

BAB V

KESIMPULAN DAN SARAN

A. Kesimpulan

Berdasarkan penelitian yang telah dilakukan dapat ditarik kesimpulan antara lain adalah sebagai berikut :

Pertama, bakteri *Klebsiella sp.* ditemukan pada 30 sampel dari jumlah total 41 sampel sputum pasien pneumonia di RSUD Dr. Moewardi.

Kedua, pola sensitivitas bakteri *Klebsiella sp.* dari sputum pasien pneumonia di RSUD Dr. Moewardi terhadap masing-masing antibiotik yaitu amoksisilin-klavulanat 100% *resistant*; meropenem 100% *resistant*; seftriakson 63,33% *susceptible*, dan 36,67% *resistant*; serta siprofloksasin 80% *susceptible*, 6,67% *intermediate*, dan 13,33% *resistant*.

Ketiga, siprofloksasin merupakan antibiotik dengan persentase terbesar dalam memberikan hasil *susceptible* sebagai pengobatan pasien pneumonia yang disebabkan oleh bakteri *Klebsiella sp.* untuk RSUD Dr. Moewardi.

B. Saran

Berdasarkan penelitian yang telah dilakukan, saran yang dapat dipertimbangkan untuk penelitian selanjutnya antara lain adalah sebagai berikut :

Pertama, perlu dilakukan penelitian uji sensitivitas bakteri patogen lain yang berperan sebagai penyebab pneumonia terhadap beberapa antibiotik.

Kedua, perlu dilakukan penelitian dengan antibiotik lain yang dapat disesuaikan dengan bakteri penyebabnya atau infeksiya sehingga tepat sasaran, mengurangi efek yang tidak diinginkan, dan mengurangi angka resistensi terhadap antibiotik.

Ketiga, perlu dilakukan klasifikasi spesimen pasien yang digunakan dalam penelitian terhadap ada tidaknya riwayat penyakit pneumonia sebelumnya.

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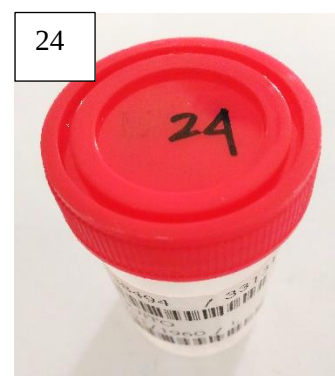
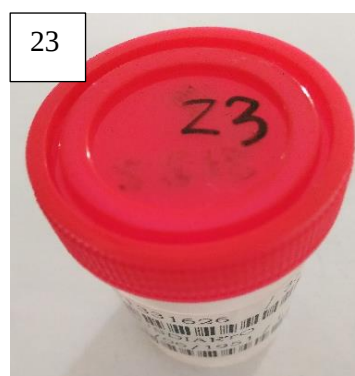
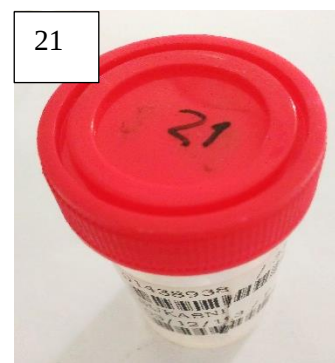
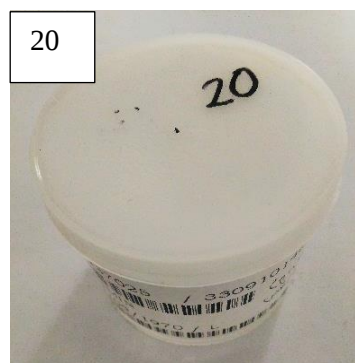
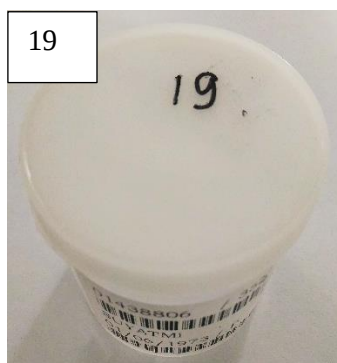
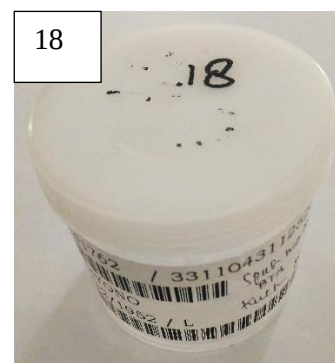
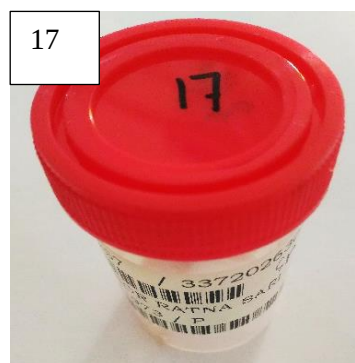
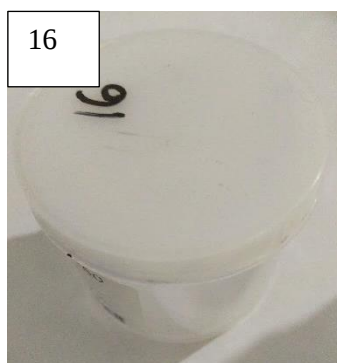
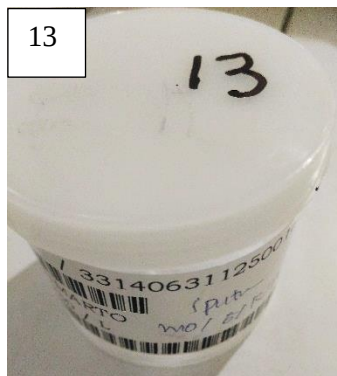
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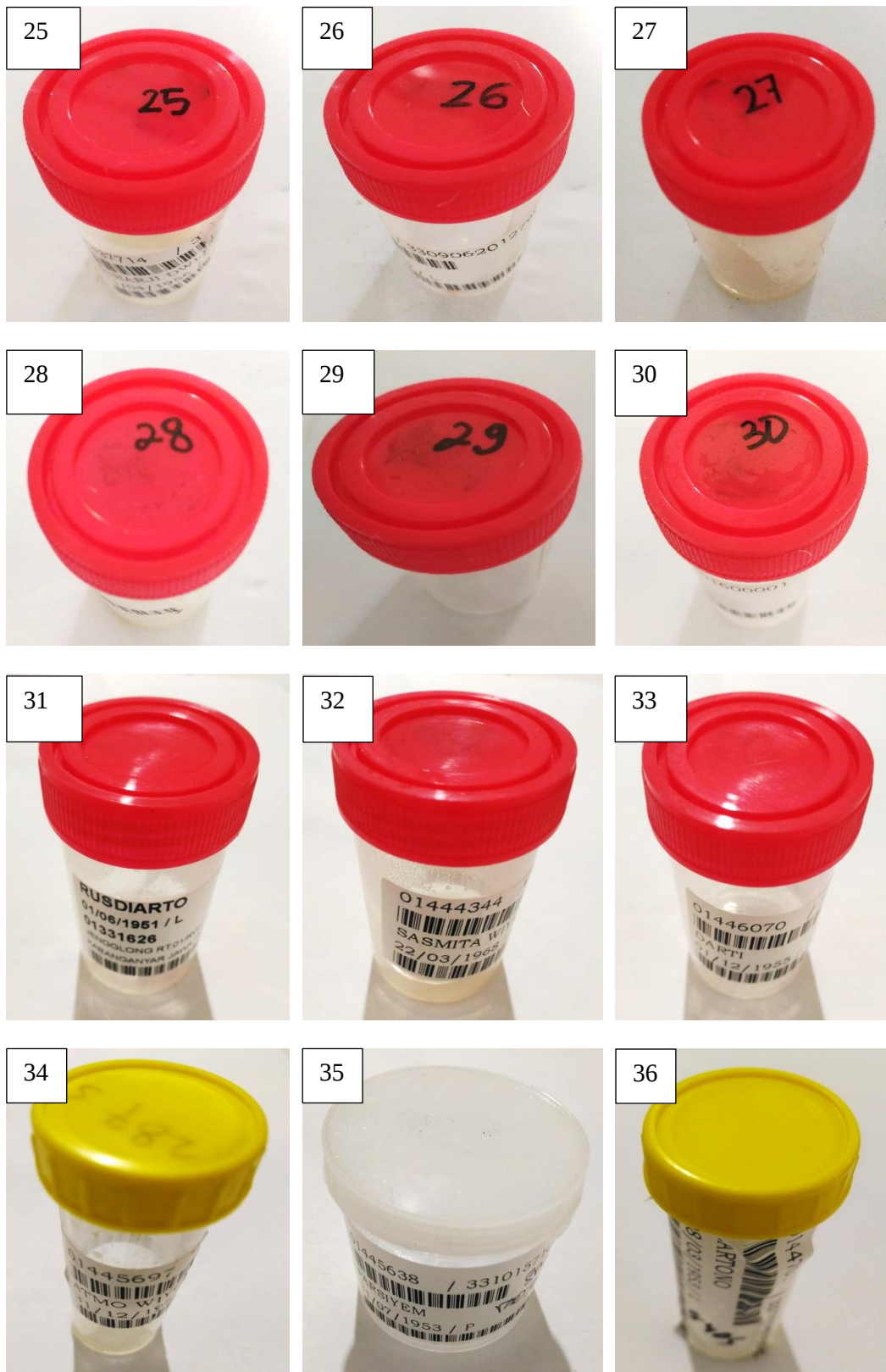
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Lampiran 1. Sampel sputum pasien terduga pneumonia di RSUD Dr. Moewardi







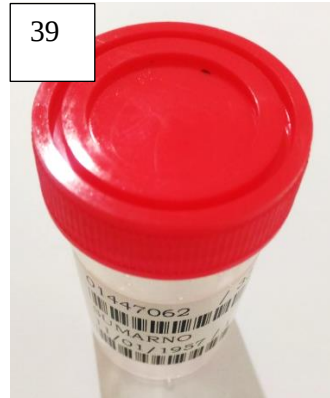
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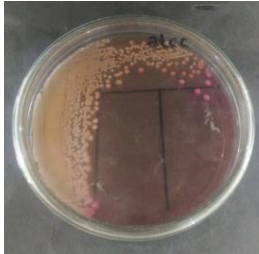


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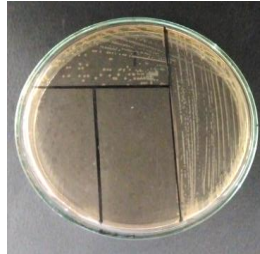


Lampiran 2. Hasil isolasi bakteri *Klebsiella sp.* pada media *MacConkey Agar*

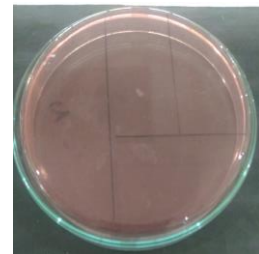
Bakteri *Klebsiella sp.*
ATCC 10031



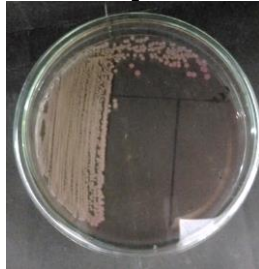
Sampel 1



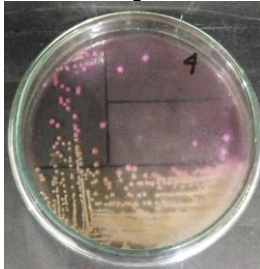
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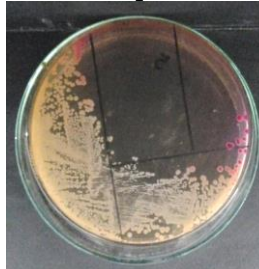
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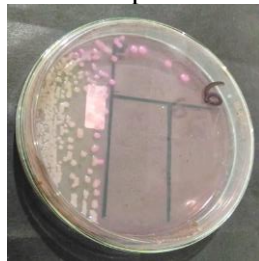
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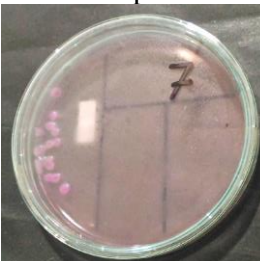
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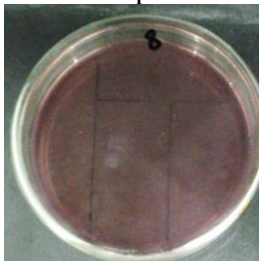
Sampel 6



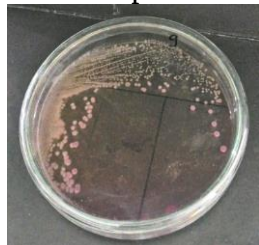
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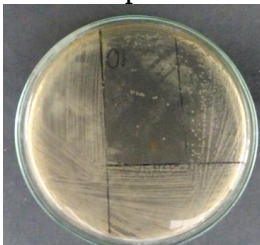
Sampel 8



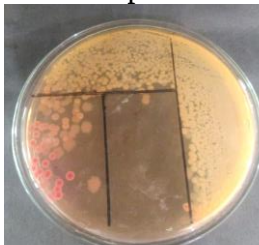
Sampel 9



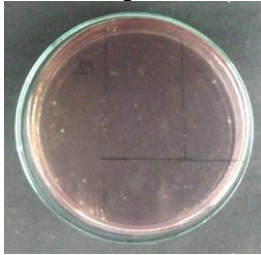
Sampel 10



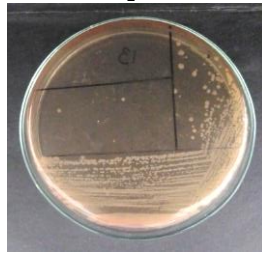
Sampel 11



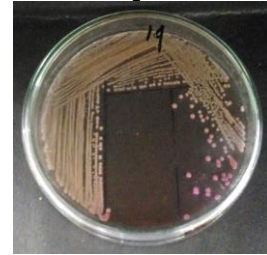
Sampel 12



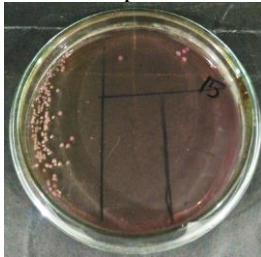
Sampel 13



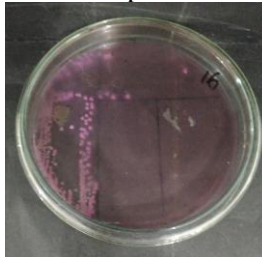
Sampel 14



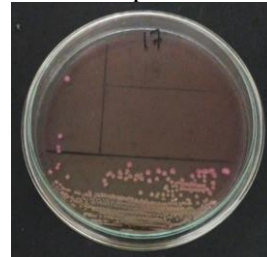
Sampel 15



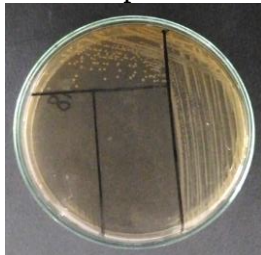
Sampel 16



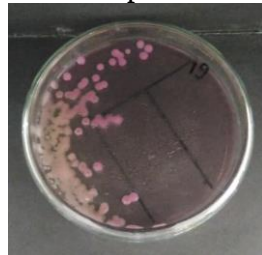
Sampel 17



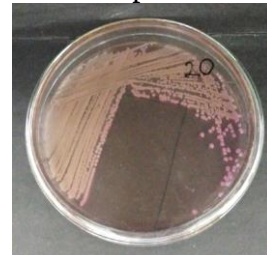
Sampel 18



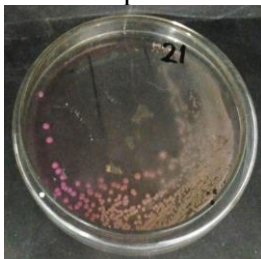
Sampel 19



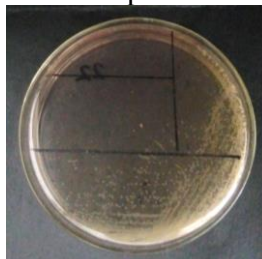
Sampel 20



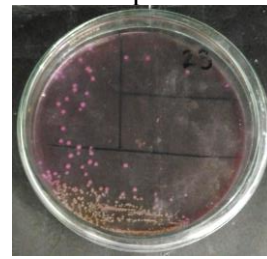
Sampel 21



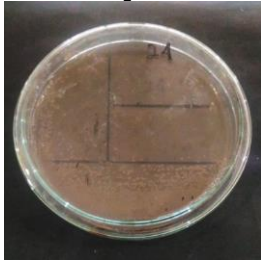
Sampel 22



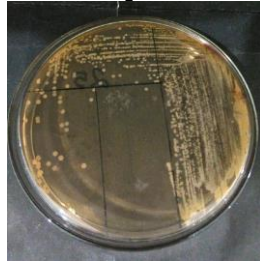
Sampel 23



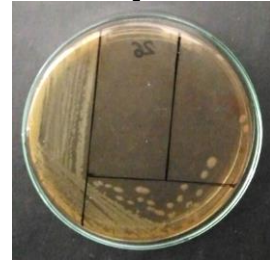
Sampel 24



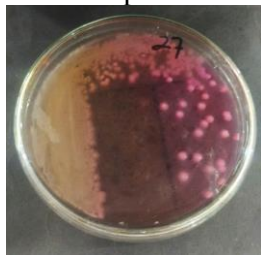
Sampel 25



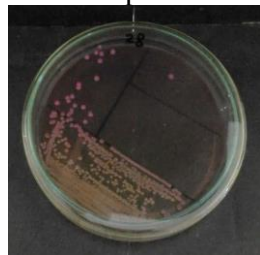
Sampel 26



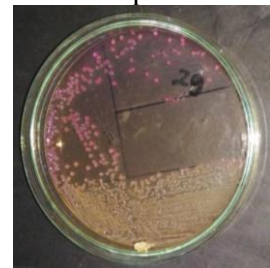
Sampel 27



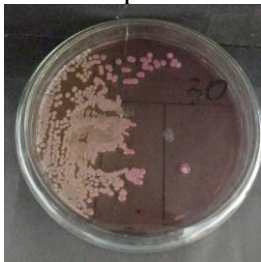
Sampel 28



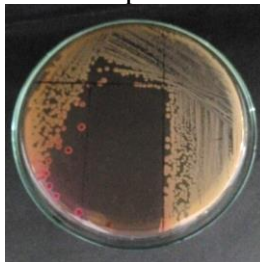
Sampel 29



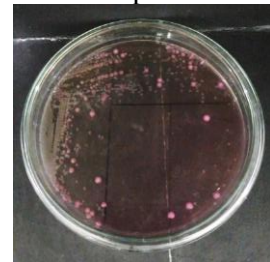
Sampel 30



Sampel 31



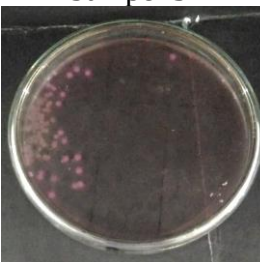
Sampel 32



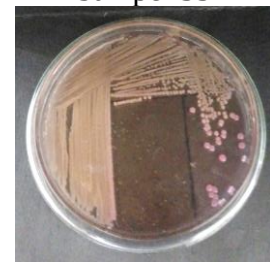
Sampel 33



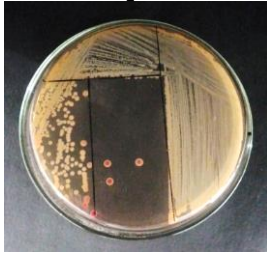
Sampel 34



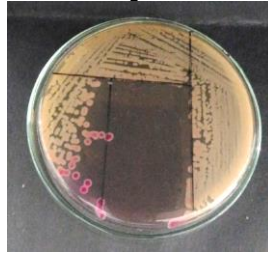
Sampel 35



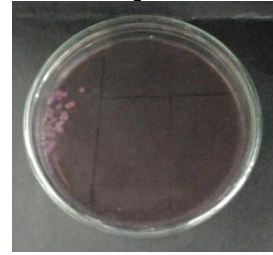
Sampel 36



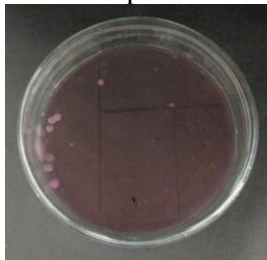
Sampel 37



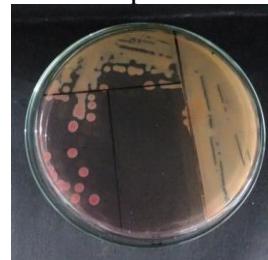
Sampel 38



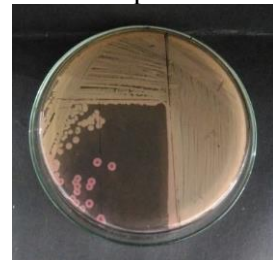
Sampel 39



Sampel 40



Sampel 41



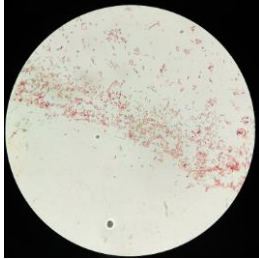
Keterangan :

Hasil (+) *Klebsiella* sp. : Sampel 3, 4, 5, 6, 7, 9, 11, 14, 15, 16, 17, 19, 20, 21, 23, 24, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41.

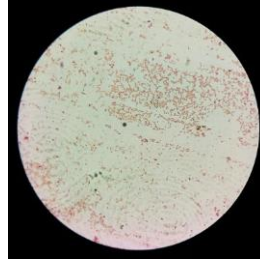
Hasil (-) *Klebsiella* sp. : Sampel **1, 2, 8, 10, 12, 13, 18, 22, 24, 25, 26.**

Lampiran 3. Hasil identifikasi bakteri *Klebsiella* sp. menggunakan pewarnaan Gram melalui mikroskop

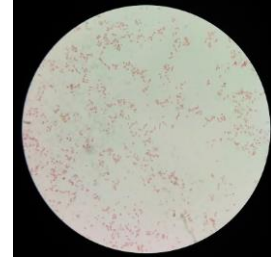
Bakteri *Klebsiella* sp.
ATCC 10031



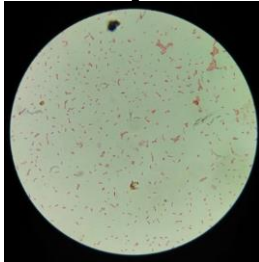
Sampel 3



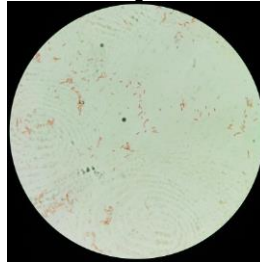
Sampel 4



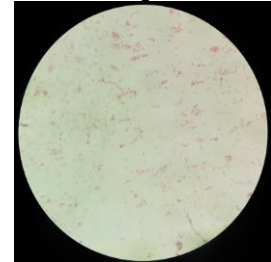
Sampel 5



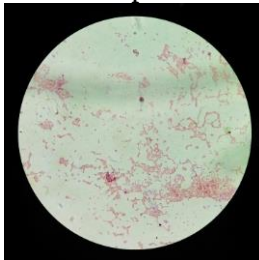
Sampel 6



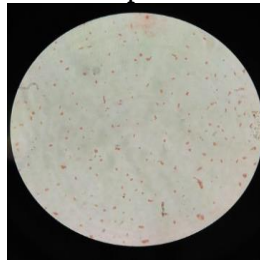
Sampel 7



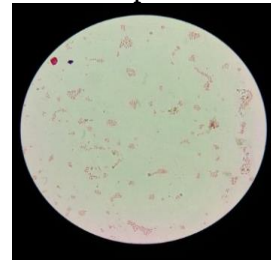
Sampel 9



Sampel 11



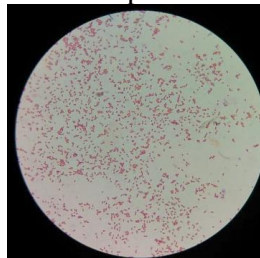
Sampel 14



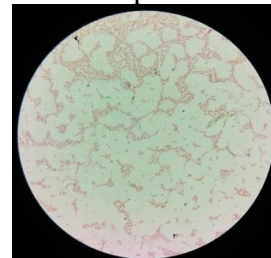
Sampel 15



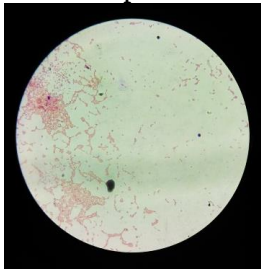
Sampel 16



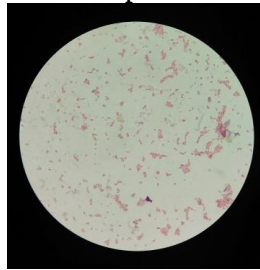
Sampel 17



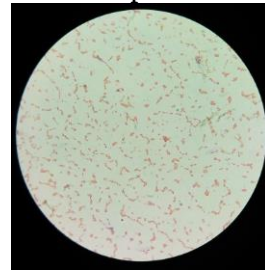
Sampel 19



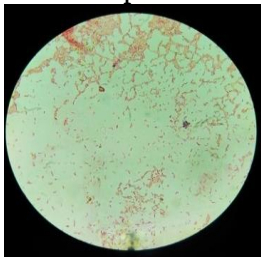
Sampel 20



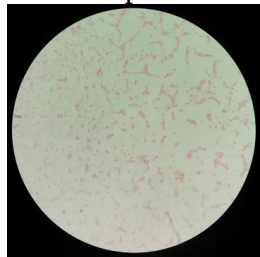
Sampel 21



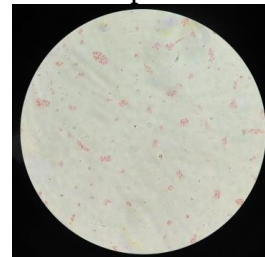
Sampel 23



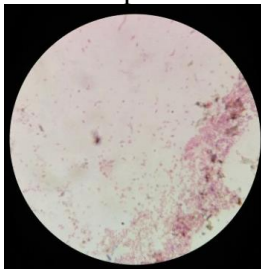
Sampel 27



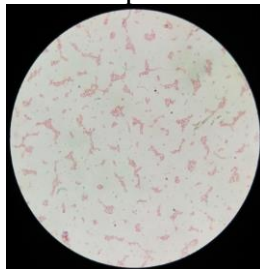
Sampel 28



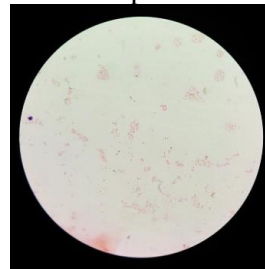
Sampel 29



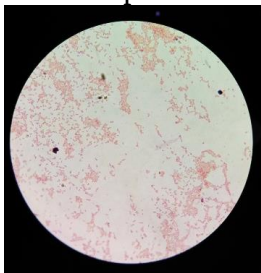
Sampel 30



Sampel 31



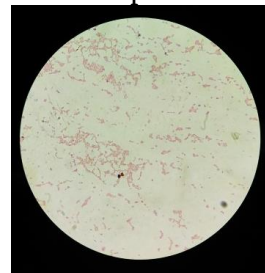
Sampel 32



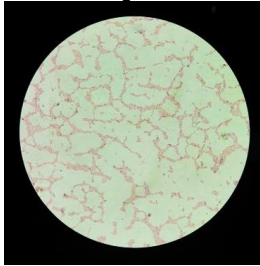
Sampel 33



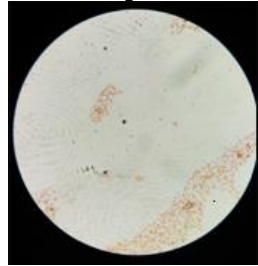
Sampel 34



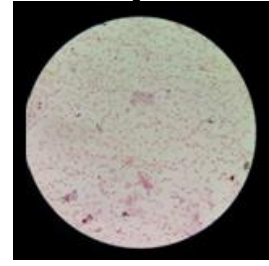
Sampel 35



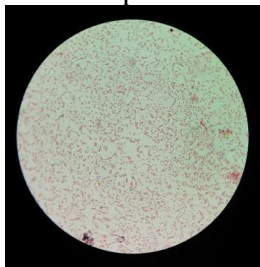
Sampel 36



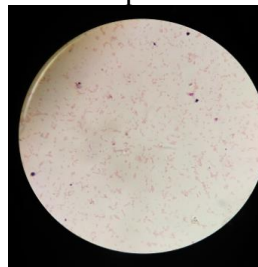
Sampel 37



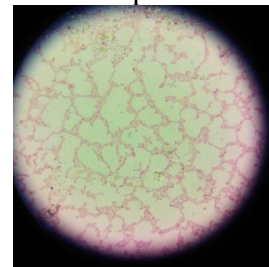
Sampel 38



Sampel 39



Sampel 40

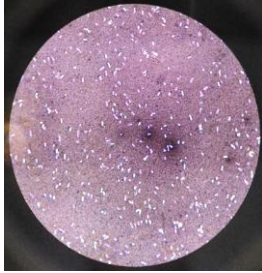


Sampel 41

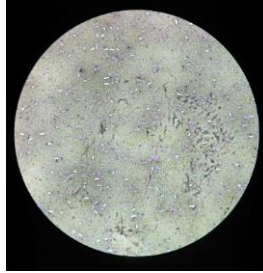


Lampiran 4. Hasil identifikasi bakteri *Klebsiella* sp. menggunakan pewarnaan kapsul melalui Mikroskop

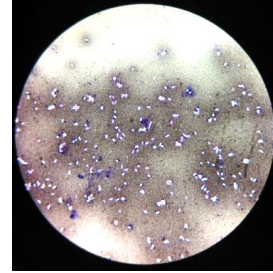
Bakteri *Klebsiella* sp.
ATCC 10031



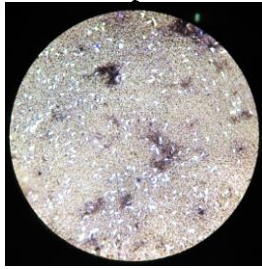
Sampel 3



Sampel 4



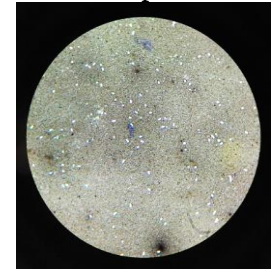
Sampel 5



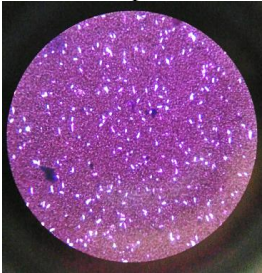
Sampel 6



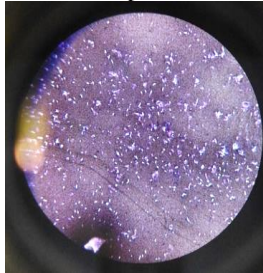
Sampel 7



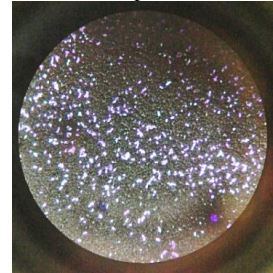
Sampel 9



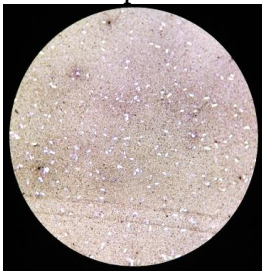
Sampel 11



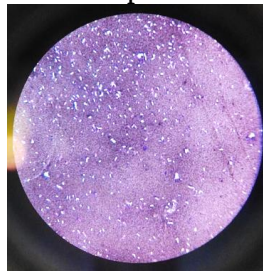
Sampel 14



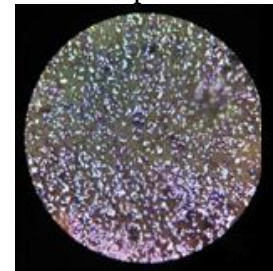
Sampel 15



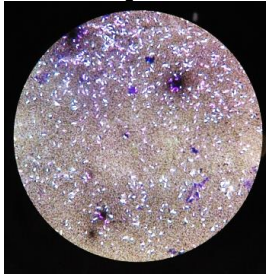
Sampel 16



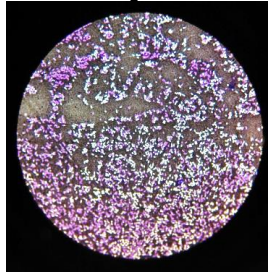
Sampel 17



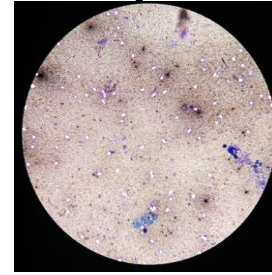
Sampel 19



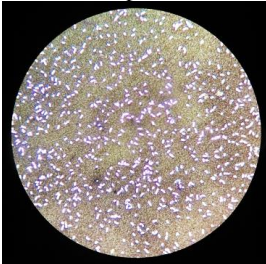
Sampel 20



Sampel 21



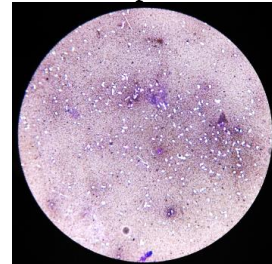
Sampel 23



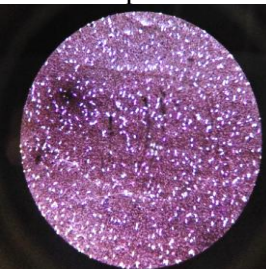
Sampel 27



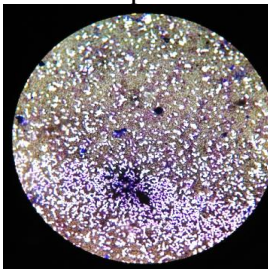
Sampel 28



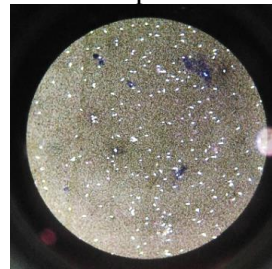
Sampel 29



Sampel 30



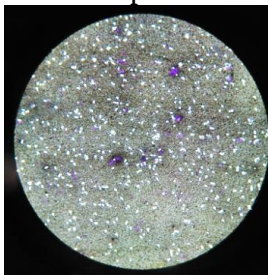
Sampel 31



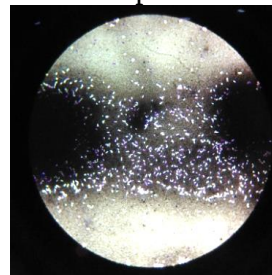
Sampel 32



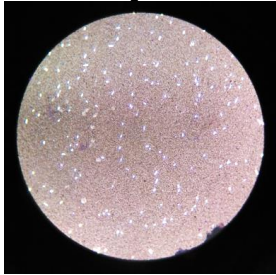
Sampel 33



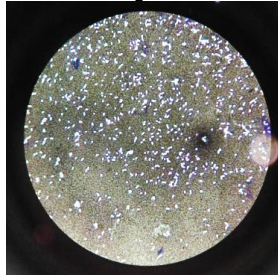
Sampel 34



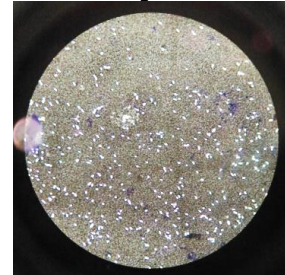
Sampel 35



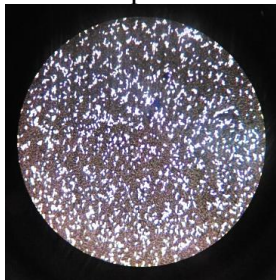
Sampel 36



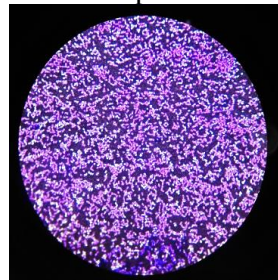
Sampel 37



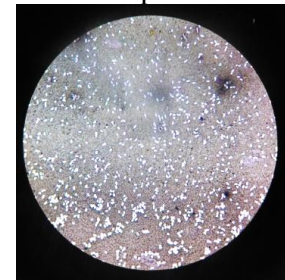
Sampel 38



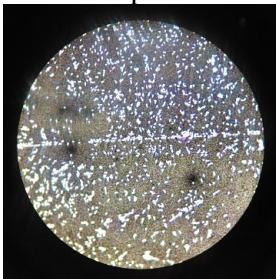
Sampel 39



Sampel 40

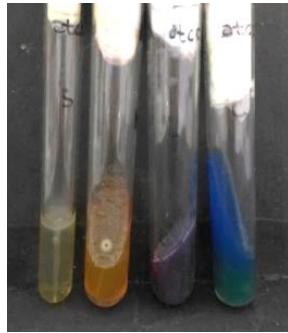


Sampel 41



Lampiran 5. Hasil identifikasi bakteri *Klebsiella sp.* dengan uji biokimia

Bakteri *Klebsiella sp.*
ATCC 10031



Sampel 3



Sampel 4



Sampel 5



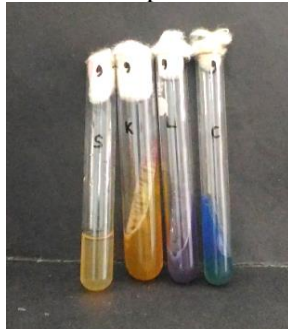
Sampel 6



Sampel 7



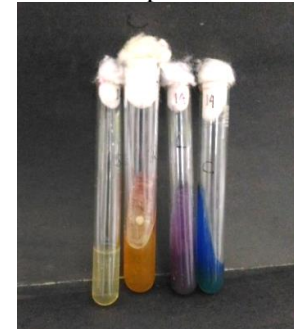
Sampel 9



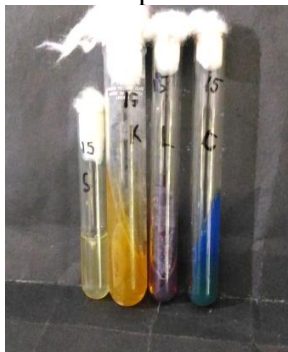
Sampel 11



Sampel 14



Sampel 15



Sampel 16



Sampel 17



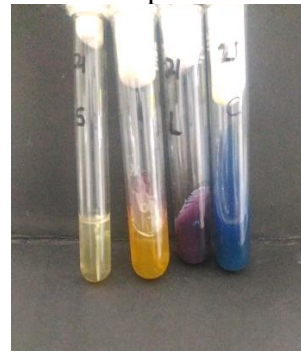
Sampel 19



Sampel 20



Sampel 21



Sampel 23



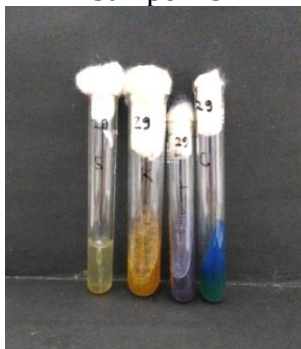
Sampel 27



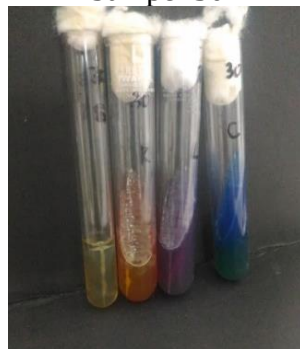
Sampel 28



Sampel 29



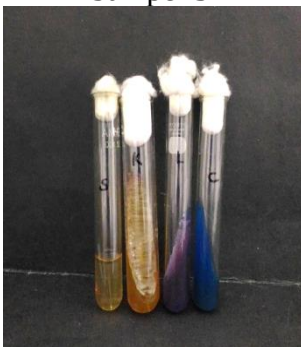
Sampel 30



Sampel 31



Sampel 32



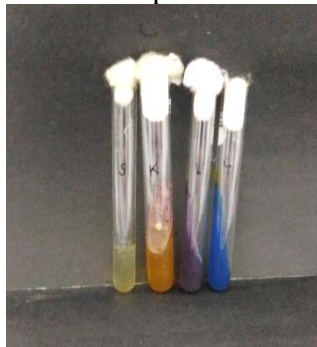
Sampel 33



Sampel 34



Sampel 35



Sampel 36



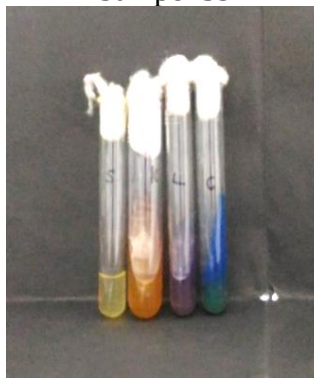
Sampel 37



Sampel 38



Sampel 39



Sampel 40



Sampel 41



Keterangan :

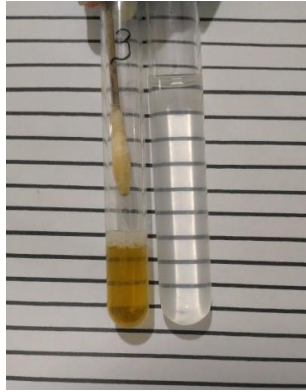
S = Uji SIM
K = Uji KIA
L = Uji LIA
C = Uji Citrat

Lampiran 6. Penyetaraan dengan standar Mc Farland 0,5

Bakteri *Klebsiella* sp.
ATCC 10031



Sampel 3



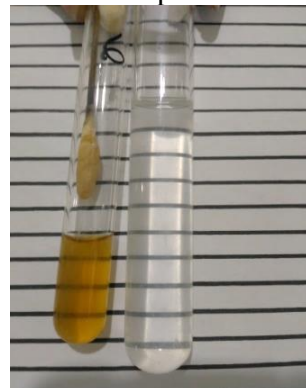
Sampel 4



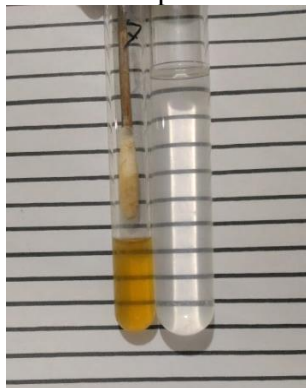
Sampel 5



Sampel 6



Sampel 7



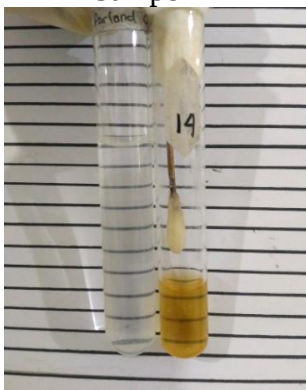
Sampel 9



Sampel 11



Sampel 14



Sampel 15



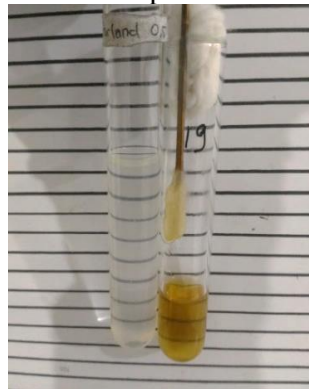
Sampel 16



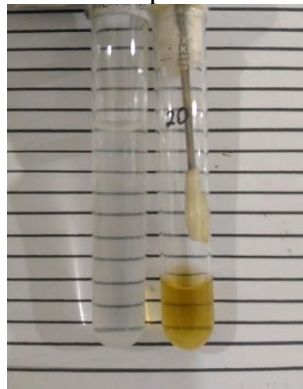
Sampel 17



Sampel 19



Sampel 20



Sampel 21



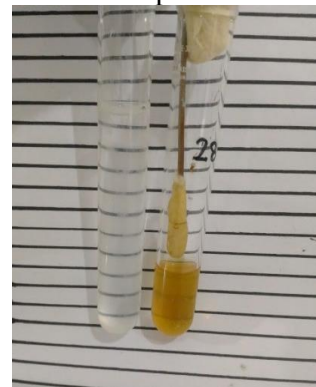
Sampel 23



Sampel 27



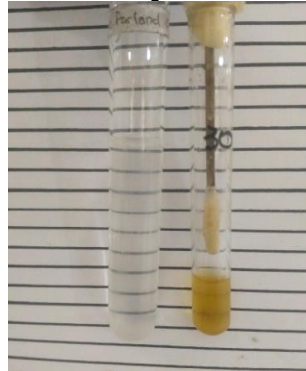
Sampel 28



Sampel 29



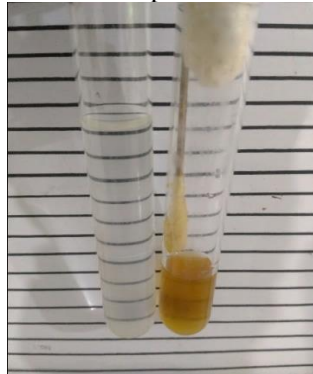
Sampel 30



Sampel 31



Sampel 32



Sampel 33



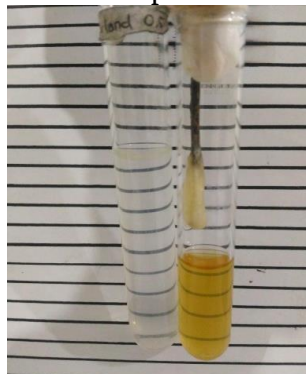
Sampel 34



Sampel 35



Sampel 36



Sampel 37



Sampel 38



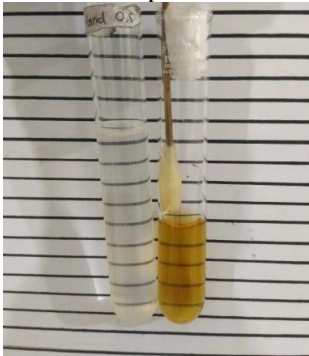
Sampel 39



Sampel 40

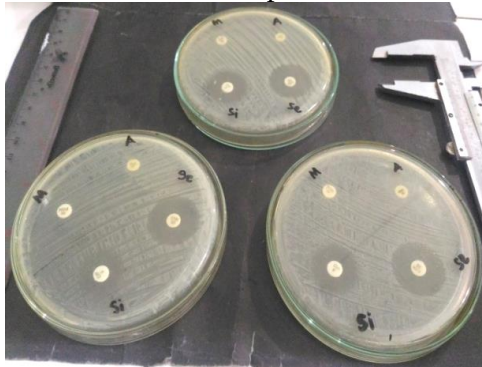


Sampel 41

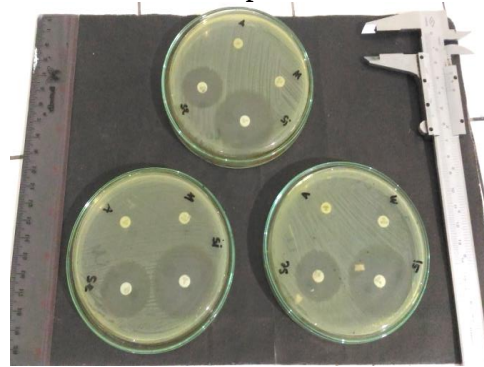


Lampiran 7. Hasil uji sensitivitas *Klebsiella sp.* terhadap antibiotik

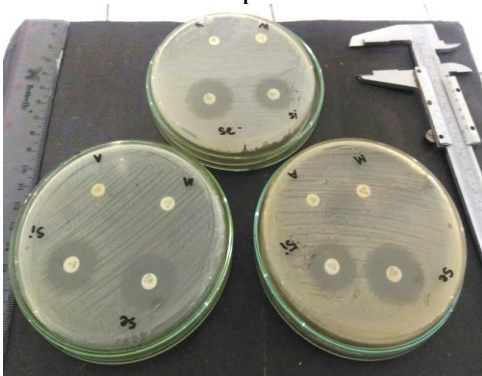
Bakteri *Klebsiella sp.* ATCC 10031



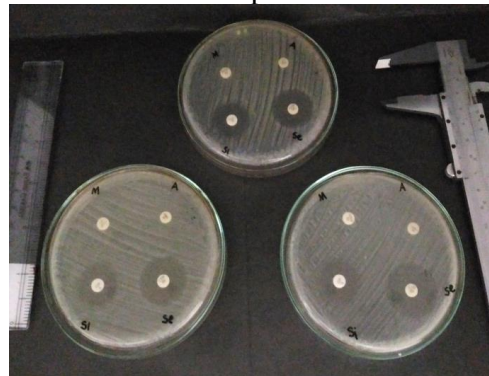
Sampel 3



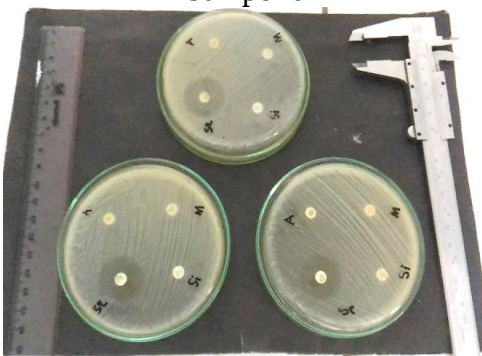
Sampel 4



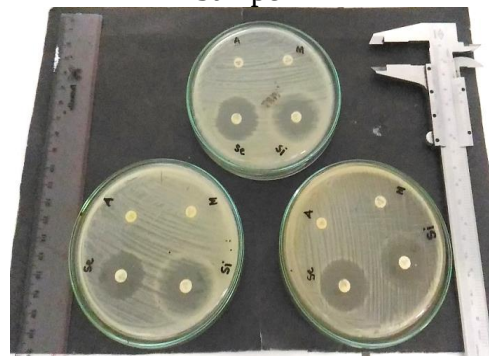
Sampel 5



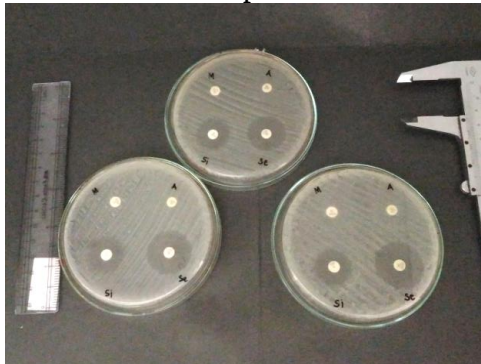
Sampel 6



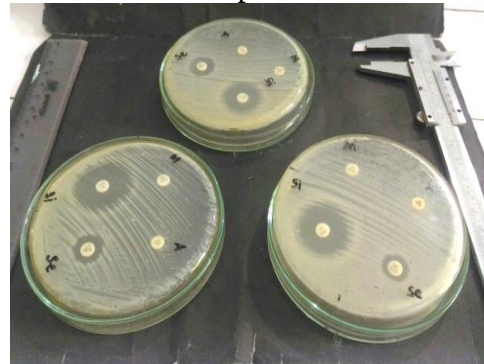
Sampel 7



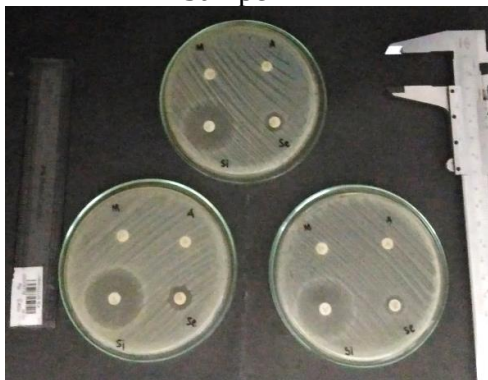
Sampel 9



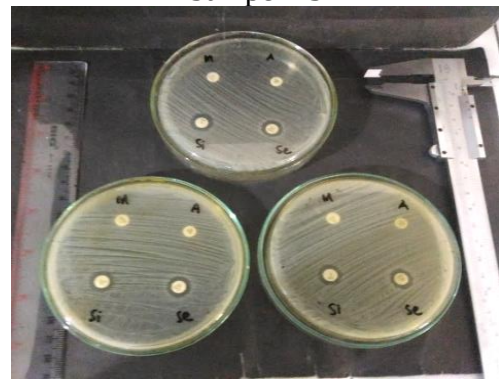
Sampel 11



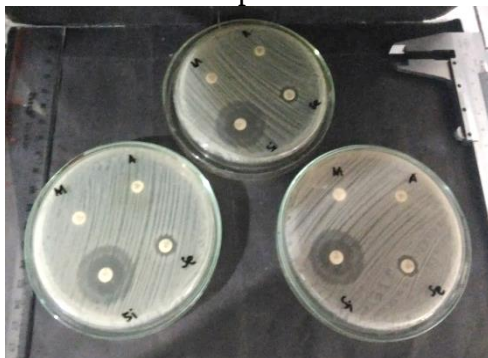
Sampel 14



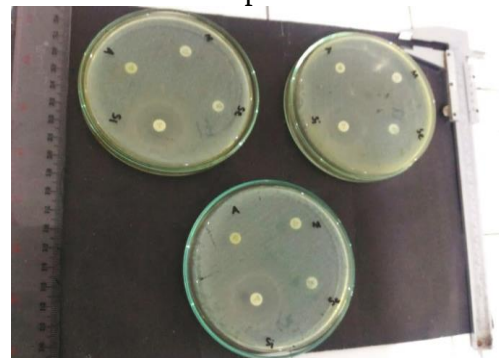
Sampel 15



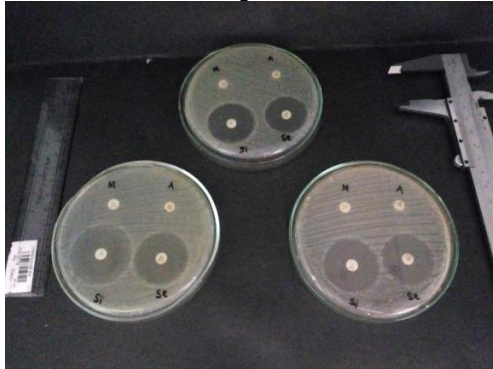
Sampel 16



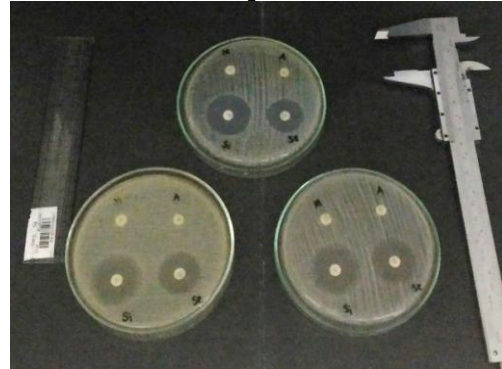
Sampel 17



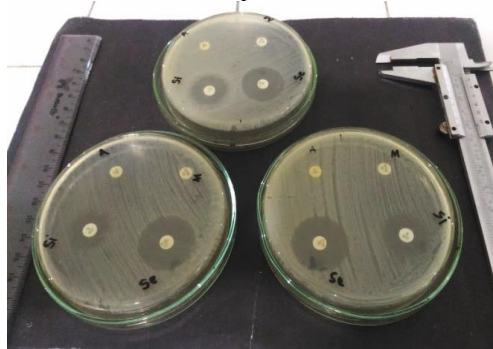
Sampel 19



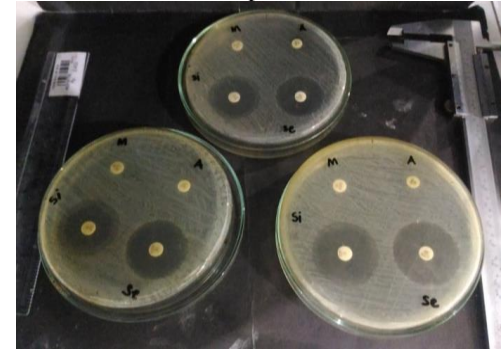
Sampel 20



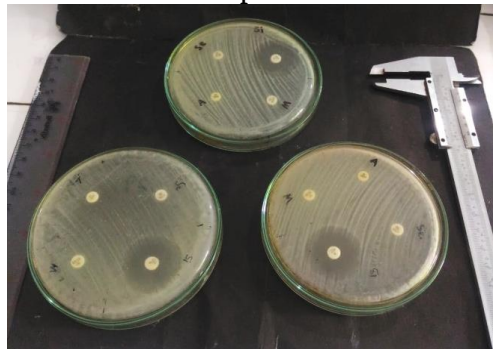
Sampel 21



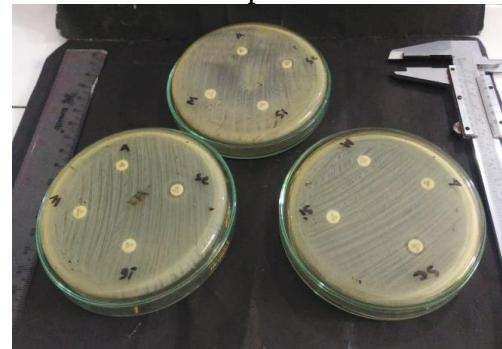
Sampel 23



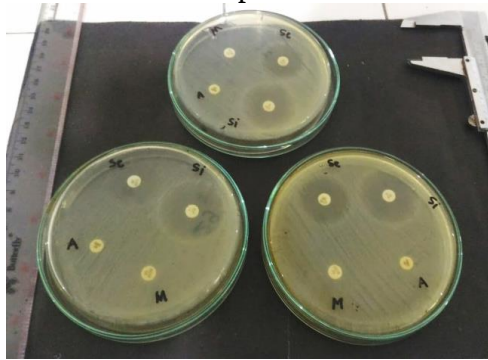
Sampel 27



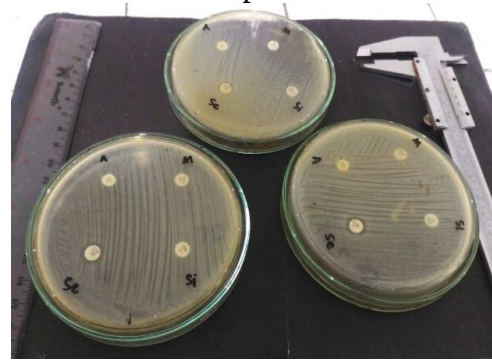
Sampel 28



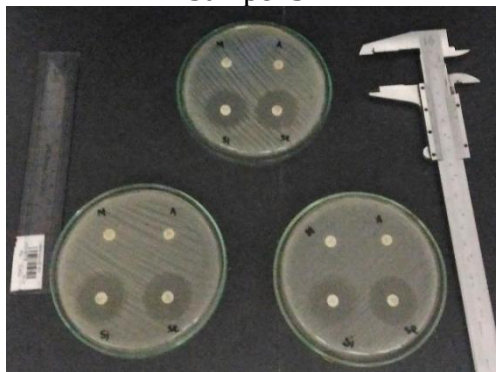
Sampel 29



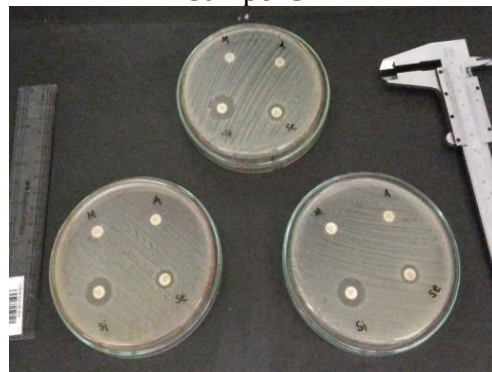
Sampel 30



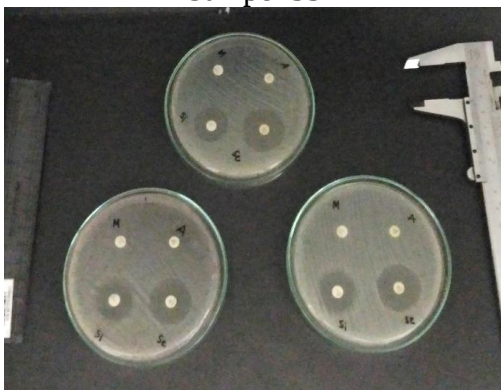
Sampel 31



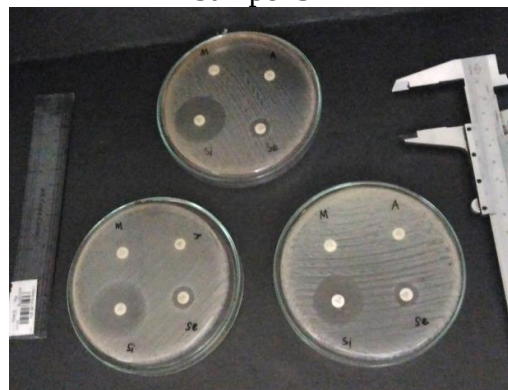
Sampel 32



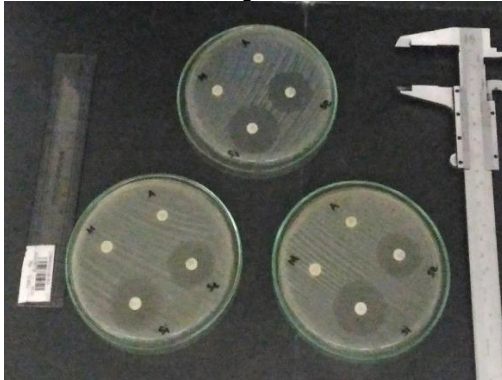
Sampel 33



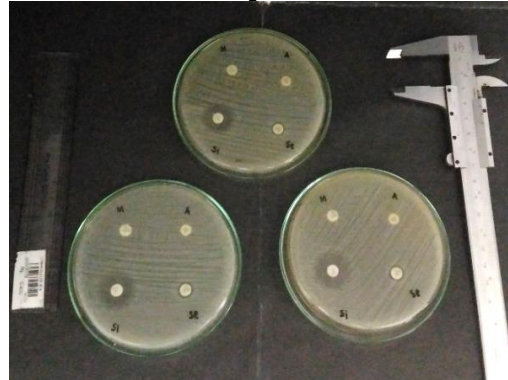
Sampel 34



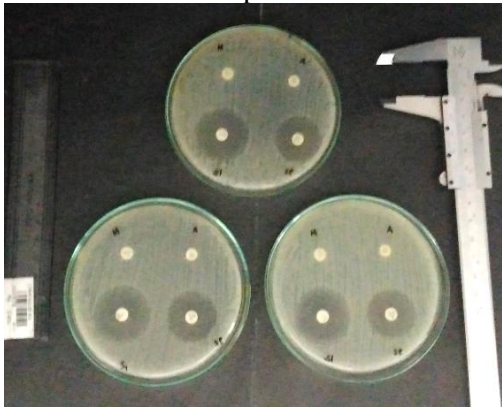
Sampel 35



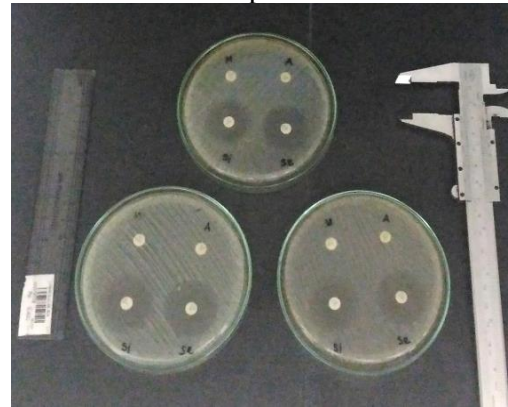
Sampel 36



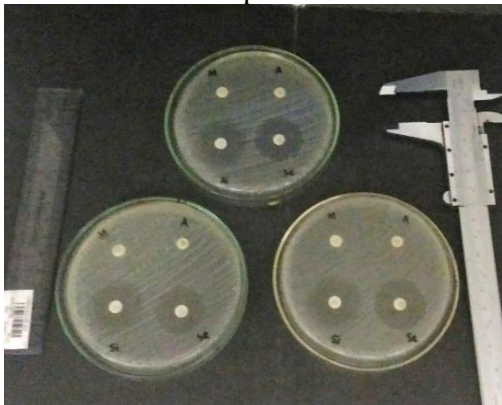
Sampel 37



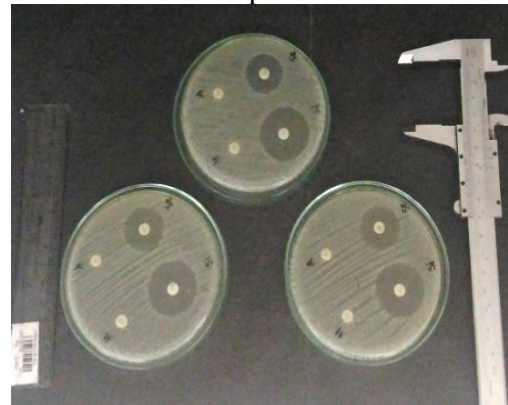
Sampel 38



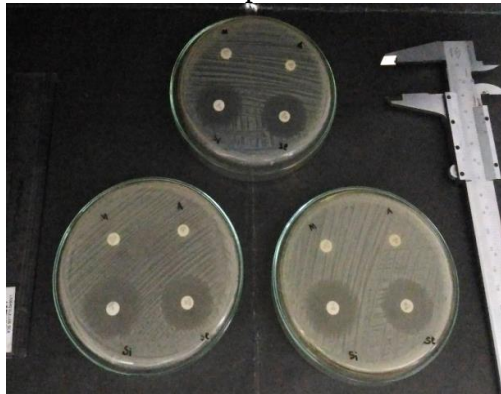
Sampel 39



Sampel 40



Sampel 41



Keterangan :

A : Amoksisilin-klavulanat

M : Meropenem

Se : Seftriakson

Si : Sipprofloksasin

Lampiran 8. Gambar alat

Enkas



Oven



Inkubator



Kompor dan Panci



Vortex



Autoklaf



Jarum Ose dan Ent



Lampu Spiritus



Rak Tabung Reaksi



Lampiran 9. Hasil uji sensitivitas *Klebsiella sp.* terhadap antibiotik amoksisilin-klavulanat, meropenem, seftriakson, dan siprofloksasin

No. Sampel	Replikasi	Diameter zona hambat antibiotik (mm) dan tingkat sensitivitas antibiotik											
		AMK	Rata-rata	PS	MER	Rata-rata	PS	SEF	Rata-rata	PS	SIP	Rata-rata	PS
3	1	6,5			6,5			25,9			36,5		
	2	6,5	6,5	R	6,5	6,5	R	23,6	24,3	S	34,0	35,2	S
	3	6,5			6,5			23,3			35,0		
4	1	6,5			6,5			26,3			21,9		
	2	6,5	6,5	R	6,5	6,5	R	27,1	26,4	S	20,4	21,6	S
	3	6,5			6,6			25,9			22,6		
5	1	6,5			6,5			26,7			24,3		
	2	6,5	6,5	R	6,5	6,5	R	25,6	26,4	S	23,1	23,1	S
	3	6,5			6,5			27,0			21,8		
6	1	6,5			6,5			23,0			6,5		
	2	6,5	6,5	R	6,5	6,5	R	25,0	23,9	S	6,5	6,5	R
	3	6,5			6,5			23,8			6,5		
7	1	6,5			6,5			26,6			27,5		
	2	6,5	6,5	R	6,5	6,5	R	27,5	26,5	S	24,0	26,0	S
	3	6,5			6,5			25,3			26,5		
9	1	6,5			6,5			27,2			22,6		
	2	6,5	6,5	R	6,5	6,5	R	28,2	27,2	S	21,8	22,2	S
	3	6,5			6,5			26,1			22,3		
11	1	6,5			6,5			17,3			30,2		
	2	6,5	6,5	R	6,5	6,5	R	15,3	15,6	R	31,9	31,1	S
	3	6,5			6,5			14,3			31,2		
14	1	6,5			6,5			12,6			33,8		
	2	6,5	6,5	R	6,5	6,5	R	11,5	11,6	R	33,3	33,3	S
	3	6,5			6,5			10,6			32,8		
15	1	6,5			6,5			10,8			11,6		
	2	6,5	6,5	R	6,5	6,5	R	10,3	10,6	R	10,9	11,0	R
	3	6,5			6,5			10,7			10,6		
16	1	6,5			6,5			11,0			28,1		
	2	6,5	6,6	R	6,5	6,5	R	10,6	11,0	R	28,2	28,6	S
	3	6,7			6,5			11,5			29,5		
17	1	6,5			6,9			6,5			28,7		
	2	6,5	6,5	R	6,5	6,6	R	6,5	6,6	R	27,2	27,8	S
	3	6,6			6,5			6,7			27,6		
19	1	6,9			6,5			31,1			36,9		
	2	6,5	6,6	R	6,5	6,5	R	30,5	30,3	S	34,9	35,8	S
	3	6,5			6,5			29,3			35,6		
20	1	6,5			6,5			24,3			26,8		
	2	6,5	6,5	R	6,5	6,5	R	25,8	24,9	S	26,1	26,7	S
	3	6,5			6,5			24,5			27,3		
21	1	6,9			6,5			27,6			21,3		
	2	6,5	6,6	R	6,5	6,5	R	26,7	26,5	S	20,8	21,4	S
	3	6,5			6,5			25,1			22,1		
23	1	6,5			6,9			28,1			28,9		
	2	6,5	6,6	R	6,5	6,6	R	27,9	28,6	S	29,9	29,9	S
	3	6,9			6,5			29,7			30,8		
27	1	6,5			6,5			6,5			31,9		
	2	6,5	6,5	R	6,5	6,5	R	6,5	6,5	R	31,3	31,1	S
	3	6,5			6,5			6,5			30,1		
28	1	6,5			6,5			10,9			6,5		
	2	6,5	6,5	R	6,5	6,5	R	9,2	10,1	R	6,5	6,5	R
	3	6,5			6,5			10,2			6,5		

No. Sampel	Replikasi	Diameter zona hambat antibiotik (mm) dan tingkat sensitivitas antibiotik											
		AMK	Rata-rata	PS	MER	Rata-rata	PS	SEF	Rata-rata	PS	SIP	Rata-rata	PS
29	1	6,5			6,8			28,5			34,1		
	2	6,7	6,6	R	6,5	6,7	R	27,6	27,9	S	32,9	33,6	S
	3	6,7			6,9			27,6			33,7		
30	1	6,5			6,9			9,1			6,5		
	2	6,5	6,6	R	6,5	6,6	R	11,0	9,8	R	6,5	6,5	R
	3	6,9			6,5			9,3			6,5		
31	1	6,5			6,5			27,6			25,7		
	2	6,5	6,5	R	6,5	6,5	R	27,5	27,5	S	26,9	26,1	S
	3	6,5			6,5			27,5			25,8		
32	1	6,5			6,5			11,1			17,5		
	2	6,5	6,6	R	6,5	6,6	R	10,9	10,9	R	16,2	16,4	I
	3	6,9			6,9			10,8			15,4		
33	1	6,5			6,5			26,6			21,8		
	2	6,5	6,5	R	6,5	6,5	R	26,7	26,7	S	22,2	22,1	S
	3	6,5			6,6			26,8			22,3		
34	1	6,5			6,5			12,9			32,7		
	2	6,5	6,5	R	6,5	6,5	R	12,7	12,8	R	30,0	31,4	S
	3	6,5			6,5			12,8			31,5		
35	1	6,5			6,5			27,1			31,6		
	2	6,5	6,5	R	6,5	6,5	R	26,2	27,2	S	30,0	30,8	S
	3	6,5			6,5			28,2			30,8		
36	1	6,5			6,5			8,7			19,4		
	2	6,5	6,5	R	6,5	6,5	R	8,6	8,6	R	20,7	19,5	I
	3	6,5			6,5			8,4			18,5		
37	1	6,5			6,5			26,0			31,3		
	2	6,5	6,5	R	6,5	6,5	R	27,5	26,8	S	31,1	31,2	S
	3	6,5			6,5			26,9			31,2		
38	1	6,5			6,5			29,7			26,1		
	2	6,5	6,5	R	6,5	6,5	R	29,4	29,4	S	25,4	25,6	S
	3	6,5			6,5			29,0			25,2		
39	1	6,5			6,6			27,6			26,6		
	2	6,5	6,5	R	6,5	6,5	R	27,4	27,6	S	25,6	25,9	S
	3	6,5			6,5			27,7			25,5		
40	1	6,5			6,5			24,3			28,4		
	2	6,5	6,5	R	6,5	6,5	R	24,6	24,7	S	29,4	28,8	S
	3	6,5			6,5			25,1			28,7		
41	1	6,5			6,5			27,6			25,6		
	2	6,5	6,5	R	6,5	6,5	R	27,1	27,3	S	25,8	25,8	S
	3	6,5			6,5			27,2			25,9		
<i>Klebsiella sp.</i> ATCC 10031	1	6,5			6,6			24,7			23,2		
	2	6,5	6,5	R	6,5	6,6	R	26,5	25,4	S	23,7	22,7	S
	3	6,5			6,6			25,1			21,2		

Perhitungan Rumus Persentase (%)

a. Amoksisilin-klavulanat

$$\begin{aligned}
 \text{Resistant} &= \frac{\text{Jumlah total pola resistant}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{30}{30} \times 100\% \\
 &= 100\%
 \end{aligned}$$

b. Meropenem

$$\begin{aligned}
 \text{Resistant} &= \frac{\text{Jumlah total pola resistant}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{30}{30} \times 100\% = 100\%
 \end{aligned}$$

c. Seftriakson

$$\begin{aligned}
 \text{Resistant} &= \frac{\text{Jumlah total pola resistant}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{11}{30} \times 100\% \\
 &= 36,67\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Susceptible} &= \frac{\text{Jumlah total pola susceptible}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{19}{30} \times 100\% \\
 &= 63,33\%
 \end{aligned}$$

d. Siprofloksasin

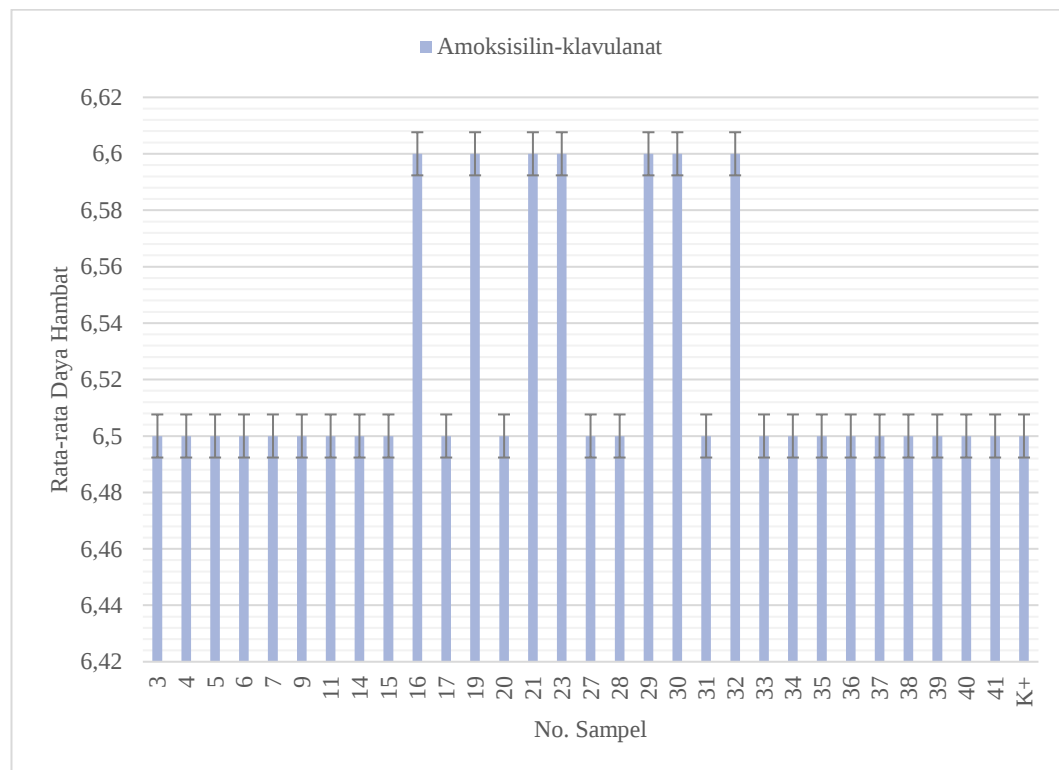
$$\begin{aligned}
 \text{Resistant} &= \frac{\text{Jumlah total pola resistant}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{4}{30} \times 100\% \\
 &= 13,33\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Susceptible} &= \frac{\text{Jumlah total pola susceptible}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{24}{30} \times 100\% \\
 &= 80\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Intermediate} &= \frac{\text{Jumlah total pola intermediate}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{2}{30} \times 100\% \\
 &= 6,67\%
 \end{aligned}$$

Lampiran 10. Hasil uji statistik daya hambat antibiotik

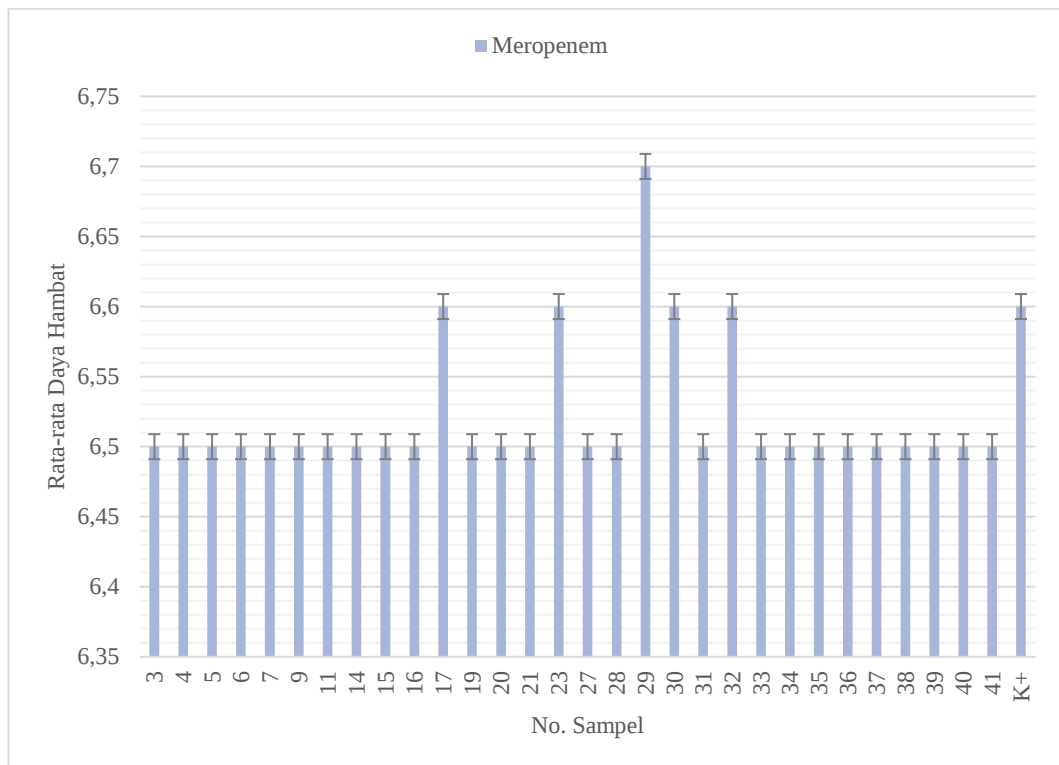
1. Amoksisilin-klavulanat



$$\begin{aligned}
 \text{Berbeda nyata} &= \frac{\text{Jumlah total garis tidak bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{7}{30} \times 100\% \\
 &= 23,33\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Tidak berbeda nyata} &= \frac{\text{Jumlah total garis bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{23}{30} \times 100\% \\
 &= 76,67\%
 \end{aligned}$$

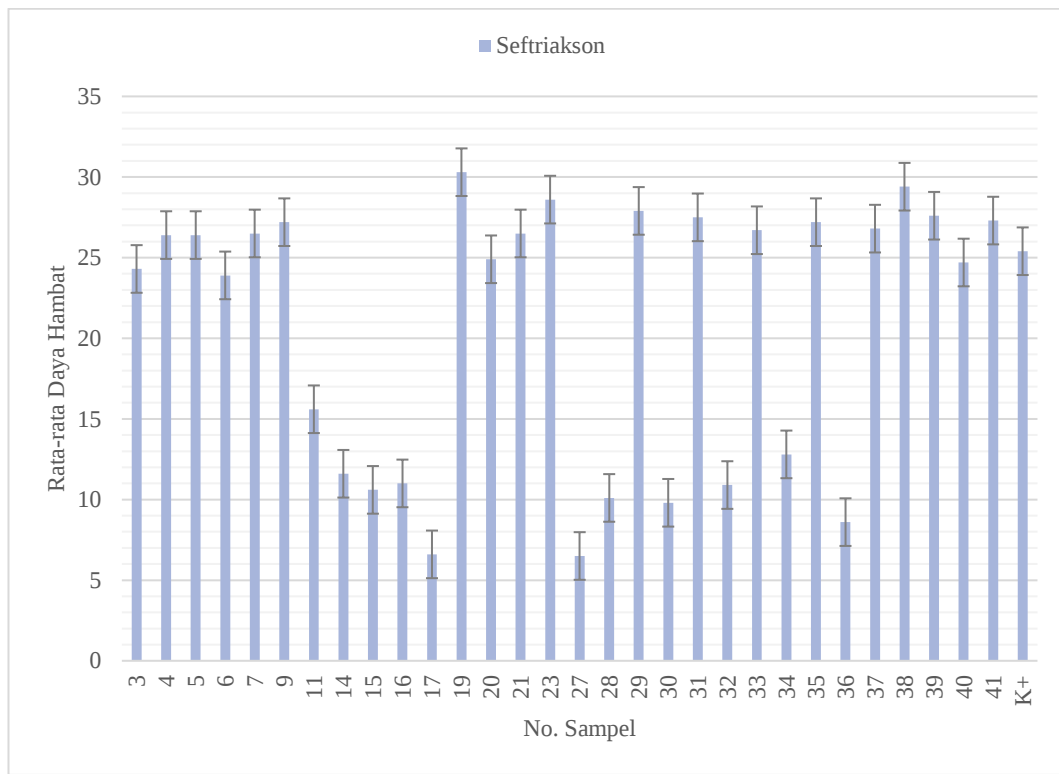
2. Meropenem



$$\begin{aligned}
 \text{Berbeda nyata} &= \frac{\text{Jumlah total garis tidak bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{26}{30} \times 100\% \\
 &= 86,67\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Tidak berbeda nyata} &= \frac{\text{Jumlah total garis bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{4}{30} \times 100\% \\
 &= 13,33\%
 \end{aligned}$$

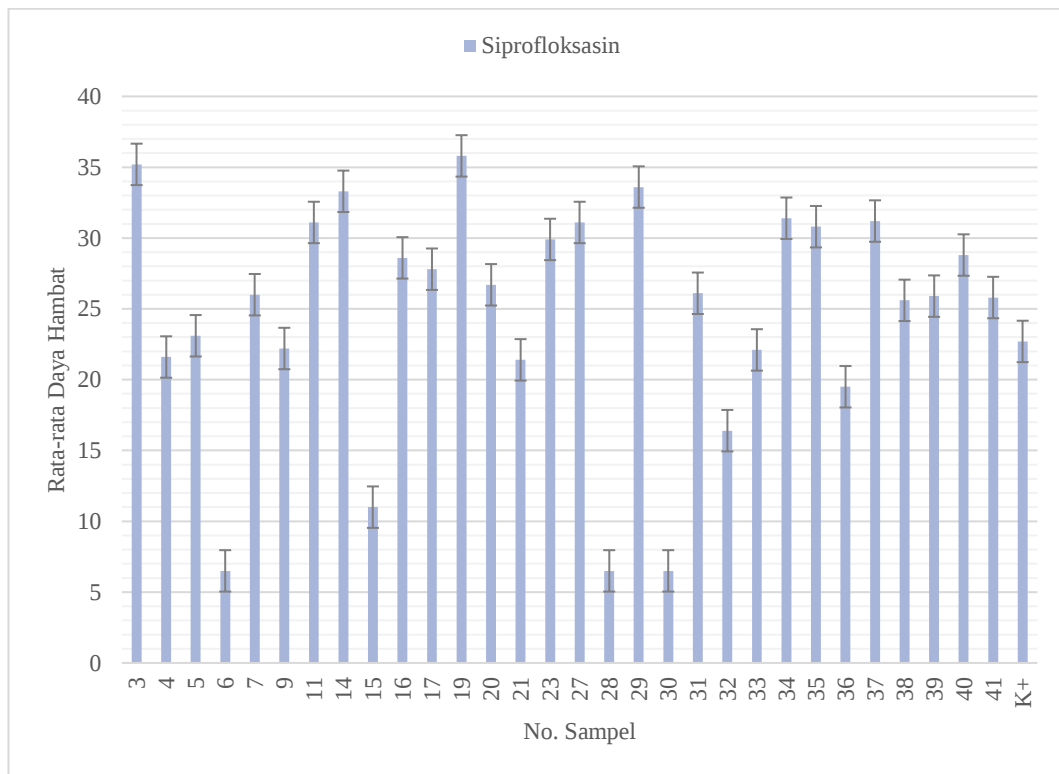
3. Seftriakson



$$\begin{aligned}
 \text{Berbeda nyata} &= \frac{\text{Jumlah total garis tidak bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{14}{30} \times 100\% \\
 &= 46,67\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Tidak berbeda nyata} &= \frac{\text{Jumlah total garis bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{16}{30} \times 100\% \\
 &= 53,33\%
 \end{aligned}$$

4. Siprofloksasin



$$\begin{aligned}
 \text{Berbeda nyata} &= \frac{\text{Jumlah total garis tidak bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{24}{30} \times 100\% \\
 &= 80,00\%
 \end{aligned}$$

$$\begin{aligned}
 \text{Tidak berbeda nyata} &= \frac{\text{Jumlah total garis bersinggungan}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100\% \\
 &= \frac{6}{30} \times 100\% \\
 &= 20,00\%
 \end{aligned}$$

Lampiran 11. Formulasi dan pembuatan media

1. *MacConkey Agar* (MCA)

Komposisi:

Pepton	20,0 g
Agar	13,5 g
Laktosa	10,0 g
Garam empedu	1,5 g
Sodium klorida	5,0 g
Neutral red	0,03 g
Kristal violet	0,001 g
Aquadest	ad 1000 ml
pH 7,2 ± 0,2 pada suhu 25°C	

Bahan-bahan di atas dilarutkan dalam aquadest ad 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit, dan dituang ke dalam cawan petri steril. Media pada kondisi cair tersebut dibiarkan mendingin dan memadat sehingga akan menghasilkan agar lempeng (Atlas 2010).

2. *Mueller Hinton Agar* (MHA)

Komposisi:

Infus daging sapi	300,0 g
Asam hidrolisat kasein	17,5 g
Agar	17,0 g
Pati	1,5 g
Aquadest	ad 1000 ml
pH 7,4 ± 0,2 pada suhu 25°C	

Bahan-bahan di atas dilarutkan dalam aquadest ad 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit, dan dituang ke dalam cawan petri steril. Media pada kondisi cair tersebut dibiarkan mendingin dan memadat sehingga akan menghasilkan agar lempeng (Atlas 2010).

3. *Brain Heart Infussion (BHI)*

Komposisi:

Digesti pankreas gelatin	14,5 g
Otak jantung, padatan dari infus	6,0 g
Digesti peptik jaringan hewan	6,0 g
Sodium klorida	5,0 g
Glukosa	3,0 g
Disodium fosfat	2,5 g
Aquadest	ad 1000 ml
pH $7,4 \pm 0,2$ pada suhu 25°C	

Bahan-bahan di atas dilarutkan dalam aquadest ad 1000 ml, dipanaskan sampai larut sempurna, dituang ke dalam tabung reaksi, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit. Media pada kondisi cair tersebut dibiarkan mendingin (Atlas 2010).

4. *Sulfida Indol Motility (SIM)*

Komposisi:

Digesti pankreas kasein	20,0 g
Digesti peptik jaringan hewan	6,1 g
Agar	3,5 g
Ammonium besi (II) sulfat heksahidrat	0,2 g
Sodium tiosulfat	0,2 g
Aquadest	ad 1000 ml
pH $7,3 \pm 0,2$ pada suhu 25°C	

Bahan-bahan di atas dilarutkan dalam aquadest ad 1000 ml, dipanaskan sampai larut sempurna, dituang ke dalam tabung reaksi, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit. Media pada kondisi cair tersebut dibiarkan mendingin dan memadat pada posisi tegak sehingga akan menghasilkan agar tegak (Atlas 2010).

5. *Kligler Iron Agar (KIA)*

Komposisi:

Digesti pankreas kasein	10,0 g
Digesti peptik jaringan hewan	10,0 g
Agar	15,0 g
Laktosa	10,0 g
Glukosa	1,0 g
Sodium klorida	5,0 g
Ferric ammonium sitrat	0,5 g
Sodium tiosulfat	0,5 g
Phenol red	0,025 g
Aquadest	Ad 1000 ml
pH 7,4 ± 0,2 pada suhu 25°C	

Bahan-bahan di atas dilarutkan dalam aquadest ad 1000 ml, dipanaskan sampai larut sempurna, dituang ke dalam tabung reaksi, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit. Media pada kondisi cair tersebut dibiarkan mendingin dan memadat pada posisi miring sehingga akan menghasilkan agar miring (Atlas 2010).

6. *Lysine Iron Agar (LIA)*

Komposisi:

Digesti pankreas gelatin	5,0 g
Ekstrak ragi	3,0 g
Glukosa	1,0 g
L-lisin	10,0 g
Ferric ammonium sitrat	0,5 g
Sodium tiosulfat	0,04 g
Bromocresol purple	0,02 g
Agar	13,5 g
Aquadest	ad 1000 ml
pH 6,7 ± 0,2 pada suhu 25°C	

Bahan-bahan di atas dilarutkan dalam aquadest ad 1000 ml, dipanaskan sampai larut sempurna, dituang ke dalam tabung reaksi, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit. Media pada kondisi cair tersebut dibiarkan mendingin dan memadat pada posisi miring sehingga akan menghasilkan agar miring (Atlas 2010).

7. *Simmons' Citrate Agar* (Sitrat Agar)

Komposisi:

Magnesium sulfat	0,2 g
Ammonium dihidrogen fosfat	1,0 g
Dikalium fosfat	1,0 g
Sodium sitrat	2,0 g
Sodium klorida	5,0 g
Bromothymol blue	0,08 g
Agar	15,0 g
Aquadest	ad 1000 ml
pH $6,9 \pm 0,2$ pada suhu 25°C	

Bahan-bahan di atas dilarutkan dalam aquadest ad 1000 ml, dipanaskan sampai larut sempurna, dituang ke dalam tabung reaksi, kemudian disterilkan dengan autoklaf pada suhu 121°C selama 15 menit. Media pada kondisi cair tersebut dibiarkan mendingin dan memadat pada posisi miring sehingga akan menghasilkan agar miring (Atlas 2010).

Lampiran 12. Pengantar penelitian



PEMERINTAH PROVINSI JAWA TENGAH
RUMAH SAKIT UMUM DAERAH Dr. MOEWARDI

Jalan Kolonel Sutarto 132 Surakarta Kode pos 57126 Telp (0271) 634 634,
 Faksimile (0271) 637412 Email : rsmoewardi@jatengprov.go.id
 Website : rsmoewardi.jatengprov.go.id

Surakarta, 16 November 2018

Nomor : / DIK / XI / 2018
 Lampiran :-
 Perihal : Pengantar Penelitian

Kepada Yth. :

Ka. Instalasi Lab. Mikrobiologi & Parasitologi Klinik

RSUD Dr. Moewardi
 di-

SURAKARTA

Memperhatikan Surat dari Dekan Fak. Farmasi USB Surakarta Nomor : 4.114/A10-4/02.11.18; perihal Permohonan Ijin Penelitian dan disposisi Direktur tanggal 05 November 2018, maka dengan ini kami menghadapkan siswa:

Nama : Fadhilia Almas Diyastuti

NIM : 21154474 A

Institusi : Prodi S.1 Ilmu Farmasi Fak. Farmasi USB Surakarta

Untuk melaksanakan Penelitian dalam rangka pembuatan **Skripsi** dengan judul : **"Uji Sensitivitas Klebsiella sp. dari Sputum Pasien Pneumonia di RSUD Dr. Moewardi Terhadap Beberapa Antibiotik"**.

Demikian untuk menjadikan periksa dan atas kerjasamanya diucapkan terima kasih.

Kepada
 Bagian Pendidikan & Penelitian,

Ari Subagito, SE., MM
 NIP. 19660131 199503 1 002

Tembusan Kepada Yth.:

1. Wadir Umum RSDM (sebagai laporan)
2. Arsip

RSDM Cepat, Tepat, Nyaman dan Mudah

Lampiran 13. Kelaikan etik

11/5/2018

Form A2



HEALTH RESEARCH ETHICS COMMITTEE
KOMISI ETIK PENELITIAN KESEHATAN
Dr. Moewardi General Hospital
RSUD Dr. Moewardi

School of Medicine Sebelas Maret University
Fakultas Kedokteran Universitas Sebelas Maret



ETHICAL CLEARANCE
KELAIKAN ETIK

Nomor : 752 / XI / HREC / 2018

The Health Research Ethics Committee Dr. Moewardi General Hospital / School of Medicine Sebelas
 Komisi Etik Penelitian Kesehatan RSUD Dr. Moewardi / Fakultas Kedokteran Universitas Sebelas Maret

Maret University Of Surakarta, after reviewing the proposal design, herewith to certify
 Surakarta, setelah menilai rancangan penelitian yang diusulkan, dengan ini menyatakan

That the research proposal with topic :
 Bahwa usulan penelitian dengan judul

**UJI SENSITIVITAS Klebsiella sp. DARI SPUTUM PASIEN PNEUMONIA DI RSUD Dr. MOEWARDI
 TERHADAP BEBERAPA ANTIBIOTIK**

Principal investigator : FADHILIA ALMAS DIYASTUTI
 Peneliti Utama : 21154474A

Location of research : LABORATORIUM MIKROBIOLOGI KLINIK RSUD Dr. MOEWARDI
 Lokasi Tempat Penelitian

Is ethically approved
 Dinyatakan layak etik



Issued on : 05 Nov 2018

Chairman
 Ketua

Dr. Hari Wijoso, dr., Sp.F.MM
 NIP. 19621022 199503 1 001

Lampiran 14. Keterangan Bebas Penelitian



PEMERINTAH PROVINSI JAWA TENGAH
RUMAH SAKIT UMUM DAERAH Dr. MOEWARDI

Jalan Kolonel Sutarto 132 Surakarta Kodepos 57126 Telp (0271) 634 634,
 Faksimile (0271) 637412 Email : rsmoewardi@jatengprov.go.id
 Website : rsmoewardi.jatengprov.go.id

SURAT KETERANGAN

Nomor : 045 / 3305 / 2019

Yang bertanda tangan di bawah ini:

Nama : dr. Suharto Wijanarko, Sp.U
Jabatan : Wakil Direktur Umum RSUD Dr. Moewardi

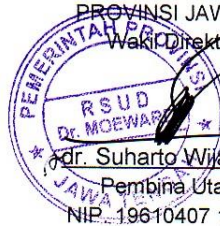
Dengan ini menerangkan bahwa:

Nama : Fadhilia Almas Diyastuti
NIM : 21154474 A
Institusi : Prodi S.1 Ilmu Farmasi Fak. Farmasi USB Surakarta

Telah selesai melaksanakan penelitian di RSUD Dr. Moewardi dalam rangka penulisan **Skripsi** dengan judul "**Uji Sensitivitas *Klebsiella sp.* dari Sputum Pasien Pneumonia di RSUD Dr. Moewardi Terhadap Beberapa Antibiotik**".

Demikian surat keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Surakarta, 12 April 2019
 a.n DIREKTUR RSUD Dr. MOEWARDI
 PROVINSI JAWA TENGAH
 Wakil Direktur Umum


 dr. Suharto Wijanarko, Sp.U
 Pembina Utama Muda
 NIP. 19610407 198812 1 001