18 $= 1009,46$
150	35,37	60/35,37 x 100 putaran = 169,64	$Kv = \dfrac{\eta}{W}$ x rpm $= \dfrac{800}{150}$ x 169,64 $= 904,75$

200	28,33	60/28.33 x 100 putaran = 211,79	$Kv = \dfrac{\eta}{w}$ x rpm $= \dfrac{800}{200}$ x 211,79 $= 847,16$
250	23,74	60/23,74 x 100 putaran = 252,74	$Kv = \dfrac{\eta}{w}$ x rpm $= \dfrac{800}{250}$ x 252,74 $= 808,77$
300	19,57	60/19,57 x 100 putaran = 306,591	$Kv = \dfrac{\eta}{w}$ x rpm $= \dfrac{800}{300}$ x 306,591 $= 817,577$
350	16,48	60/16,48 x 100 putaran = 364,07	$Kv = \dfrac{\eta}{w}$ x rpm $= \dfrac{800}{350}$ x 364,07 $= 832,18$
400	12,34	60/12,34 x 100 putaran = 486,23	$Kv = \dfrac{\eta}{w}$ x rpm $= \dfrac{800}{400}$ x 486,23 $= 972,45$
450	7,56	60/7,56 x 100 putaran = 793,65	$Kv = \dfrac{\eta}{w}$ x rpm $= \dfrac{800}{450}$ x 793,65 $= 1410,93$
500	3,53	60/3,53 x 100 putaran = 1699.71	$Kv = \dfrac{\eta}{w}$ x rpm $= \dfrac{800}{500}$ x 1699.71 $= 2719,54$

Harga Kv rata-rata =			$\dfrac{11578,377}{10}$ $=1157,83$

c. Penentuan sifat alir sediaan gel formulasi 1

Berat beban (g)	t =… (s) 100 putaran	Rpm (60/waktu (s) x 100 putaran) (putaran/menit)	viskositas (η = Kv x W/rpm) (cps/gram/menit)
50	122,40	60/122,40 x 100 putaran = 49,01	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{49,01}$ x 50 $= 1181,21$
100	110,68	60/110,68x 100 putaran = 54,21	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{54,21}$ x 100 $= 2135,82$
150	80,25	60/80,25 x 100 putaran = 74,76	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{74,76}$ x 150 $= 2323,09$
200	64, 12	60/64,12 x 100 putaran = 93,57	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{93,57}$ x 200 $= 2474,78$
250	56. 35	60/56.35 x 100 putaran = 106,477	$\eta = \dfrac{Kv}{rpm}$ x W

			$= \dfrac{1157,83}{106,477}$ x 250 $= 2718,49$
300	50,65	60/50,65 x 100 putaran = 188,46	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{188,46}$ x 300 $= 1843,09$
350	46,70	60/46,70 x 100 putaran = 128,47	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{128,47}$ x 350 $= 3,154,35$
400	40,23	60/40,23 x 100 putaran = 149,14	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{149,14}$ x 400 $= 3105,35$
450	35,30	60/35,30 x 100 putaran = 169,97	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{169,97}$ x 450 $= 3065,38$
500	30,15	60/30,15 x 100 putaran = 199	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{199}$ x 500 $= 2909,12$
Harga viskositas rata-rata =			$\dfrac{24910,58}{10}$ $= 2491,058$ cps

d. Penentuan sifat alir sediaan gel formulasi 2

Berat beban (g)	t =… (s) 100 putaran	Rpm (60/waktu (s) x 100 putaran) (putaran/menit)	viskositas (η = Kv x W/rpm) (cps/gram/menit)
50	118,10	60/118,10 x 100 putaran = 50,80	$\eta = \frac{Kv}{rpm} \times W$ $= \frac{1157,83}{50,80} \times 50$ $= 1.139,60$
100	107,48	60/107,48 x 100 putaran = 55,82	$\eta = \frac{Kv}{rpm} \times W$ $= \frac{1157,83}{55,82} \times 100$ $= 2074,22$
150	76,53	60/76,53 x 100 putaran = 78,40	$\eta = \frac{Kv}{rpm} \times W$ $= \frac{1157,83}{78,40} \times 150$ $= 2215,23$
200	61,04	60/61,04 x 100 putaran = 98,29	$\eta = \frac{Kv}{rpm} \times W$ $= \frac{1157,83}{98,29} \times 200$ $= 2355,94$
250	52,16	60/52,16 x 100 putaran = 115,03	$\eta = \frac{Kv}{rpm} \times W$ $= \frac{1157,83}{115,03} \times 250$ $= 2516,36$
300	47,13	60/47,13 x 100 putaran = 127,30	$\eta = \frac{Kv}{rpm} \times W$

			$= \dfrac{1157,83}{127,30}$ x 300 $= 2728,58$
350	40,20	60/40,20 x 100 putaran = 149,25	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{149,25}$ x 350 $= 2715,17$
400	41,15	60/41,15 x 100 putaran = 145,80	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{145,80}$ x 400 $= 3176,48$
450	30,56	60/30,56 x 100 putaran = 196,33	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{196,33}$ x 450 $= 2653,81$
500	28,20	60/28,20 x 100 putaran = 212,76	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{212,76}$ x 500 $= 2720,97$
Harga viskositas rata-rata =			$\dfrac{24.296,36}{10} =$ 2429,63 cps

e. Penentuan sifat alir sediaan gel formulasi 3

Berat beban (g)	t =… (s) 100 putaran	Rpm (60/waktu (s) x 100 putaran) (putaran/menit)	viskositas (η = Kv x W/rpm) (cps/gram/menit)

50	110,15	60/110,15 x 100 putaran = 54,47	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{54,47}$ x 50 $= 1062,81$
100	102,45	60/102,45 x 100 putaran = 58,56	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{58,56}$ x 100 $= 1977,16$
150	72,30	60/72,30 x 100 putaran = 82,98	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{82,98}$ x 150 $= 2092,96$
200	60,15	60/60,15 x 100 putaran = 99,75	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{99,75}$ x 200 $= 2321,46$
250	50,60	60/50,60 x 100 putaran = 118,57	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{118,57}$ x 250 $= 2441,23$
300	43,25	60/43,25 x 100 putaran = 138,72	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{138,72}$ x 300 $= 2503,95$
350	37,21	60/37,21 x 100 putaran = 161,24	$\eta = \dfrac{Kv}{rpm}$ x W

			$= \dfrac{1157,83}{161,24}$ x 350 $= 2513,27$
400	38,16	60/38,16 x 100 putaran = 157,23	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{157,23}$ x 400 $= 2945,57$
450	35,46	60/35,46 x 100 putaran = 169,20	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{169,20}$ x 450 $= 3079,33$
500	27,50	60/27,50 x 100 putaran = 218,18	$\eta = \dfrac{Kv}{rpm}$ x W $= \dfrac{1157,83}{218,18}$ x 500 $= 2653,38$
Harga viskositas rata-rata =			$\dfrac{23591,12}{10}$ = 2359,12 cps

Lampiran 18. Perhitungan *Percentage kill*

a. formulasi 1

- jumlah koloni kontrol : 200
- jumlah koloni tumbuh : 32, 10, 6
- *Percentage kill* 1A : $\dfrac{kontrol - koloni\ tumbuh}{kontrol} = \dfrac{200-32}{200}$ x 100% = 84%
- *Percentage kill* 1B : $\dfrac{kontrol - koloni\ tumbuh}{kontrol} = \dfrac{200-10}{200}$ x 100% = 95%
- *Percentage kill* 1C : $\dfrac{kontrol - koloni\ tumbuh}{kontrol} = \dfrac{200-6}{200}$ x 100% = 97%

- Rata- rata : $\frac{84\%+95\%+97\%}{3} = 92\%$

b. formulasi 2

- jumlah koloni kontrol : 200
- jumlah koloni tumbuh : 18, 12, 7
- *Percentage kill* 2A : $\frac{\text{kontrol}-\text{koloni tumbuh}}{\text{kontrol}} = \frac{200-18}{200}$ x 100% = 91%
- *Percentage kill* 2B : $\frac{\text{kontrol}-\text{koloni tumbuh}}{\text{kontrol}} = \frac{200-12}{200}$ x 100% = 94%
- *Percentage kill* 2C : $\frac{\text{kontrol}-\text{koloni tumbuh}}{\text{kontrol}} = \frac{200-7}{200}$ x 100% = 96%
- Rata- rata : $\frac{91\%+94\%+96\%}{3} = 93\%$

c. formulasi 3

- jumlah koloni kontrol : 200
- jumlah koloni tumbuh : 18, 5, 7
- *Percentage kill* 1A : $\frac{\text{kontrol}-\text{koloni tumbuh}}{\text{kontrol}} = \frac{200-18}{200}$ x 100% = 91%
- *Percentage kill* 1B : $\frac{\text{kontrol}-\text{koloni tumbuh}}{\text{kontrol}} = \frac{200-5}{200}$ x 100% = 97%
- *Percentage kill* 1C : $\frac{\text{kontrol}-\text{koloni tumbuh}}{\text{kontrol}} = \frac{200-7}{200}$ x 100% = 96%
- Rata- rata : $\frac{91\%+97\%+96\%}{3} = 94\%$