

BAB V

PENUTUP

A. Kesimpulan

Pertama, pada uji isolasi terdapat bakteri *Escherichia coli* dari urin penderita infeksi saluran kemih di Rumah Sakit PKU Muhammadiyah Surakarta.

Kedua, uji sensitivitas pada prosetase untuk bakteri *Escherichia coli*, antimikroba yang sensitif adalah antibiotik amoksisilin-asam klavulanat (61%), siprofloksasin (96%), seftriakson (100%), dan imipenem (100%) terhadap bakteri *Escherichia coli* di Rumah Sakit PKU Muhammadiyah Surakarta.

Ketiga, antibiotik imipenem merupakan antibiotik yang mempunyai daya hambat tertinggi terhadap bakteri *Escherichia coli* dari urin penderita infeksi saluran kemih di Rumah Sakit PKU Muhammadiyah Surakarta.

B. Saran

Saran yang dapat diberikan dari penelitian ini sebagai berikut :

Pertama, uji sensitivitas antibiotik amoksisilin-asam klavulanat, siprofloksasin, seftriakson, dan imipenem terhadap bakteri *Escherichia coli* pada pasien infeksi saluran kemih perlu dilakukan lebih lanjut dengan metode dilusi.

Kedua, jaga kebersihan dan sanitasi lingkungan sangatlah penting untuk masyarakat apalagi bagi yang sudah pernah punya riwayat terinfeksi saluran kemih jadi harus diimbangi rutin dalam pemeriksaan ke Rumah Sakit untuk memantau perkembangan.

Ketiga, tenaga kesehatan dalam memberikan terapi pengobatan antibiotik kepada pasien harus mempertimbangkan efek samping obat tersebut

DAFTAR PUSTAKA

- Amirah ZI, Aumas P, Rizanda M, Lillah. 2011. *Uji Diagnostik Tiga Metode Pemeriksaan Urinalisis Untuk Identifikasi Cepat Infeksi Saluran Kemih Pada Anak*. Program Pascasarjana. Universitas Andalas. Padang.
- Anief M. 2004. *Prinsip Umum dan Dasar Farmakologi*. Fakultas Farmasi Universitas Gadjah Mada, Yogyakarta: Gadjah Mada University Press.
- Arif *et al.* 2000. *Kapita Selekta Kedokteran*. Edisi ketiga jilid kedua. Fakultas Kedokteran Universitas Indonesia. Jakarta: Universitas Indonesia. Hal 485-486.
- Arif *et al.* 2001. *Kapita Selekta Kedokteran*. Edisi ketiga jilid pertama. Fakultas Kedokteran Universitas Indonesia. Jakarta: Universitas Indonesia. Hal 523-524.
- Bambang Ismoyono. 2012. Evaluasi penggunaan antibiotik pada pasien rawat inap infeksi saluran kemih di Rumah Sakit Yarsis Surakarta tahun 2010 dan 2011 menggunakan metode ATC/DDD. [*Skripsi*]. Fakultas Farmasi. Universitas Setia Budi. Surakarta.
- Bauer, Kirby, Sherris and Truck. 1966. *Am. J. Clin. Pathol.* 45:493.
- Bridson, E.Y. 1998. *The Oxoid Manual*. Edisi 8. Oxoid Limited. England.
- Coyle, E. A. 2005. *Urinary Tract Infection*. Editor, In Dipro J. T., et al, *Pharmacotherapy A Pathophysiologic Approach*, 6th. Appleton & Lange, Stamford. Hal 2081.
- [Depkes RI]. 2001. *IONI 2000*. Jakarta CV. Sagung Seto.
- Dinah dan chritine. 2005. *Mikrobiologi Terapan untuk Perawat*. Editor, Monica Ester. Surakarta: Universitas Muhammadiyah Surakarta.
- Etriyel Myh, David M. 2012. Pola Sensitifitas dan Resistensi Kuman Urin, Ujung Kateter dan Ujung Drain Pasien Resipient Transplantasi Ginjal di RS PGI Cikini Jakarta. *Jurnal Kesehatan Andala*:1.
- Gandasoebrata, R. 1967. *Urinalisis, Penuntun Laboratorium Klinik*, Jakarta: Dian Rakyat.
- Gilman AG, Hardman JG, Limbird LE, editor. 2008. *Goodman & Gilman: Dasar Farmakologi Terapi*. Hanif A, dkk, penerjemah. Volume 2. Jakarta: Erlangga Medical Center (EGC). Terjemahan dari: Goodman and Gilman's *The Pharmacological Basis Of Therapeutics*. Hal 692-693.

- Goodman and Gilman. 2007. *Manual Farmakologi dan Terapi*. Jakarta: EGC. Hal 1156-1157.
- Goodman and Gilman. 2010. *Manual Farmakologi dan Terapi*. Jakarta: EGC. Hal 692-693.
- Gunawan, G.S. 2007. *Farmakologi Dan Terapi*. Edisi 5. Jakarta: Departemen Farmakologi dan Terapeutik Fakultas Kedokteran-Universitas Indonesia..
- Gupte, S. 1990. *Mikrobiologi Dasar*. Alih bahasa oleh Julius, E. S. Edisi ketiga, 43. Jakarta: Binarupa Aksara
- Hadioetomo, R.S., 1985, *Mikrobiologi Dasar Dalam Praktek Teknik dan Prosedur Dasar Laboratorium*, PT. Gramedia, Jakarta.
- Iskamto B. 2009. *Bakteriologi Kesehatan*. Harti AS, editor. Surakarta: Sebelas Maret University Press.
- Istiantoro B. 2007. *Farmakologi dan Terapi*. 5th edition. Jakarta: Departemen Farmakologi dan Terapeutik Fakultas Kedokteran Universitas Indonesia.
- Jawetz E, Melnick JL, Adelnerg EA. 1986. *Mikrobiologi untuk Profesi Kedokteran*. Edisi 14,16. Bonang G, penerjemah. Jakarta: EGC Penerbit Buku Kedokteran.
- Jawetz E, Melnick JL, Adelnerg EA. 2001. *Mikrobiologi untuk Profesi Kedokteran*. Edisi XXII, diterjemahkan oleh Bagian Mikrobiologi Fakultas Kedokteran. Universitas Airlangga 205-209. Jakarta: Penerbit Salemba Medika. Katzung BG. 1997. *Farmakologi Dasar dan Klinik*. Agoes A, editor. Jakarta: Penerbit Buku Kedokteran. Terjemahan dari : Staf Dosen Farmakologi Fakultas Kedokteran Universitas Sriwijaya.
- Junizaf BG. 1994. *Seminar Infeksi Saluran Kemih pada Wanita*. Jakarta: Fakultas Kedokteran Universitas Indonesia
- Kalalo,Aryati, Subagjo B. 2006. Pola Bakteri dan Tes Kepekaan Antibiotika Wanita Hamil dengan Bakteriuria Asimtomatis. *Jurnal Natur Indonesia klinik patologi dan laboratorium medical*. Vol 12 (3).
- Katzung BG. 2004. *Farmakologi Dasar dan Klinik*. Agoes A, editor. Jakarta: Penerbit Buku Kedokteran. Terjemahan dari : Staf Dosen Farmakologi Fakultas Kedokteran Universitas Sriwijaya.
- Katzung BG. 2011. *Farmakologi Dasar dan Klinik*. Nirmala WK, editor. Edisi 10. Jakarta: EGC. Terjemahan dari: Basic and Clinical Pharmacology.
- Kusnadi, Soni Muhsinin, Yayan Sanjana. 2009. *Buku Saku Biologi*. SMA. Jakarta:Kawan Pustaka.

- Mandal BK, Wilkins EGL, Dunbar EM, Mayon-White RT. 2008. Lecture Notes Penyakit Infeksi. Safitri A, editor. Edisi keenam. Jakarta: Erlangga.
- Michael P, E.C.S. Chan. 2003. *Element of Microbiology*. Penerjemah: Ratna H et al editor. New york: Megill University. Terjemahan dari: Dasar- dasar Mikrobiologi.
- Noviana, H. 2004. Pola Kepekaan Antibiotika Escherichia coli yang Diisolasi dari Berbagai Spesimen Klinis. *Jurnal kedokteran trisakti*. Vol 23 No.4.
- Raihana N. 2011. *Profil Kultur Dan Uji Sensitivitas Bakteri Aerob Dari Infeksi Luka Operasi Laparatomi Di Bansal Bedah Rsup Dr. M. Djamil Padang*, Padang : Program Pascasarjana Universitas Andalas.
- Samirah, Darwati, Windarwati, Hardjoeno. 2006. *Pola Sensitivitas Kuman di Penderita Infeksi Saluran Kemih*. Indonesian Journal of Clinical Pathology and Medical Laboratory. 12(3): 110-113.
- Sari Uti N. 2009. Pola sensitivitas bakteri yang diisolasi dari darah terhadap kuinolon di laboratorium mikrobiologi klinik FKUI pada tahun 2001-2006. [Skripsi]. Jakarta. Fakultas kedokteran Universitas Indonesia.
- Shulman, Stamford, T., Phair, Jhon, P., Sommers, Herbert, M. 1994. *Dasar Biologi and Klinis Penyakit Infeksi*. Edisi IV. Yogyakarta: Gadjah Mada University Press. Hal 245-246, 252.
- Sukandar EY, Andrajati R, Sigit JI, Adnyana IK, Setiadi AP, Kusnandar. 2008. *ISO Farmakoterapi*. Jakarta: PT. ISFI Penerbitan. Hal 748.
- Suriawiria U. 1985. *Pengantar Mikrobiologi Umum*. Bandung: PT Angkasa. Hal 60-63.
- Sylvia PT. 2008. *Mikrobiologi Farmasi*. Jakarta: Erlangga Medical Series (EMS).
- Tan dan Rahardja. 2002. *Obat-Obatan Penting*. Edisi VI. Jakarta: Erlangga. Hal 56-58, 65, 74.
- Tessy A, Ardaya, Suwanto. 2001. *Buku Ajar Ilmu Penyakit Dalam*. Edisi III. Jakarta: Balai Penerbit FKUI. Hal 369-374.
- Tortora GJ, funke BR, Case CL. 1986. *Mikrobiologi*. An: Introduction Second Edition. California: The benjamin/Cumming Publishing Company Inc. Hal 122.
- Volk WA, Wheeler MF. 1988. *Mikrobiologi Dasar*. Adisoemarto S, editor. Edisi V. Jakarta: Erlangga. *Basis Mikrobiologi*.
- Waluyo L. 2004. *Mikrobiologi Umum*. Malang: Universitas Muhammadiyah Malang, UMM Press.

Widya A. 2009. *Pola Resistensi Bakteri Diisolasi*. Jakarta: Fakultas Kedokteran, Universitas Indonesia.

Yuianto. 2009. Pola Kepekaan Bakteri Gram Negatif dari Pasien Infeksi Saluran Kemih Terhadap Antibiotik Golongan Betalaktam di Laboratorium Mikrobiologi Klinik FKUI. [*Skripsi*]. Jakarta: Fakultas Kedokteran Universitas Indonesia. Program Pendidikan Umum.

Lampiran 1. Surat ijin penelitian



SEHAT - SEJAHTERA - ISLAMI

RUMAH SAKIT "PKU MUHAMMADIYAH"

Jl. Ronggowarsito 130 Telp. 714578 (Hunting) Sala
Izin Dep. Kes. RI YAN MED.02.04.2.2.1006.

KODE POS 57131

SURAT KETERANGAN

No. /Skr/RS-PKU/VI/2013.

Wadir Umum dan Diklit RS PKU Muhammadiyah Surakarta, menerangkan bahwa :

Nama : **Mila Padmidawati.**

NIM : **15092726 A.**

Pendidikan : **Program Studi S1 farmasi Fakultas Farmasi.**

Universitas Setia Budi Surakarta.

Tersebut diatas benar-benar telah melakukan Penelitian untuk memenuhi syarat-syarat mencapai gelar Sarjana Farmasi Program Studi S1 Farmasi dengan judul **"Uji Sensitivitas Antibiotik Amoksisilin Clavulanat Acid, Seftriakson, Siprofloksasin, dan Imipenem Terhadap Bakteri E-Coli Hasil Isolasi Urin Pada Pasien Infeksi Saluran Kemih di RS PKU Muhammadiyah Surakarta Bulan Maret – April Tahun 2013"**.

Demikian, surat keterangan ini dibuat untuk dipergunakan sebagaimana mestinya.

Surakarta, 03 Juni 2013.

RS PKU Muhammadiyah Surakarta

Wakil Direktur Umum,



H.A.Thontowi Mahdi, SE, MM,

NBM:602.458

Lampiran 2. Hasil uji sensitivitas, perhitungan prosentase dan perhitungan diameter zona hambat (mm)

1. Hasil uji sensitivitas setiap repikasi

| Sampel | No. | Replikasi | Amoksisilin- asam klavulanat | | siprofloksasin | | Seftriakson | | Imipenem | |
|-----------------|---------|-----------|------------------------------------|----|----------------|----|-------------|----|----------|----|
| | | | D | PS | D | PS | D | PS | D | PS |
| Biakan murni | Kontrol | 1 | 25 | S | 45 | S | 33 | S | 33 | S |
| | | 2 | 24 | S | 45 | S | 33 | S | 34 | S |
| | Positif | 3 | 25 | S | 46 | S | 34 | S | 34 | S |
| Sampel 1 | 1 | | - | - | - | - | - | - | - | - |
| | 2 | 1 | 15 | R | 26 | S | 22 | S | 35 | S |
| | | 2 | 16 | R | 25 | S | 21 | S | 36 | S |
| 3 | | 17 | R | 26 | S | 22 | S | 36 | S | |
| 3 | 1 | 1 | 15 | R | 32 | S | 31 | S | 33 | S |
| | | 2 | 14 | R | 32 | S | 31 | S | 34 | S |
| | | 3 | 15 | R | 32 | S | 33 | S | 35 | S |
| 4 | 1 | 1 | 35 | S | 38 | S | 35 | S | 47 | S |
| | | 2 | 35 | S | 38 | S | 36 | S | 47 | S |
| | | 3 | 35 | S | 40 | S | 36 | S | 48 | S |
| 5 | | | - | - | - | - | - | - | - | |
| 6 | 1 | 1 | 23 | S | 32 | S | 35 | S | 34 | S |
| | | 2 | 23 | S | 32 | S | 35 | S | 33 | S |
| | | 3 | 24 | S | 34 | S | 35 | S | 35 | S |
| 7 | 1 | 1 | 16 | R | 35 | S | 39 | S | 36 | S |
| | | 2 | 16 | R | 35 | S | 39 | S | 36 | S |
| | | 3 | 18 | R | 36 | S | 39 | S | 36 | S |
| 8 | 1 | 1 | 38 | S | 49 | S | 38 | S | 46 | S |
| | | 2 | 38 | S | 49 | S | 38 | S | 46 | S |
| | | 3 | 39 | S | 50 | S | 39 | S | 48 | S |
| 9 | 1 | 1 | 21 | S | 31 | S | 31 | S | 32 | S |
| | | 2 | 21 | S | 31 | S | 32 | S | 33 | S |
| | | 3 | 21 | S | 32 | S | 31 | S | 33 | S |
| 10 | 1 | 1 | 17 | R | 15 | R | 22 | S | 37 | S |
| | | 2 | 17 | R | 15 | R | 22 | S | 37 | S |
| | | 3 | 18 | R | 15 | R | 22 | S | 37 | S |
| 11 | 1 | 1 | 30 | S | 47 | S | 35 | S | 40 | S |
| | | 2 | 31 | S | 47 | S | 36 | S | 40 | S |
| | | 3 | 31 | S | 47 | S | 37 | S | 40 | S |
| 12 | 1 | 1 | 21 | S | 47 | S | 41 | S | 41 | S |
| | | 2 | 21 | S | 47 | S | 42 | S | 41 | S |
| | | 3 | 23 | S | 48 | S | 42 | S | 42 | S |
| 13 | | | - | - | - | - | - | - | - | |
| 14 | 1 | 1 | 30 | S | 44 | S | 35 | S | 31 | S |
| | | 2 | 30 | S | 44 | S | 35 | S | 31 | S |
| | | 3 | 31 | S | 45 | S | 35 | S | 31 | S |
| 15 | 1 | 1 | 17 | R | 39 | S | 37 | S | 38 | S |
| | | 2 | 18 | R | 40 | S | 37 | S | 38 | S |
| | | 3 | 18 | R | 40 | S | 37 | S | 38 | S |
| 16 | 1 | 1 | 18 | R | 31 | S | 37 | S | 30 | S |
| | | 2 | 18 | R | 32 | S | 37 | S | 30 | S |
| | | 3 | 19 | R | 31 | S | 37 | S | 31 | S |

| Sampel | No. | Replikasi | Amoksisilin- asam klavulanat | siprofloksasin | Seftriakson | Imipenem | | | |
|--------|-----|-----------|------------------------------------|----------------|-------------|----------|---|----|---|
| 17 | 1 | 21 | S | 40 | S | 38 | S | 35 | S |
| | 2 | 21 | S | 41 | S | 38 | S | 36 | S |
| | 3 | 22 | S | 41 | S | 38 | S | 37 | S |
| 18 | 1 | 22 | S | 33 | S | 31 | S | 34 | S |
| | 2 | 22 | S | 33 | S | 32 | S | 34 | S |
| | 3 | 22 | S | 34 | S | 31 | S | 34 | S |
| 19 | | - | - | - | - | - | - | - | - |
| 20 | 1 | 30 | S | 43 | S | 42 | S | 39 | S |
| | 2 | 31 | S | 42 | S | 43 | S | 39 | S |
| | 3 | 32 | S | 43 | S | 44 | S | 39 | S |
| 21 | 1 | 12 | R | 31 | S | 31 | S | 31 | S |
| | 2 | 12 | R | 33 | S | 31 | S | 33 | S |
| | 3 | 12 | R | 33 | S | 31 | S | 31 | S |
| 22 | 1 | 15 | R | 33 | S | 21 | S | 37 | S |
| | 2 | 15 | R | 33 | S | 22 | S | 37 | S |
| | 3 | 15 | R | 34 | S | 21 | S | 38 | S |
| 23 | 1 | 30 | S | 33 | S | 31 | S | 32 | S |
| | 2 | 31 | S | 33 | S | 31 | S | 32 | S |
| | 3 | 31 | S | 33 | S | 32 | S | 33 | S |
| 24 | 1 | 39 | S | 24 | S | 25 | S | 36 | S |
| | 2 | 39 | S | 24 | S | 24 | S | 37 | S |
| | 3 | 40 | S | 25 | S | 25 | S | 37 | S |
| 25 | | - | - | - | - | - | - | - | - |
| 26 | | - | - | - | - | - | - | - | - |
| 27 | 1 | 18 | R | 33 | S | 34 | S | 34 | S |
| | 2 | 18 | R | 33 | S | 34 | S | 34 | S |
| | 3 | 18 | R | 33 | S | 34 | S | 35 | S |
| 28 | 1 | 25 | S | 32 | S | 34 | S | 38 | S |
| | 2 | 24 | S | 32 | S | 35 | S | 39 | S |
| | 3 | 25 | S | 33 | S | 34 | S | 38 | S |
| 29 | | - | - | - | - | - | - | - | - |
| 30 | 1 | 33 | S | 34 | S | 39 | S | 38 | S |
| | 2 | 32 | S | 35 | S | 39 | S | 38 | S |
| | 3 | 33 | S | 36 | S | 40 | S | 39 | S |

Perhitungan Rumus Prosetase (%)

$$\text{Resisten} = \frac{\text{Jumlah total pola resisten}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100$$

$$\text{Susceptible} = \frac{\text{Jumlah total pola susceptible}}{\text{Jumlah total sampel bakteri yang dilakukan}} \times 100$$

a. Amoksisilin-asam klavulanat

$$\text{Resisten} = \frac{9}{23} \times 100 = 39 \%$$

$$\text{Susceptible} = \frac{14}{23} \times 100 = 61 \%$$

b. siprofloksasin

$$\text{Resisten} = \frac{1}{23} \times 100\% = 4 \%$$

$$\text{Susceptible} = \frac{22}{23} \times 100\% = 96 \%$$

c. seftriakson

$$\text{Susceptible} = \frac{23}{23} \times 100\% = 100\%$$

d. Imipenem

$$\text{Susceptible} = \frac{23}{23} \times 100\% = 100\%$$

2. Hasil rata-rata dari uji sensitivitas

| Sampel | No. | Amoksisilin- asam klavulanat | | siprofloksasin | | Seftriakson | | Imipenem | |
|-----------------|--------------------|------------------------------------|----|----------------|----|-------------|----|----------|----|
| | | D | PS | D | PS | D | PS | D | PS |
| Biakan murni | Kontrol Positif | 24,55 | S | 45,66 | S | 33,33 | S | 33,66 | S |
| Sampel | 1 | - | - | - | - | - | - | - | - |
| | 2 | 16 | R | 26,66 | S | 22,66 | S | 35,66 | S |
| | 3 | 15,66 | R | 32 | S | 31,66 | S | 34 | S |
| | 4 | 35 | S | 38,33 | S | 35,66 | S | 47,33 | S |
| | 5 | - | - | - | - | - | - | - | - |
| | 6 | 23,33 | S | 32,33 | S | 35 | S | 34 | S |
| | 7 | 16,66 | R | 35,33 | S | 39 | S | 36 | S |
| | 8 | 38,33 | S | 49,33 | S | 38,33 | S | 46,66 | S |
| | 9 | 21 | S | 31,33 | S | 31,33 | S | 32,33 | S |
| | 10 | 17,33 | R | 15 | R | 22 | S | 37 | S |
| | 11 | 30,33 | S | 47 | S | 35,66 | S | 40 | S |
| | 12 | 21,66 | S | 47,66 | S | 41,66 | S | 41,33 | S |
| | 13 | - | - | - | - | - | - | - | - |
| | 14 | 30,33 | S | 44,33 | S | 35 | S | 31 | S |
| | 15 | 17,33 | R | 39,66 | S | 37 | S | 38 | S |
| | 16 | 18,33 | R | 31,33 | S | 37 | S | 30,33 | S |
| | 17 | 21,33 | S | 40,66 | S | 38 | S | 36 | S |
| | 18 | 22 | S | 33,33 | S | 31,33 | S | 36 | S |
| | 19 | | | | - | | | | |
| | 20 | 31 | S | 42,66 | S | 43 | S | 39 | S |

| Sampel | No. | Amoksisilin- asam klavulanat | siprofloksasin | Seftriakson | Imipenem |
|--------|-----|------------------------------------|----------------|-------------|----------|
| | 21 | 12 R | 31,66 S | 31 S | 31,33 S |
| | 22 | 15 R | 33,33 S | 21,33 S | 37,33 S |
| | 23 | 30,66 S | 33 S | 31,33 S | 32,33 S |
| | 24 | 39,33 S | 24,3 S | 24,6 S | 36,6 S |
| | 25 | | | - | |
| | 26 | | | - | |
| | 27 | 18 R | 33 S | 34 S | 34,33 S |
| | 28 | 24,66 S | 32,3 S | 34,33 S | 38,33 S |
| | 29 | | | - | |
| | 30 | 33,33 S | 35 S | 39,33 S | 38,33 S |

Perhitungan Rumus rata-rata

Jumlah total diameter zona hambat
Jumlah total replikasi yang dilakukan

$$\text{Amoksisilin-asam klavulanat} = \frac{548,6}{23} = 23,85 \text{ mm}$$

$$\text{Siprofloksasin} = \frac{701,27}{23} = 30,49 \text{ mm}$$

$$\text{Seftriakson} = \frac{769,58}{23} = 33,46 \text{ mm}$$

$$\text{Imipenem} = \frac{842,03}{23} = 36,61 \text{ mm}$$

Lampiran 3. Formulasi dan pembuatan media per liter air aquadest

1. Endo Agar

| | |
|--------------------------------|---------|
| Dipotassium phospat | 3,5 g |
| Peptic Digest of Animal Tissue | 10,0 g |
| Agar | 15,0 g |
| Lactosa | 10,0 g |
| Sodium sulfit | 2,5 g |
| Basic fuchsin | 0,5 g |
| Air suling ad | 1000 ml |

pH $7,4 \pm 0,2$

Bahan- bahan di atas dilarutkan ke dalam aquadest 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoclave pada suhu 121°C selama 15 menit dan dituang dalam cawan petri lalu ditambahkan natrium sulfit 5 tetes (Bridson 1998).

2. Mueller Hinton Agar (MHA)

| | |
|---------------------|---------|
| Ekstrak daging sapi | 300 g |
| Asam hidrolisata | 17,5 g |
| Kanji | 1,5 g |
| Agar | 17,0 g |
| Aquadest ad | 1000 ml |

pH $7,4 \pm 0,2$

Bahan- bahan di atas dilarutkan ke dalam aquadest 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoclave pada suhu 121°C selama 15 menit dan dituang dalam cawan petri (Bridson 1998).

3. Brain Heart Infusion (BHI)

| | |
|----------------------|---------|
| Infus dari otak sapi | 12,5 g |
| Infus dari hati sapi | 5,0 g |
| Protease peptone | 10,0 g |
| Dextose | 2,0 g |
| NaCl | 5,0 g |
| Dinatrium fosfat | 2,5 g |
| Aquadest ad | 1000 ml |

pH $7,4 \pm 0,2$

Bahan- bahan di atas dilarutkan ke dalam aquadest 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoclave pada suhu 121°C selama 15 menit dan dituang dalam cawan petri (Bridson 1998).

4. Sulfida indol motility (SIM)

| | |
|----------------------------|----------------------|
| Pepton from casein | 20 g |
| Pepton from meat | 6 g |
| Ammonium Iron (II) citrate | 0,2 g |
| Sodium thiosulfate | 0,2 g |
| Agar-agar | 0,2 g |
| Aquadest | ad 1000 ml, pH = 7,4 |

Bahan- bahan di atas dilarutkan ke dalam aquadest 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoclave pada suhu 121⁰C selama 15 menit dan dituang dalam cawan petri (Bridson 1998).

5. **Klinger Iron Agar (KIA)**

| | |
|----------------------------|----------------------|
| Pepton from casein | 15 g |
| Pepton from meat | 5 g |
| Ammonium Iron (II) citrate | 0,5 g |
| Meat extract | 3 g |
| Yeast extract | 3 g |
| Sodium chloride | 5 g |
| Laktosa | 10 g |
| Glukosa | 1 g |
| Sodium thiosulfate | 0,5 g |
| Phenol red | 0,024 g |
| Agar-agar | 12 g |
| Aquadest | ad 1000 ml, pH = 7,4 |

Bahan- bahan di atas dilarutkan ke dalam aquadest 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoclave pada suhu 121⁰C selama 15 menit dan dituang dalam cawan petri (Bridson 1998).

6. **Lysine Iron Agar (LIA)**

| | |
|--------------------|-----|
| Pepton from casein | 5 g |
| Yeast extract | 3 g |

| | |
|----------------------------|----------------------|
| Glukosa | 1 g |
| Lysine monohydrochloride | 10 g |
| Sodium thiosulfate | 0,04 |
| Ammonium Iron (II) citrate | 0,5 g |
| Bromo cresol purple | 0,02 g |
| Agar-agar | 12,5 g |
| Aquadest | ad 1000 ml, pH = 7,4 |

Bahan- bahan di atas dilarutkan ke dalam aquadest 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoclave pada suhu 121⁰C selama 15 menit dan dituang dalam cawan petri (Bridson 1998).

7. Citrat Agar

| | |
|--------------------------------|----------------------|
| Ammonium hydrogen fosfat | 1 g |
| DI- potassium hydrogen fosfate | 1g |
| Sodium chloride | 5 g |
| Magnesium sulfat | 0,2 g |
| Bromo thymol blue | 0,08 g |
| Agar-agar | 12,5 g |
| Aquadest | ad 1000 ml, pH = 7,4 |

Bahan- bahan di atas dilarutkan ke dalam aquadest 1000 ml, dipanaskan sampai larut sempurna, kemudian disterilkan dengan autoclave pada suhu 121⁰C selama 15 menit dan dituang dalam cawan petri (Bridson 1998).

Lampiran 4. Formulasi larutan gram pengecatan

Gram A (Warna ungu)

| | |
|---------------------|-------|
| Kristal violet | 2 g |
| Etil alkohol 95% | 20 ml |
| Ammonium oksalat 1% | 0,8 g |
| Aquadest | 80 ml |

Gram B (Warna Coklat)

| | |
|---------------|--------|
| Yodium | 1g |
| Kalium Iodida | 2 g |
| Aquadest | 300 ml |

Gram C (jernih / tidak berwarna)

| | |
|------------------|-------|
| Aseton | 50 ml |
| Etil alkohol 95% | 50 ml |

Gram D (warna merah)

| | |
|--------------|--------|
| Safranin | 0,25 g |
| Etil alkohol | 10 ml |
| Aquadest | 90 ml |

Lampiran 5. Hasil uji statistik

1. Uji statistik antara bakteri *Escherichia coli* dari urin penderita infeksi saluran kemih di Rumah Sakit PKU Muhammadiyah Surakarta dan *Escherichia coli* ATCC 25922.

Npar Test

Descriptive Statistics

| | N | Mean | Std. Deviation | Minimum | Maximum |
|-----------------------------------------|----|-------|----------------|---------|---------|
| diameter amoksisilin clavulanat acid | 72 | 23.85 | 7.773 | 12 | 40 |

One-Sample Kolmogorov-Smirnov Test

| | | diameter amoksisilin clavulanat acid |
|----------------------------------|--------------------------|--------------------------------------------|
| N | | 72 |
| Normal Parameters ^{a,b} | Mean | 23.85 |
| | Std. Deviation | 7.773 |
| | Most Extreme Differences | Absolute |
| | Positive | .135 |
| | Negative | -.119 |
| Kolmogorov-Smirnov Z | | 1.147 |
| Asymp. Sig. (2-tailed) | | .144 |

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

| | jenis bakteri | N | Mean | Std. Deviation | Std. Error Mean |
|----------------------|----------------|----|-------|----------------|-----------------|
| diameter amoksisilin | bakteri sampel | 69 | 23.81 | 7.940 | .956 |
| clavulanat acid | bakteri murni | 3 | 24.67 | .577 | .333 |

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|-----------------------------------------|-----------------------------|-----------------------------------------|------|------------------------------|--------|-----------------|-----------------|-----------------------|-------------------------------------------|-------|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| diameter amoksisilin clavulanat acid | Equal variances assumed | 7.590 | .007 | -.185 | 70 | .854 | -.855 | 4.616 | -10.060 | 8.350 |
| | Equal variances not assumed | | | -.845 | 56.920 | .402 | -.855 | 1.012 | -2.882 | 1.172 |

Npar Test

Descriptive Statistics

| | N | Mean | Std. Deviation | Minimum | Maximum |
|------------------------|----|-------|----------------|---------|---------|
| diameter ciprofloxacin | 72 | 35.63 | 7.932 | 15 | 50 |

One-Sample Kolmogorov-Smirnov Test

| | | diameter ciprofloxacin |
|-----------------------------------|----------------|------------------------|
| N | | 72 |
| Normal Parameters ^{a, b} | Mean | 35.63 |
| | Std. Deviation | 7.932 |
| Most Extreme Differences | Absolute | .155 |
| | Positive | .137 |
| | Negative | -.155 |
| Kolmogorov-Smirnov Z | | 1.314 |
| Asymp. Sig. (2-tailed) | | .063 |

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

| | | jenis bakteri | N | Mean | Std. Deviation | Std. Error Mean |
|------------------------|----------------|---------------|----|-------|----------------|-----------------|
| diameter ciprofloxacin | bakteri sampel | | 69 | 35.20 | 7.832 | .943 |
| | bakteri murni | | 3 | 45.33 | .577 | .333 |

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|------------------------|-----------------------------|-----------------------------------------|------|------------------------------|--------|-----------------|-----------------|-----------------------|-------------------------------------------|--------|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| diameter ciprofloxacin | Equal variances assumed | 3.568 | .063 | -2.225 | 70 | .029 | -10.130 | 4.553 | -19.211 | -1.050 |
| | Equal variances not assumed | | | -10.130 | 56.207 | .000 | -10.130 | 1.000 | -12.134 | -8.127 |

Npar Test

Descriptive Statistics

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|----|-------|----------------|---------|---------|
| diameter seftriaxone | 72 | 33.46 | 5.931 | 21 | 44 |

One-Sample Kolmogorov-Smirnov Test

| | | diameter seftriaxone |
|----------------------------------|----------------|----------------------|
| N | | 72 |
| Normal Parameters ^{a,b} | Mean | 33.46 |
| | Std. Deviation | 5.931 |
| Most Extreme Differences | Absolute | .173 |
| | Positive | .098 |
| | Negative | -.173 |
| Kolmogorov-Smirnov Z | | 1.465 |
| Asymp. Sig. (2-tailed) | | .027 |

a. Test distribution is Normal.

b. Calculated from data.

Npar Test

Descriptive Statistics

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|----|-------|----------------|---------|---------|
| diameter seftriaxone | 72 | 33.46 | 5.931 | 21 | 44 |
| jenis bakteri | 72 | 1.04 | .201 | 1 | 2 |

Kruskal Wallis

Ranks

| | | jenis bakteri | N | Mean Rank |
|----------------------|----------------|---------------|----|-----------|
| diameter seftriaxone | bakteri sampel | | 69 | 36.80 |
| | bakteri murni | | 3 | 29.50 |
| | Total | | 72 | |

Test Statistics^{a,b}

| | | diameter seftriaxone |
|-------------|--|----------------------|
| Chi-Square | | .353 |
| df | | 1 |
| Asymp. Sig. | | .552 |

a. Kruskal Wallis Test

b. Grouping Variable: jenis bakteri

Npar Test

Descriptive Statistics

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------|----|-------|----------------|---------|---------|
| diameter | 72 | 36.49 | 4.289 | 30 | 48 |

One-Sample Kolmogorov-Smirnov Test

| | | diameter |
|----------------------------------|----------------|----------|
| N | | 72 |
| Normal Parameters ^{a,b} | Mean | 36.49 |
| | Std. Deviation | 4.289 |
| Most Extreme Differences | Absolute | .126 |
| | Positive | .126 |
| | Negative | -.073 |
| Kolmogorov-Smirnov Z | | 1.069 |
| Asymp. Sig. (2-tailed) | | .204 |

a. Test distribution is Normal.

b. Calculated from data.

T-Test

Group Statistics

| | | jenis bakteri | N | Mean | Std. Deviation | Std. Error Mean |
|----------|----------------|---------------|----|-------|----------------|-----------------|
| diameter | bakteri sampel | | 69 | 36.61 | 4.339 | .522 |
| | bakteri murni | | 3 | 33.67 | .577 | .333 |

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|----------|-----------------------------|-----------------------------------------|------|------------------------------|--------|-----------------|-----------------|-----------------------|-------------------------------------------|-------|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| diameter | Equal variances assumed | 2.974 | .089 | 1.166 | 70 | .248 | 2.942 | 2.523 | -2.090 | 7.974 |
| | Equal variances not assumed | | | 4.748 | 20.289 | .000 | 2.942 | .620 | 1.651 | 4.233 |

2. Uji statistik antibiotik amoksisilin clavulanat acid, ciprofloxacin, seftriaxone, dan imipenem

Npar Tests

Descriptive Statistics

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |

One-Sample Kolmogorov-Smirnov Test

| | | diameter zona hambat |
|-----------------------------------|----------------|----------------------|
| N | | 276 |
| Normal Parameters ^{a, b} | Mean | 32.27 |
| | Std. Deviation | 8.348 |
| Most Extreme Differences | Absolute | .175 |
| | Positive | .072 |
| | Negative | -.175 |
| Kolmogorov-Smirnov Z | | 2.907 |
| Asymp. Sig. (2-tailed) | | .000 |

a. Test distribution is Normal.

b. Calculated from data.

Npar Test

Descriptive Statistics

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Kruskal-Wallis Test

Ranks

| antibiotik | | N | Mean Rank |
|----------------------|-----------------------------|-----|-----------|
| diameter zona hambat | amoksisilin clavulanat acid | 69 | 64.65 |
| | ciprofloxacin | 69 | 160.05 |
| | seftriaksone | 69 | 149.67 |
| | imipenem | 69 | 179.63 |
| | Total | 276 | |

Test Statistics^{a,b}

| | diameter zona hambat |
|-------------|----------------------|
| Chi-Square | 84.039 |
| df | 3 |
| Asymp. Sig. | .000 |

a. Kruskal Wallis Test

b. Grouping Variable: antibiotik

Npar Test**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Mann-Whitney Test**Ranks**

| antibiotik | | N | Mean Rank | Sum of Ranks |
|----------------------|-----------------------------|-----|-----------|--------------|
| diameter zona hambat | amoksisilin clavulanat acid | 69 | 45.74 | 3156.00 |
| | ciprofloxacin | 69 | 93.26 | 6435.00 |
| | Total | 138 | | |

Test Statistics^a

| | diameter zona hambat |
|------------------------|----------------------|
| Mann-Whitney U | 741.000 |
| Wilcoxon W | 3156.000 |
| Z | -6.993 |
| Asymp. Sig. (2-tailed) | .000 |

a. Grouping Variable: antibiotik

Npar Test**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Mann-Whitney Test**Ranks**

| antibiotik | | N | Mean Rank | Sum of Ranks |
|----------------------|--------------|-----|-----------|--------------|
| diameter zona hambat | seftriaksone | 69 | 61.32 | 4231.00 |
| | imipenem | 69 | 77.68 | 5360.00 |
| | Total | 138 | | |

Test Statistics^a

| | diameter zona hambat |
|------------------------|----------------------|
| Mann-Whitney U | 825.500 |
| Wilcoxon W | 3240.500 |
| Z | -6.636 |
| Asymp. Sig. (2-tailed) | .000 |

a. Grouping Variable: antibiotik

NPar Test**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Mann-Whitney Test**Ranks**

| antibiotik | | N | Mean Rank | Sum of Ranks |
|----------------------|-----------------------------|-----|-----------|--------------|
| diameter zona hambat | amoksisilin clavulanat acid | 69 | 41.95 | 2894.50 |
| | imipenem | 69 | 97.05 | 6696.50 |
| | Total | 138 | | |

Test Statistics^a

| | diameter zona hambat |
|------------------------|----------------------|
| Mann-Whitney U | 479.500 |
| Wilcoxon W | 2894.500 |
| Z | -8.106 |
| Asymp. Sig. (2-tailed) | .000 |

a. Grouping Variable: antibiotik

NPar Test**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| Antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Mann-Whitney**Ranks**

| | | antibiotik | N | Mean Rank | Sum of Ranks |
|----------------------|---------------|------------|-----|-----------|--------------|
| diameter zona hambat | ciprofloxacin | | 69 | 72.69 | 5015.50 |
| | seftriaksone | | 69 | 66.31 | 4575.50 |
| | Total | | 138 | | |

Test Statistics^a

| | diameter zona hambat |
|------------------------|----------------------|
| Mann-Whitney U | 2160.500 |
| Wilcoxon W | 4575.500 |
| Z | -.939 |
| Asymp. Sig. (2-tailed) | .348 |

a. Grouping Variable: antibiotik

NPar Test**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| Antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Mann-Whitney Test**Ranks**

| | | antibiotik | N | Mean Rank | Sum of Ranks |
|----------------------|---------------|------------|-----|-----------|--------------|
| diameter zona hambat | ciprofloxacin | | 69 | 64.10 | 4423.00 |
| | imipenem | | 69 | 74.90 | 5168.00 |
| | Total | | 138 | | |

Test Statistics^a

| | diameter zona hambat |
|------------------------|----------------------|
| Mann-Whitney U | 2008.000 |
| Wilcoxon W | 4423.000 |
| Z | -1.591 |
| Asymp. Sig. (2-tailed) | .112 |

a. Grouping Variable: antibiotik

NPar Test**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| Antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Mann-Whitney Test**Ranks**

| | | antibiotik | N | Mean Rank | Sum of Ranks |
|----------------------|--------------|------------|-----|-----------|--------------|
| diameter zona hambat | seftriaksone | | 69 | 61.32 | 4231.00 |
| | imipenem | | 69 | 77.68 | 5360.00 |
| | Total | | 138 | | |

Test Statistics^a

| | diameter zona hambat |
|------------------------|----------------------|
| Mann-Whitney U | 1816.000 |
| Wilcoxon W | 4231.000 |
| Z | -2.412 |
| Asymp. Sig. (2-tailed) | .016 |

a. Grouping Variable: antibiotik

NPar Test**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|----------------------|-----|-------|----------------|---------|---------|
| diameter zona hambat | 276 | 32.27 | 8.348 | 12 | 50 |
| antibiotik | 276 | 2.50 | 1.120 | 1 | 4 |

Mann-Whitney Test

Ranks

| antibiotik | | N | Mean Rank | Sum of Ranks |
|----------------------|-----------------------------|-----|-----------|--------------|
| diameter zona hambat | amoksisilin clavulanat acid | 69 | 41.95 | 2894.50 |
| | imipenem | 69 | 97.05 | 6696.50 |
| | Total | 138 | | |

Test Statistics^a

| | diameter zona hambat |
|------------------------|----------------------|
| Mann-Whitney U | 479.500 |
| Wilcoxon W | 2894.500 |
| Z | -8.106 |
| Asymp. Sig. (2-tailed) | .000 |

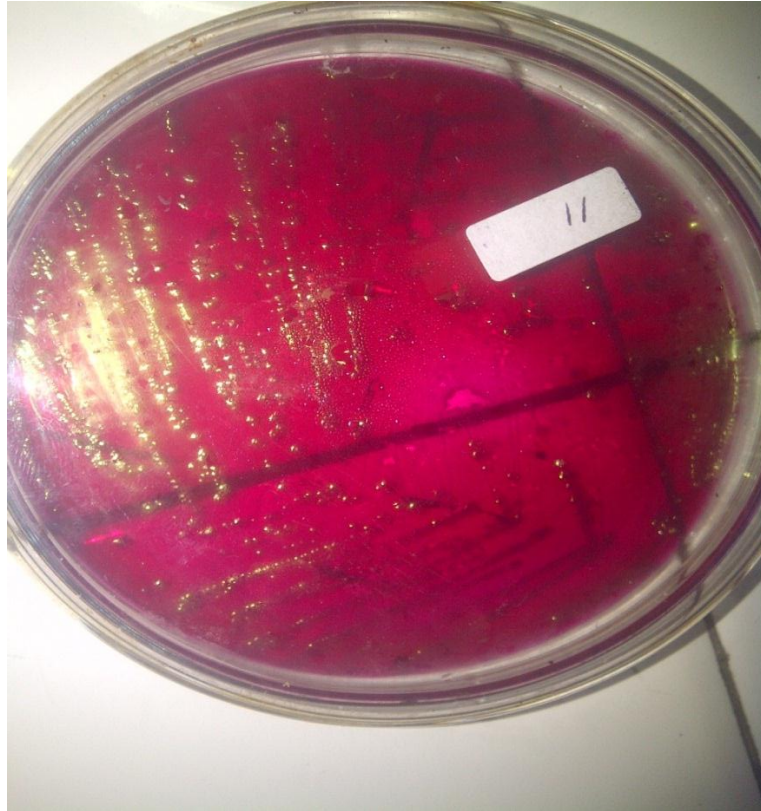
a. Grouping Variable: antibiotik

Independent Samples Test

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|----------|-----------------------------|-----------------------------------------|------|------------------------------|--------|-----------------|-----------------|-----------------------|-------------------------------------------|-------|
| | | | | | | | | | 95% Confidence Interval of the Difference | |
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | Lower | Upper |
| diameter | Equal variances assumed | 2.974 | .089 | 1.166 | 70 | .248 | 2.942 | 2.523 | -2.090 | 7.974 |
| | Equal variances not assumed | | | 4.748 | 20.289 | .000 | 2.942 | .620 | 1.651 | 4.233 |

Lampiran 6. Foto sampel urin dari pot laboratorium

Sampel pada pot urin dari “30 (tiga puluh)” pasien

Lampiran 7. Isolasi bakteri

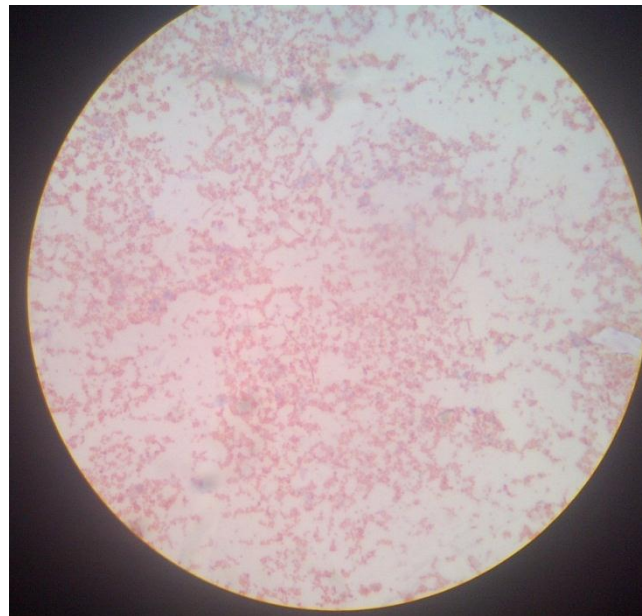
Koloni bakteri *Escherichia coli* pada media Endo Agar

Lampiran 8. Suspensi bakteri



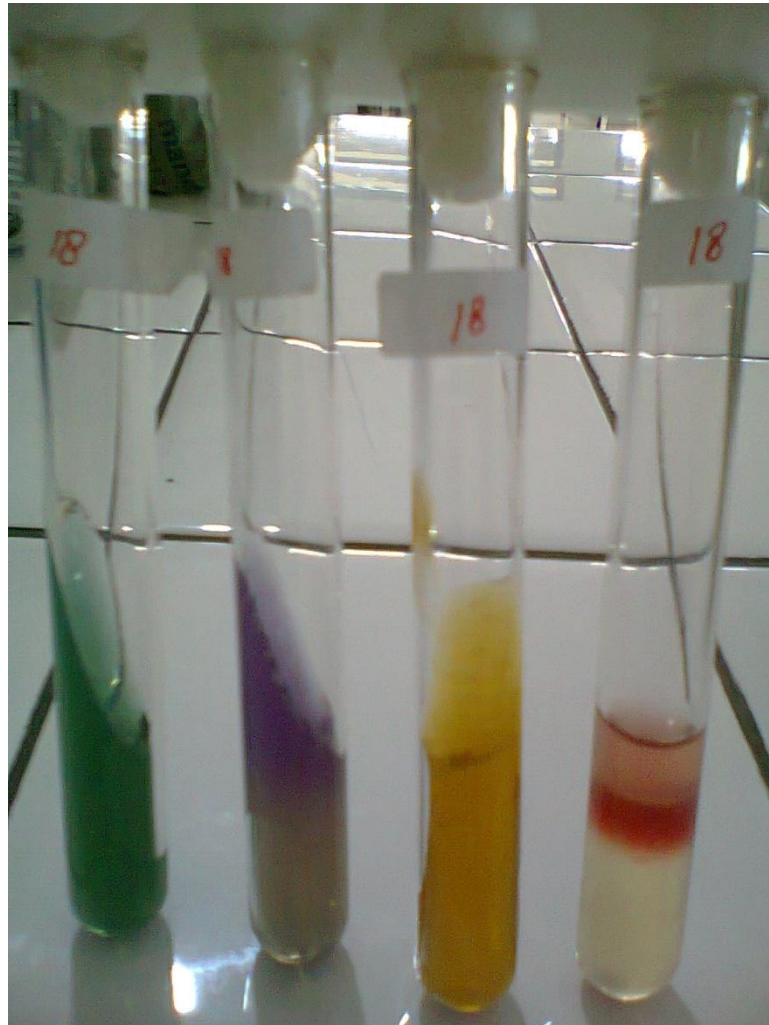
Suspensi bakteri dengan Standart Mc. Farland

Lampiran 9. Pengecatan gram

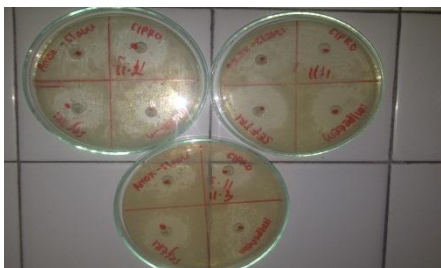
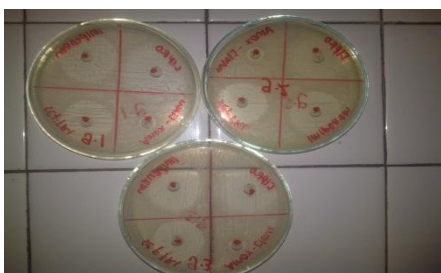
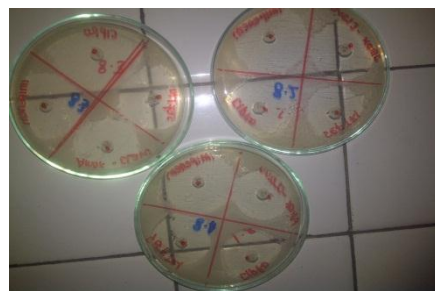
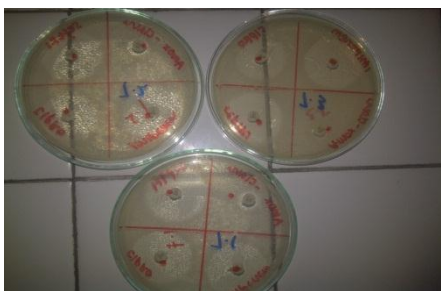
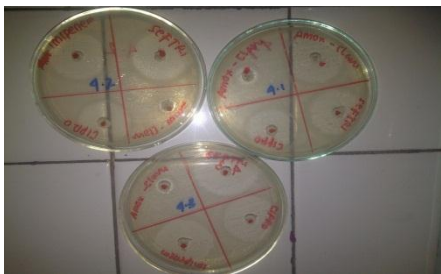
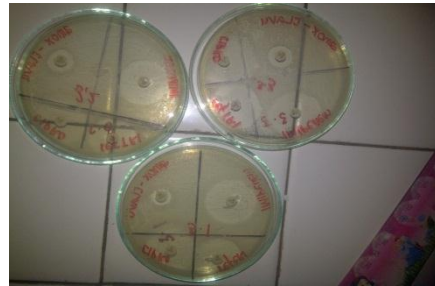


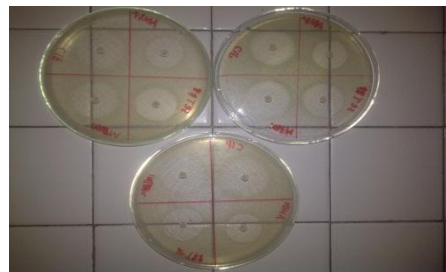
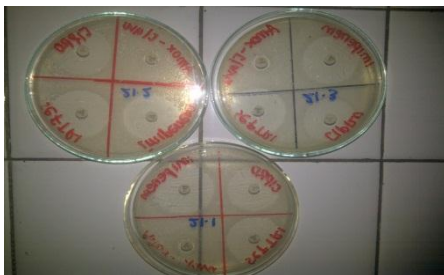
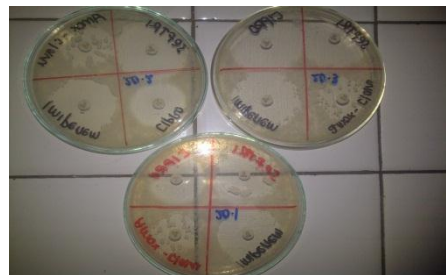
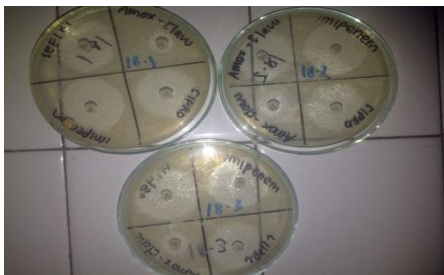
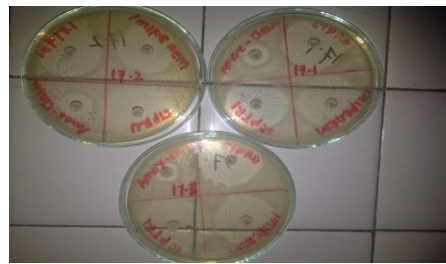
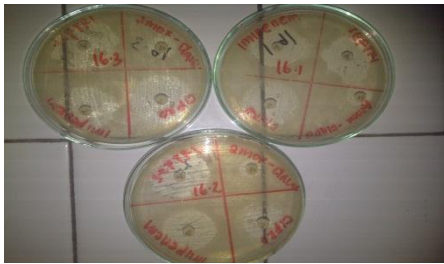
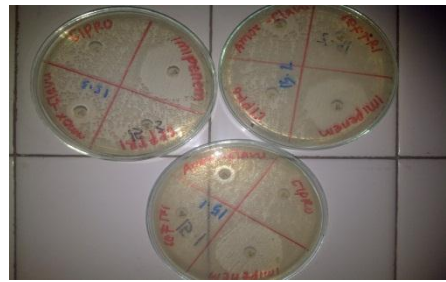
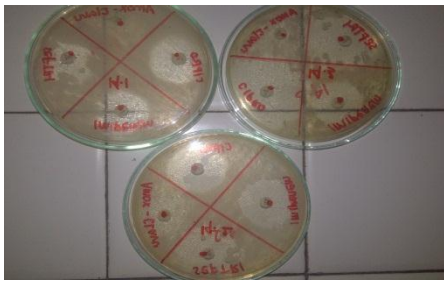
Hasil pengecatan Gram Terhadap Bakteri *Escherichia coli*

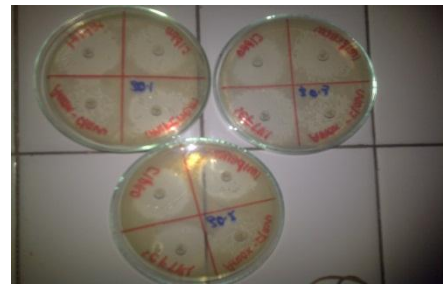
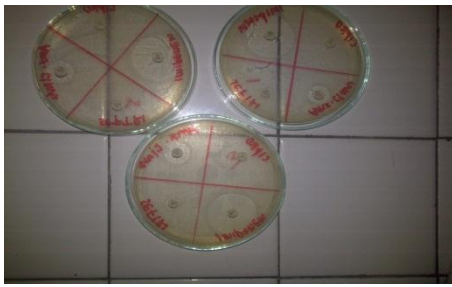
Lampiran 10. Uji biokimia



Lampiran 11. Uji sensitivitas

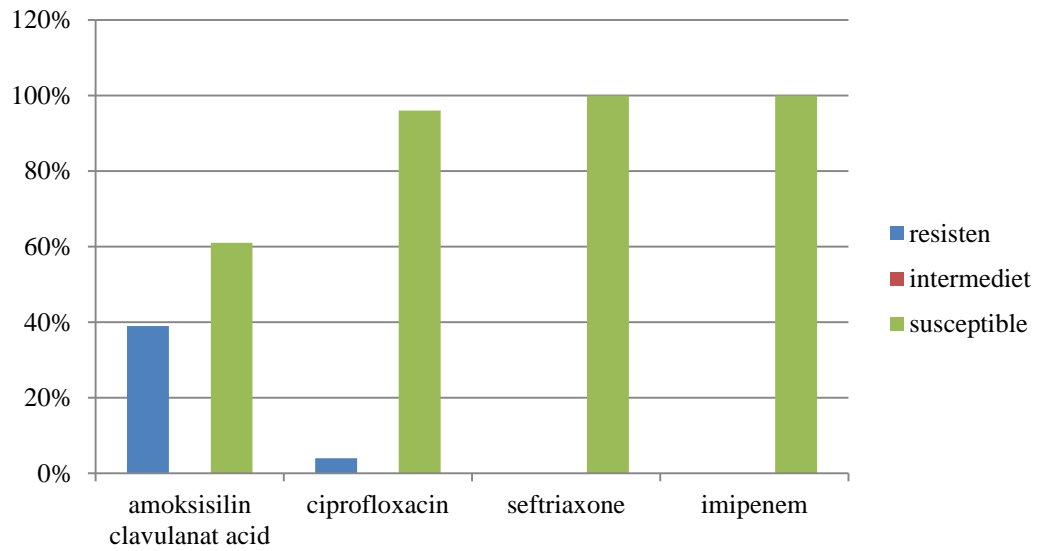






Lampiran 12. Hasil identifikasi dan uji sensitivitas biakan murni**Uji sensitivitas biakan murni****Uji biokimia biakan murni****Identifikasi bakteri biakan murni**

Lampiran 13. Alat-alat yang digunakan untuk praktek**Alat Mikroskop****Alat Sentrifugasi****Alat Inkas****Alat Inkubator****Alat Pemanasan Media****Alat AutoClave**

Lampiran 14. Grafik pola sensitivitas antibiotik

Lampiran 15. Tabel Kirby-Bauer

Table Zone Diameter Interpretive Standards (mm)*

| | | | | | |
|----------------------------------------------------------|---------------|-----------|--------------|------------------------|-------------|
| <i>Ciprofloxacin</i> | 5 µg | ≤15 | 16-20 | - | ≥21 |
| <i>Clindamycin</i> | 2 µg | ≤14 | 15-20 | - | ≥21 |
| <i>Doxyxycline</i> | 30 µg | ≤12 | 13-15 | - | ≥16 |
| <i>Erithromycin</i> | 15 µg | ≤13 | 14-22 | - | ≥23 |
| <i>Gentamicin</i> | 10 µg | ≤12 | 13-14 | - | ≥15 |
| <i>Imipenem</i> | 10 µg | ≤13 | 14-15 | - | ≥16 |
| <i>Kanamycin</i> | 30 µg | ≤13 | 14-17 | - | ≥18 |
| <i>Methicillin for staphylococci</i> | 5 µg | ≤9 | 10-13 | - | ≥14 |
| <i>Mezlocillin</i> | 75 µg | ≤12 | 13-15 | - | ≥16 |
| <i>Minocycline</i> | 30 µg | ≤14 | 15-18 | - | ≥19 |
| <i>Moxalactam</i> | 30 µg | ≤14 | - | 15-22 | ≥23 |
| <i>Nafcillin for staphylococci</i> | 1 µg | ≤10 | 11-12 | - | ≥13 |
| <i>Nalidixic Acid</i> | 30 µg | ≤13 | 14-18 | - | ≥19 |
| | Disc Content | Resistant | Intermediate | Moderately Susceptible | Susceptible |
| <i>Netilmicin</i> | 30 µg | ≤12 | 13-14 | - | ≥15 |
| <i>Nitrofurantoin Antimicrobial Agent</i> | 300 µg | ≤14 | 15-16 | - | ≥17 |
| <i>Norfloxacin</i> | 10 µg | ≤12 | 13-16 | - | ≥17 |
| <i>Oxacillin for staphylococci</i> | 1 µg | ≤10 | 11-12 | - | ≥13 |
| <i>for pneumococci for penicillin G. susceptibility</i> | 1 µg | ≤19 | - | - | ≥20 |
| <i>Penicillin G for Staphylococci and B. catarrhalis</i> | 10 units | ≤28 | - | - | ≥29 |
| <i>for N. gonorrhoeae</i> | 10 units | ≤19 | - | - | ≥20 |
| <i>for enterococci</i> | 10 units | ≤14 | - | ≥15 | - |
| <i>for L. monocytogenesis</i> | 10 units | ≤19 | - | - | ≥20 |
| <i>for nonenterococcal streptococci</i> | 10 units | ≤19 | - | 20-27 | ≥28 |
| <i>Piperacillin</i> | 100 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Rifampin for N. meningitides only</i> | 5 µg | ≤24 | - | - | ≥25 |
| <i>Streptomycin</i> | 10 µg | ≤11 | 12-14 | - | ≥15 |
| <i>Sulfonamides</i> | 250 or 300 µg | ≤12 | 13-16 | - | ≥17 |
| <i>Tetracycline</i> | 3 µg | ≤14 | 15-18 | - | ≥19 |
| <i>Ticarcillin</i> | 75 µg | ≤11 | 12-14 | - | ≥15 |
| <i>Ticarcillin/ Clavulanic Acid</i> | 75/10 µg | ≤11 | 12-14 | - | ≥15 |
| <i>Tobramycin</i> | 10 µg | ≤12 | 13-14 | - | ≥15 |
| <i>Trimethoprim</i> | 5 µg | ≤10 | 11-15 | - | ≥16 |
| <i>Trimethoprim/sulfomethoxazole</i> | 1.25/21.75 µg | ≤10 | 11-15 | - | ≥16 |
| <i>Vancomycin</i> | 30 µg | ≤9 | 10-11 | - | ≥12 |

| Antimicrobial Agent | Disc Content | Resistant | Intermediate | Moderately Susceptible | Susceptible |
|------------------------------------------------------------------------------------|--------------|-----------|--------------|------------------------|-------------|
| <i>Amdinocillin</i> <i>for Enterobacteriaceae</i> | 10 µg | ≤15 | - | - | ≥16 |
| <i>Amikacin</i> | 30 µg | ≤14 | 15-16 | - | ≥17 |
| <i>Amoxicillin/ Clavucanic acid</i> <i>for Haemophilus and staphylococci</i> | 20/10 µg | ≤19 | - | - | ≥20 |
| <i>for other organism</i> | 20/10 µg | ≤13 | 14-7 | - | ≥18 |
| <i>Ampicillin</i> <i>for gram negative enteric organism</i> | 10 µg | ≤11 | 12-13 | - | ≥14 |
| <i>for staphylococci and B. Catarrhalis</i> | 10 µg | ≤28 | - | - | ≥29 |
| <i>for haemophilus species</i> | 10 µg | ≤19 | - | - | ≥20 |
| <i>for enterococci</i> | 10 µg | ≤16 | - | ≥17 | - |
| <i>for nonenterococcal streptococci</i> | 10 µg | ≤21 | - | 22-29 | ≥30 |
| <i>for Listeria monocytogenes</i> | 10 µg | ≤19 | - | - | ≥20 |
| <i>Ampicillin/sulbactam</i> <i>for gram negative enterics and staphylococci</i> | 10/10 µg | ≤11 | 12-13 | - | - |
| <i>for Haemophilus influenzae</i> | 10/10 µg | ≤19 | - | - | ≥30 |
| <i>for enterocci</i> | 10/10 µg | ≤16 | - | ≥17 | ≥18 |
| <i>for nonenterococcal streptococci and Listeria monocytogenes</i> | 10/10 µg | ≤21 | - | 22-29 | ≥22 |
| <i>Azlocillin for Pseudomonas</i> | 75 µg | ≤14 | 15-17 | - | ≥23 |
| <i>Aztreonam</i> | 30 µg | ≤15 | - | 16-21 | ≥17 |
| <i>Carbenicillin</i> <i>for Enteribacteriaceae</i> | 100 µg | ≤17 | 18-22 | - | ≥18 |
| <i>for Pseudomonas</i> | 100 µg | ≤13 | 14-16 | - | ≥18 |
| <i>Cefaclor</i> <i>for Haemophilus influenzae</i> | 30 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Cefamandole</i> | 30 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Cefazolin</i> | 30 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Cefonicid</i> | 30 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Cefoperazone</i> | 75 µg | ≤15 | - | 16-20 | ≥21 |
| <i>Cefotaxime</i> | 30 µg | ≤14 | - | 15-22 | ≥23 |
| <i>Cefotetan</i> | 30 µg | ≤14 | - | 13-15 | ≥16 |
| <i>Cefoxitin</i> | 30 µg | ≤14 | - | 15-17 | ≥18 |
| <i>Ceftazidime</i> | 30 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Ceftizoxime</i> <i>for urinary isolates of P. aeruginosa</i> | 30 µg | ≤10 | - | ≥11 | - |
| <i>For other organisms</i> | 30 µg | ≤14 | - | 15-19 | ≥20 |
| <i>Ceftriaxone</i> | 30 µg | ≤13 | - | 14-20 | ≥21 |
| <i>Cefuroxime</i> | 30 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Cephalothin</i> | 30 µg | ≤14 | 15-17 | - | ≥18 |
| <i>Chloramphenicol</i> <i>for H. influenzae</i> | 30 µg | ≤26 | - | - | ≥27 |
| <i>for other organisms</i> | 30 µg | ≤12 | 13-17 | - | ≥18 |
| <i>Cinoxacin</i> | 100 µg | ≤14 | 15-18 | - | ≥19 |

For appropriate MIC correlates, see NCC1,5 publication M100-52 The category “intermediate” should be reported it generally indicates that the test result is equivocal of indeterminate (see M2-A3). Organism in the intermediate category may be susceptible, moderately susceptible, or resistant when tested by dilution methods. The concentration and antimicrobial agent achieved at the site of infection may also influence the clinical interpretation the clinic at interpretation of an intermediate test result.