# LAMPIRAN

## Lampiran 1. Izin Penelitian

**PEMERINTAHAN KOTA DENPASAR**
**BADAN KESATUAN BANGSA DAN POLITIK**
**JALAN BELITON NO.1 TELEPON 234648 DENPASAR**
https://www.denpasarkota.go.id/ **email :** kesbangpol@denpasarkota.go.id

| | | | |
|---|---|---|---|
| Nomor | : 070/405/BKBP | | Kepada |
| Lampiran | : - | Yth. | Ketua Politeknik Kesehatan Denpasar |
| Perihal | : **Rekomendasi Penelitian** | | di- |
| | | | **Denpasar** |

I. Dasar:
1. Peraturan Menteri Dalam Negeri Republik Indonesia Nomor 7 Tahun 2014 tentang Perubahan atas Peraturan Menteri Dalam Negeri Republik Indonesia Nomor 64 Tahun 2011 tentang Pedoman Penerbitan Rekomendasi Penelitian.
2. Peraturan Daerah Kota Denpasar Nomor 8 Tahun 2016 tentang Pembentukan dan Susunan Perangkat Daerah (Lembaran Daerah Kota Denpasar Tahun 2016 Nomor 8. Tambahan Lembaran Daerah Kota Denpasar Nomor 8).
3. Peraturan Walikota Denpasar Nomor 43 Tahun 2016 tentang Kedudukan, Susunan Organisasi, Tugas dan Fungsi Serta Tata Kerja Sekretariat Darah, Staf Ahli, Sekretariat Dewan Perwakilan Daerah, Inspektoran, Badan Daerah dan Rumah Sakit Umum Daerah Kota Denpasar (Berita Daerah Kota Denpasar Tahun 2016 Nomor 43).
4. Peraturan Walikota Denpasar Nomor 12 Tahun 2017 Tentang Uraian Tugas Jabatan pada Sekretariat Daerah, Staf Ahli, Sekretariat Dewan Perwakilan Rakyat Daerah Inspektorat, Badan Daerah dan Rumah Sakit Daerah.

II. Memperhatikan:
Surat Permohonan Direktorat Jenderal Tenaga Kesehatan. Politeknik Kesehatan Denpasar Nomor : PP.08.02/034/177 /2022, tanggal 31 Maret 2022, Perihal : Permohonan Izin Penelitian

III. Setelah Mempelajari dan Meneliti Rencana Kegiatan yang diajukan, maka Walikota Denpasar memberikan Rekomendasi kepada :

| | | |
|---|---|---|
| Nama | : | Aulia Shanti Rizqina |
| Alamat | : | Jalan Batuyang Gang Kokokan No. 9, Banjar Tampad, Batubulan, Gianyar, Bali |
| Status Peneliti | : | Mahasiswa |
| Judul Penelitian | : | Perbedaan Konsentrasi Air Rebusan Daun Afrika (Vernonia amygdalina Del) Terhadap Zona Hambat Pertumbuhan Bakteri Escherichia coli |
| Lokasi Penelitian | : | Laboratorium Kimia dan Laboratorium Bakteriologi Jurusan Teknologi Laboratorium Medis Politeknik Kesehatan Kemenkes Denpasar |
| Tujuan Penelitian | : | Penelitian |
| Bidang Peneliti | : | Kesehatan |
| Jumlah Peserta | : | 1 Orang |
| Lama Penelitian | : | 2 Bulan (04 April 2022 - 31 Mei 2022) |

IV. Dalam Melakukan Kegiatan agar yang bersangkutan mematuhi ketentuan sebagai berikut:

1. Sebelum mengadakan penelitian/kerja praktek agar melapor kepada Atasan/Kepala Instansi bersangkutan

2. Selesai mengadakan penelitian melapor kembali kepada Kepala Badan Kesatuan Bangsa dan Politik Kota Denpasar.
3. Menyerahkan 1 (satu) exemplar hasil penelitian tersebut kepada Pemerintah Kota Denpasar (Kepala Badan Kesatuan Bangsa dan Politik Kota Denpasar)
4. Dilarang melakukan kegiatan diluar dari pada kegiatan tujuan yang telah ditetapkan dan pelanggaran terhadap ketentuan di atas, ijin ini akan dicabut dan menghentikan segala kegiatannya.
5. Para Peneliti, Survey, Study Perbandingan, KKN, KKL, mentaati dan menghormati ketentuan yang berlaku di Daerah setempat.

Demikian Rekomendasi ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Denpasar, 06 April 2022
An. Walikota Denpasar
Ub. Kepala Badan Kesatuan Bangsa dan
Politik Kota Denpasar
Sekretaris

PEMERINTAH KOTA DENPASAR
BADAN KESBANG DAN POLITIK

**I Wayan Wirawan, S.Sos,M.Si**
**NIP. 196501011986021014**

Tembusan disampaikan :
1. Walikota Denpasar (sebagai laporan)
2. Yang Bersangkutan
3. Arsip

## Lampiran 2. Hasil Penelitian

**KEMENTERIAN KESEHATAN REPUBLIK INDONESIA**
DIREKTORAT JENDRAL TENAGA KESEHATAN
POLITEKNIK KESEHATAN DENPASAR
**JURUSAN TEKNOLOGI LABORATORIUM MEDIS**
**Alamat : Jl. Sanitasi No 1 Sidakarya, Denpasar SelatanTelp.(0361)710527**
**Email : analiskesehatandenpasar@yahoo.com**

**LABORATORIUM BAKTERIOLOGI JURUSAN**
**TEKNOLOGI LABORATORIUM MEDIS**
**DATA HASIL PENELITIAN KARYA TULIS ILMIAH**

Perihal : Uji Aktivitas Antibakteri
Nama Peneliti : Aulia Shanti Rizqina
Judul Penelitian : Perbedaan Konsentrasi Air Rebusan Daun Afrika (*Vernonia Amygdalina* Del) Terhadap Zona Hambat Pertumbuhan Bakteri *Escherichia Coli*
Hasil :

Hasil Uji Perbedaan Konsentrasi Air Rebusan Daun Afrika (*Vernonia Amygdalina* Del) Terhadap Zona Hambat Pertumbuhan Bakteri *Escherichia Coli*

| Keterangan | Ulangan | | | | Rata-Rata Diameter Zona Hambat Pertumbuhan *Escherichia coli* (mm) | Interpretasi Hasil |
|---|---|---|---|---|---|---|
| | I | II | III | IV | | |
| Kloramfenikol 30 µg | 36 | - | - | - | 36 | Sensitif |
| Aquadest steril 20 µl | 0 | - | - | - | 0 | Resisten |
| Konsentrasi 25% | 0 | 0 | 0 | 0 | 0 | Resisten |
| Konsentrasi 35% | 0 | 0 | 0 | 0 | 0 | Resisten |
| Konsentrasi 45% | 0 | 0 | 0 | 0 | 0 | Resisten |
| Konsentrasi 55% | 0 | 0 | 0 | 0 | 0 | Resisten |

Sumber : CLSI, 2012

Mengetahui,
a.n Ketua Jurusan Teknologi Laboratorium Medis
Kepala Unit Laboratorium Terpadu

Dr. dra. I Gusti Agung Ayu Putu Swastini, M. Biomed
NIP. 196712182002122001

Denpasar, 14 Juni 2022
Penanggung Jawab Laboratorium
Bakteriologi

Putu Ayu Suryaningsih, S.ST., M.Si
NIP. 199105272015032002

# Lampiran 3. Tabel CLSI







**Table 2A. Zone Diameter and Minimal Inhibitory Concentration (MIC) Interpretive Standards for *Enterobacteriaceae***

| **Testing Conditions** | **Minimal Quality Control (QC) Recommendations** (See Tables 3A and 4A for acceptable QC ranges.) |
|---|---|
| **Medium:** Disk diffusion: Mueller-Hinton agar (MHA)<br>Broth dilution: cation-adjusted Mueller-Hinton broth (CAMHB)<br>Agar dilution: MHA<br>**Inoculum:** Growth method or direct colony suspension, equivalent to a 0.5 McFarland standard<br>**Incubation:** 35 ± 2°C; ambient air;<br>Disk diffusion: 16 to 18 hours<br>Dilution methods: 16 to 20 hours | *Escherichia coli* ATCC®* 25922<br>*Escherichia coli* ATCC® 35218 (for β-lactam/β-lactamase inhibitor combinations) |

* ATCC is a registered trademark of the American Type Culture Collection.

**Refer to Table 2A Supplemental Tables 1, 2, and 3 at the end of Table 2A for additional recommendations for testing conditions, reporting suggestions, and QC.**

## General Comments

(1) For disk diffusion, **test a maximum of 12 disks on a 150-mm plate and 5 disks on a 100-mm plate (see M02 Section 9.2).** Measure the diameter of the zones of complete inhibition (as judged by the unaided eye), including the diameter of the disk. Hold the Petri plate a few inches above a black, nonreflecting background illuminated with reflected light. The zone margin should be considered the area showing no obvious, visible growth that can be detected with the unaided eye. Ignore faint growth of tiny colonies that can be detected only with a magnifying lens at the edge of the zone of inhibited growth. Strains of *Proteus* spp. may swarm into areas of inhibited growth around certain antimicrobial agents. With *Proteus* spp., ignore the thin veil of swarming growth in an otherwise obvious zone of growth inhibition. With trimethoprim and the sulfonamides, antagonists in the medium may allow some slight growth; therefore, disregard slight growth (20% or less of the lawn of growth) and measure the more obvious margin to determine the zone diameter.

(2) When fecal isolates of *Salmonella* and *Shigella* spp. are tested, only ampicillin, a fluoroquinolone, and trimethoprim-sulfamethoxazole should be reported routinely. In addition, for extraintestinal isolates of *Salmonella* spp., a third-generation cephalosporin should be tested and reported, and chloramphenicol may be tested and reported if requested.

(3) The dosage regimens shown in the comment column below are those **required to achieve** plasma drug exposures (in adults with normal renal and hepatic functions) on which breakpoints were based. When implementing new breakpoints, it is strongly recommended that laboratories share this information with infectious disease practitioners, pharmacists, pharmacy and therapeutics committees, and infection control committees.

**NOTE:** Information in boldface type is new or modified since the previous edition.







**Table 2A. (Continued)**

| Test/Report Group | Antimicrobial Agent | Disk Content | Zone Diameter Interpretive Criteria nearest whole mm S | I | R | MIC Interpretive Criteria (µg/mL) S | I | R | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **PENICILLINS** | | | | | | | | | |
| A | Ampicillin | 10 µg | ≥17 | 14–16 | ≤13 | ≤8 | 16 | ≥32 | (4) **Results of ampicillin testing can be used to predict results for** amoxicillin. See comment (2). |
| B | Piperacillin | 100 µg | ≥21 | 18–20 | ≤17 | ≤16 | 32–64 | ≥128 | |
| O | Mecillinam | 10 µg | ≥15 | 12–14 | ≤11 | ≤8 | 16 | ≥32 | (5) For **testing and reporting of** *E. coli* urinary tract isolates only. |
| **β-LACTAM/β-LACTAMASE INHIBITOR COMBINATIONS** | | | | | | | | | |
| B | Amoxicillin-clavulanic acid | 20/10 µg | ≥18 | 14–17 | ≤13 | ≤8/4 | 16/8 | ≥32/16 | |
| B | Ampicillin-sulbactam | 10/10 µg | ≥15 | 12–14 | ≤11 | ≤8/4 | 16/8 | ≥32/16 | |
| B | Piperacillin-tazobactam | 100/10 µg | ≥21 | 18–20 | ≤17 | ≤16/4 | 32/4–64/4 | ≥128/4 | |
| B | Ticarcillin-clavulanate | 75/10 µg | ≥20 | 15–19 | ≤14 | ≤16/2 | 32/2–64/2 | ≥128/2 | |
| **CEPHEMS (PARENTERAL) (including cephalosporins I, II, III, and IV. Please refer to Glossary I.)** | | | | | | | | | |
| (6) **WARNING:** For *Salmonella* spp. and *Shigella* spp., first- and second-generation cephalosporins and cephamycins may appear active *in vitro*, but are not effective clinically and should not be reported as susceptible.<br><br>(7) Following evaluation of PK-PD properties, limited clinical data, **and MIC distributions,** revised interpretive criteria for cephalosporins (cefazolin, cefotaxime, ceftazidime, ceftizoxime, and ceftriaxone) and aztreonam were first published in January 2010 (M100-S20) and are listed in this table. Cefazolin interpretive criteria were revised again in June 2010 and are listed below. Cefepime and cefuroxime (parenteral) were also evaluated; however, no change in interpretive criteria was required for the dosages indicated below. When using the **current** interpretive criteria, routine ESBL testing is no longer necessary before reporting results (ie, it is no longer necessary to edit results for cephalosporins, aztreonam, or penicillins from susceptible to resistant). **However,** ESBL testing may still be useful for epidemiological or infection control purposes. **For laboratories that have not implemented the current interpretive criteria, ESBL testing should be performed as described in Table 2A Supplemental Table 1.**<br><br>Note that interpretive criteria for drugs with limited availability in many countries (eg, moxalactam, cefonicid, cefamandole, and cefoperazone) were not evaluated. If considering use of these drugs for *E. coli*, *Klebsiella*, or *Proteus* spp., ESBL testing should be performed (see Table 2A **Supplemental Table 1**). If isolates test ESBL positive, the results for moxalactam, cefonicid, cefamandole, and cefoperazone should be reported as resistant.<br><br>(8) *Enterobacter*, *Citrobacter*, and *Serratia* may develop resistance during prolonged therapy with third-generation cephalosporins **as a result of derepression of AmpC β-lactamase**. Therefore, isolates that are initially susceptible may become resistant within three to four days after initiation of therapy. Testing of repeat isolates may be warranted. | | | | | | | | |
| A | Cefazolin | 30 µg | ≥23 | 20–22 | ≤19 | ≤2 | 4 | ≥8 | (9) Interpretive criteria are based on a dosage regimen of 2 g every 8 h. See comment (7). |
| U | Cephalothin | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | (10) Cephalothin interpretive criteria **can** be used only to predict results to the oral agents, cefadroxil, cefpodoxime, cephalexin, and loracarbef. Older data that suggest that cephalothin results could predict susceptibility to some other cephalosporins may still be correct, but there are no recent data to confirm this. |







Table 2A
Enterobacteriaceae
M02 and M07

**Table 2A. (Continued)**

| Test/Report Group | Antimicrobial Agent | Disk Content | Zone Diameter Interpretive Criteria nearest whole mm S | I | R | MIC Interpretive Criteria (µg/mL) S | I | R | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **CEPHEMS (PARENTERAL) (including cephalosporins I, II, III, and IV. Please refer to Glossary I.) (Continued)** | | | | | | | | | |
| B | Cefepime | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | (11) Interpretive criteria are based on a dosage regimen of 1 g every 8 h or 2 g every 12 h. See comment (7). |
| B<br>B | Cefotaxime or<br>ceftriaxone | 30 µg<br>30 µg | ≥26<br>≥23 | 23–25<br>20–22 | ≤22<br>≤19 | ≤1<br>≤1 | 2<br>2 | ≥4<br>≥4 | (12) Interpretive criteria are based on a dosage regimen of 1 g every 24 h for ceftriaxone and 1 g every 8 h for cefotaxime. See comment (7). |
| B | Cefotetan | 30 µg | ≥16 | 13–15 | ≤12 | ≤16 | 32 | ≥64 | |
| B | Cefoxitin | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | **(13) The interpretive criteria for cefoxitin are based on a dosage regimen of at least 8 g per day (eg, 2 g every 6 h).** |
| B | Cefuroxime (parenteral) | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | (14) Interpretive criteria are based on a dosage regimen of 1.5 g every 8 h. See comment (7). |
| C | Ceftazidime | 30 µg | ≥21 | 18–20 | ≤17 | ≤4 | 8 | ≥16 | (15) Interpretive criteria are based on a dosage regimen of 1 g every 8 h. See comment (7). |
| O | Cefamandole | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | See comment (7). |
| O | Cefmetazole | 30 µg | ≥16 | 13–15 | ≤12 | ≤16 | 32 | ≥64 | **(16) Insufficient new data exist to reevaluate interpretive criteria listed here.** |
| O | Cefonicid | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | See comment (7). |
| O | Cefoperazone | 75 µg | ≥21 | 16–20 | ≤15 | ≤16 | 32 | ≥64 | See comment (7). |
| O | Ceftizoxime | 30 µg | ≥25 | 22–24 | ≤21 | ≤1 | 2 | ≥4 | (17) Interpretive criteria are based on a dosage regimen of 1 g every 12 h. See comment (7). |
| O | Moxalactam | 30 µg | ≥23 | 15–22 | ≤14 | ≤8 | 16–32 | ≥64 | See comment (7). |
| **CEPHEMS (ORAL)** | | | | | | | | | |
| B | Cefuroxime (oral) | 30 µg | ≥23 | 15–22 | ≤14 | ≤4 | 8–16 | ≥32 | |
| O | Loracarbef | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | (18) Because certain strains of *Citrobacter, Providencia,* and *Enterobacter* spp. have been reported to give false-susceptible results **when tested by disk diffusion** with cefdinir and loracarbef, strains of these genera should not be tested by disk diffusion with these **agents**. |
| O | Cefaclor | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | |
| O | Cefdinir | 5 µg | ≥20 | 17–19 | ≤16 | ≤1 | 2 | ≥4 | See comment (18). |
| O | Cefixime | 5 µg | ≥19 | 16–18 | ≤15 | ≤1 | 2 | ≥4 | (19) For disk diffusion, not applicable for testing *Morganella* spp. |
| O | Cefpodoxime | 10 µg | ≥21 | 18–20 | ≤17 | ≤2 | 4 | ≥8 | See comment (19). |
| O | Cefprozil | 30 µg | ≥18 | 15–17 | ≤14 | ≤8 | 16 | ≥32 | (20) Because certain strains of *Providencia* spp. have been reported to give false-susceptible results **when tested by disk diffusion** with cefprozil, strains of this genus should not be tested **by** disk **diffusion with this agent**. |
| Inv. | Cefetamet | 10 µg | ≥18 | 15–17 | ≤14 | ≤4 | 8 | ≥16 | See comment (19). |
| Inv. | Ceflibuten | 30 µg | ≥21 | 18–20 | ≤17 | ≤8 | 16 | ≥32 | (21) **For testing and reporting of** urine isolates only. |







**Table 2A. (Continued)**

| Test/Report Group | Antimicrobial Agent | Disk Content | Zone Diameter Interpretive Criteria nearest whole mm S | I | R | MIC Interpretive Criteria (µg/mL) S | I | R | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **MONOBACTAMS** | | | | | | | | | |
| C | Aztreonam | 30 µg | ≥21 | 18–20 | ≤17 | ≤4 | 8 | ≥16 | (22) Interpretive criteria are based on a dosage regimen of 1 g every 8 h. See comment (7). |
| **CARBAPENEMS** | | | | | | | | | |
| (23) Following evaluation of PK-PD properties, limited clinical data, and MIC distributions that include recently described carbapenemase producing strains, revised interpretive criteria for carbapenems were first published in June 2010 (M100-S20-U) and are listed below. Because of limited treatment options for infections caused by organisms with carbapenem MICs or zone diameters in the intermediate range, clinicians may wish to design carbapenem dosage regimens that use maximum recommended doses and possibly prolonged intravenous infusion regimens, as has been reported in the literature.[1-4] Consultation with an infectious diseases practitioner is recommended for isolates for which the carbapenem MICs or zone diameter results from disk diffusion testing are in the intermediate or resistant ranges.<br><br>Until laboratories can implement the current interpretive criteria, the MHT should be performed as described in the updated Table 2A **Supplemental Table 3**. After implementation of the **current** interpretive criteria, the MHT does not need to be performed other than for epidemiological or infection control purposes (refer to Table 2A **Supplemental Table 2**).<br><br>The following information is provided as background on carbapenemases in *Enterobacteriaceae* that are largely responsible for MICs and zone diameters in the new intermediate and resistant ranges, and thus the rationale for setting revised carbapenem breakpoints:<br><br>• The clinical effectiveness of carbapenem treatment of infections produced by isolates for which the carbapenem MIC or disk diffusion test results are within the new intermediate (I) range is uncertain due to lack of controlled clinical studies.<br><br>• Imipenem MICs for *Proteus* spp., *Providencia* spp., and *Morganella morganii* tend to be higher (eg, MICs in the new intermediate or resistant range) than meropenem or doripenem MICs. These isolates may have elevated MICs by mechanisms other than production of carbapenemases. | | | | | | | | | |
| B | Doripenem | 10 µg | ≥23 | 20–22 | ≤19 | ≤1 | 2 | ≥4 | (24) Interpretive criteria are based on a dosage regimen of 500 mg every 8 h. |
| B | Ertapenem | 10 µg | **≥22** | **19–21** | **≤18** | **≤0.5** | **1** | **≥2** | (25) Interpretive criteria are based on a dosage regimen of 1 g every 24 h. |
| B | Imipenem | 10 µg | ≥23 | 20–22 | ≤19 | ≤1 | 2 | ≥4 | (26) Interpretive criteria are based on a dosage regimen of 500 mg every 6 h or 1 g every 8 h. |
| B | Meropenem | 10 µg | ≥23 | 20–22 | ≤19 | ≤1 | 2 | ≥4 | (27) Interpretive criteria are based on a dosage regimen of 1 g every 8 h. |
| **AMINOGLYCOSIDES** | | | | | | | | | |
| (28) **WARNING:** For *Salmonella* spp. and *Shigella* spp., aminoglycosides may appear active *in vitro* but are not effective clinically and should not be reported as susceptible. | | | | | | | | | |
| A | Gentamicin | 10 µg | ≥15 | 13–14 | ≤12 | ≤4 | 8 | ≥16 | |
| A | Tobramycin | 10 µg | ≥15 | 13–14 | ≤12 | ≤4 | 8 | ≥16 | |
| B | Amikacin | 30 µg | ≥17 | 15–16 | ≤14 | ≤16 | 32 | ≥64 | |
| O | Kanamycin | 30 µg | ≥18 | 14–17 | ≤13 | ≤16 | 32 | ≥64 | |
| O | Netilmicin | 30 µg | ≥15 | 13–14 | ≤12 | ≤8 | 16 | ≥32 | |
| O | Streptomycin | 10 µg | ≥15 | 12–14 | ≤11 | – | – | – | (29) There are no MIC interpretive standards. |
| **TETRACYCLINES** | | | | | | | | | |
| (30) Organisms that are susceptible to tetracycline are also considered susceptible to doxycycline and minocycline. However, some organisms that are intermediate or resistant to tetracycline may be susceptible to doxycycline, minocycline, or both. | | | | | | | | | |
| C | Tetracycline | 30 µg | ≥15 | 12–14 | ≤11 | ≤4 | 8 | ≥16 | |
| O | Doxycycline | 30 µg | ≥14 | 11–13 | ≤10 | ≤4 | 8 | ≥16 | |
| O | Minocycline | 30 µg | ≥16 | 13–15 | ≤12 | ≤4 | 8 | ≥16 | |

**Table 2A. (Continued)**

| Test/Report Group | Antimicrobial Agent | Disk Content | Zone Diameter Interpretive Criteria nearest whole mm S | I | R | MIC Interpretive Criteria (µg/mL) S | I | R | Comments |
|---|---|---|---|---|---|---|---|---|---|
| **FLUOROQUINOLONES** | | | | | | | | | |
| (31) **NOTE: Reevaluation of fluoroquinolones is ongoing.** See comment (2). | | | | | | | | | |
| B | Ciprofloxacin | 5 µg | ≥21 | 16–20 | ≤15 | ≤1 | 2 | ≥4 | **(32) For testing and reporting against *Enterobacteriaceae* other than *S. typhi* and extraintestinal *Salmonella* spp.** |
| B | Levofloxacin | 5 µg | ≥17 | 14–16 | ≤13 | ≤2 | 4 | ≥8 | |
| **B** | **Ciprofloxacin** | **5 µg** | **≥31** | **21-30** | **≤20** | **≤0.06** | **0.12–0.5** | **≥1** | **(33) For reporting against *S. typhi* and exraintestinal *Salmonella* spp. only.**<br><br>**(34) Because of limited clinical experience in the treatment of infections caused by *S. typhi* and extraintestinal *Salmonella* spp. with ciprofloxacin MICs or zone diameters in the intermediate range, clinicians may wish to use maximal oral or parenteral dosage regimens. See comment (36).** |
| U | Lomefloxacin or | 10 µg | ≥22 | 19–21 | ≤18 | ≤2 | 4 | ≥8 | |
| U | ofloxacin | 5 µg | ≥16 | 13–15 | ≤12 | ≤2 | 4 | ≥8 | |
| U | Norfloxacin | 10 µg | ≥17 | 13–16 | ≤12 | ≤4 | 8 | ≥16 | |
| O | Enoxacin | 10 µg | ≥18 | 15–17 | ≤14 | ≤2 | 4 | ≥8 | |
| O | Gatifloxacin | 5 µg | ≥18 | 15–17 | ≤14 | ≤2 | 4 | ≥8 | |
| U | Gemifloxacin | 5 µg | ≥20 | 16–19 | ≤15 | ≤0.25 | 0.5 | ≥1 | (35) FDA-approved for *Klebsiella pneumoniae*. |
| O | Grepafloxacin | 5 µg | ≥18 | 15–17 | ≤14 | ≤1 | 2 | ≥4 | |
| Inv. | Fleroxacin | 5 µg | ≥19 | 16–18 | ≤15 | ≤2 | 4 | ≥8 | |
| **QUINOLONES** | | | | | | | | | |
| O | Cinoxacin | 100 µg | ≥19 | 15–18 | ≤14 | ≤16 | 32 | ≥64 | See comment (21). |
| O | Nalidixic acid | 30 µg | ≥19 | 14–18 | ≤13 | ≤16 | – | ≥32 | (36) In addition to testing urine isolates, nalidixic acid may be used to test for reduced fluoroquinolone susceptibility in isolates from patients with extraintestinal *Salmonella* infections. **Strains of *Salmonella* that test resistant to nalidixic acid may be associated with clinical failure or delayed response in fluoroquinolone-treated patients with extraintestinal salmonellosis.**<br><br>**However, nalidixic acid may not detect all mechanisms of fluoroquinolone resistance. Therefore, *Salmonella* strains may also be tested with ciprofloxacin and reported using the *Salmonella* spp. interpretive criteria above. See comments (32) and (33).**<br><br>See comments (21) and (31). |
| **FOLATE PATHWAY INHIBITORS** | | | | | | | | | |
| B | Trimethoprim-sulfamethoxazole | 1.25/23.75 µg | ≥16 | 11–15 | ≤10 | ≤2/38 | – | ≥4/76 | See comment (2). |
| U | Sulfonamides | 250 or 300 µg | ≥17 | 13–16 | ≤12 | ≤256 | – | ≥512 | (37) Sulfisoxazole can be used to represent any of the currently available sulfonamide preparations. |
| U | Trimethoprim | 5 µg | ≥16 | 11–15 | ≤10 | ≤8 | – | ≥16 | |







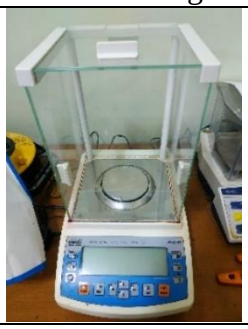
**Table 2A. (Continued)**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **PHENICOLS** | | | | | | | | | |
| C | Chloramphenicol | 30 µg | ≥18 | 13–17 | ≤12 | ≤8 | 16 | ≥32 | (38) Not routinely reported on isolates from the urinary tract. |
| **FOSFOMYCINS** | | | | | | | | | |
| O | Fosfomycin | 200 µg | ≥16 | 13–15 | ≤12 | ≤64 | 128 | ≥256 | (39) **For testing and reporting of *E. coli* urinary tract isolates only.**<br>(40) The 200-µg fosfomycin disk contains 50 µg of glucose-6-phosphate.<br>41) The **only** approved MIC **method for** testing is agar dilution **using** agar media supplemented with 25 µg/mL of glucose-6-phosphate. Broth dilution **MIC testing** should not be performed. |
| **NITROFURANS** | | | | | | | | | |
| U | Nitrofurantoin | 300 µg | ≥17 | 15–16 | ≤14 | ≤32 | 64 | ≥128 | |

Abbreviations: ATCC, American Type Culture Collection; CAMHB, cation-adjusted Mueller-Hinton broth; ESBL, extended-spectrum β-lactamase; FDA, US Food and Drug Administration; MHA, Mueller-Hinton agar; MHT, modified Hodge test; MIC, minimal inhibitory concentration; PK-PD, pharmacokinetic-pharmacodynamic; QC, quality control.

**Lampiran 4. Gambar Alat dan Bahan serta Dokumentasi Penelitian**

## A. Gambar Alat Penelitian

| | | |
|---|---|---|
|  |  |  |
| Gambar 1. Tabung reaksi | Gambar 2. Gelas ukur | Gambar 3. Gelas beaker |
|  |   | |
| Gambar 4. Neraca analitik | Gambar 5. Inkubator | Gambar 6. Rak tabung |
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| Gambar 7. Lampu spirtus | Gambar 8. Biosafety cabinet | Gambar 9. Pinset |

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| Gambar 10. Petridish | Gambar 11. Autoklaf | Gambar 12. Ose |
|  |  |  |
| Gambar 13. Ball pipet | Gambar14. Mikropipet | Gambar 15. Hotplate |
|  |  |  |
| Gambar 16. Mac Farlland Densitometer | Gambar 17. Kompor listrik | Gambar 18. Corong |
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| Gambar 19. Pipet ukur | Gambar 20. Erlenmeyer | Gambar 21. Magnetic stirrer |

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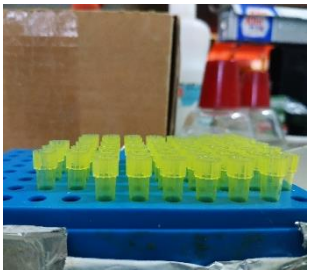
|  |  |  |
| Gambar 22. Yellow tip | Gambar 23. Jangka sorong | Gambar 24. Batang pengaduk |

## B. Gambar Bahan Penelitian

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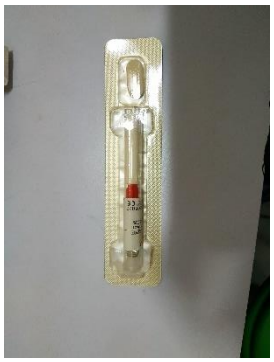
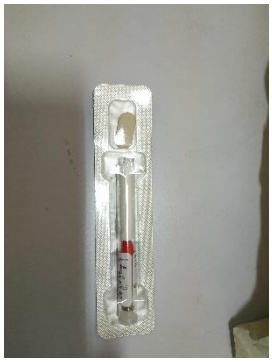
|  |  |  |
| Gambar 25. Daun Afrika (*Vernonia amygdalina* Del) | Gambar 26. Media *Mueller Hinton Agar* | Gambar 27. Aquades |
|  |  |  |
| Gambar 28. Cakram disk kosong | Gambar 29. Cakram disk kloramfenikol | Gambar 30. Lidi kapas steril |

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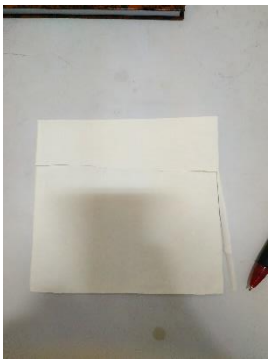
|  |  |  |
| Gambar 31. NaCl | Gambar 32. Kertas saring | Gambar 33. Air rebusan Daun Afrika |
|  |  |  |
| Gambar 34. Aluminium foil | Gambar 35. Standar *Mac Farlland* | Gambar 36. Bakteri *E. coli* |
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| Gambar 37. Media *Mueller Hinton Agar* dalam petridish | | |

## C. Gambar Dokumentasi Kegiatan Penelitian

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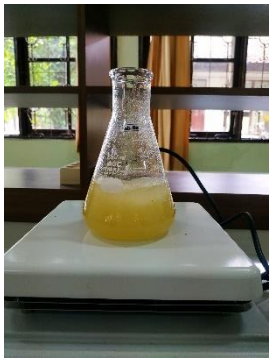
|---|---|---|
|  |  |  |
| Gambar 38. Proses pemetikan daun Afrika | Gambar 39. Proses pencucian daun Afrika | Gambar 40. Proses perajangan daun Afrika |
|  |  |  |
| Gambar 41. Proses penimbangan media *Mueller Hinton Agar* | Gambar 42. Proses pembuatan media *Mueller Hinton Agar* | Gambar 43. Proses pemanasan media *Mueller Hinton Agar* |
|  |  |  |
| Gambar 44. Proses steril media *Mueller Hinton Agar* | Gambar 45. Proses penuangan media *Mueller Hinton Agar* ke dalam plate | Gambar 46. Proses pembuatan NaCl steril |

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| Gambar 47. Proses pembuatan aquades steril | Gambar 48. Proses perebusan daun Afrika | Gambar 49. Proses penyaringan air rebusan daun Afrika |
|  |  |  |
| Gambar 50. Proses pengenceran air rebusan daun Afrika | Gambar 51. Proses standarisasi alat densitometer | Gambar 52. Proses pembuatan suspensi bakteri *Escherichia coli* |
|  |  |  |
| Gambar 53. Proses penanaman suspensi bakteri *E. coli* pada media *Mueller Hinton Agar* | Gambar 54. Proses memasukkan konsentrasi rebusan daun Afrika serta aquades steril ke dalam cakram disk | Gambar 55. Proses penanaman cakram disk |

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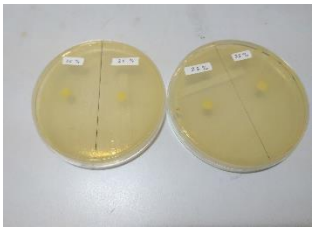
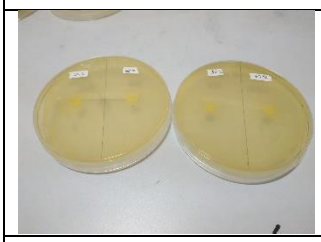
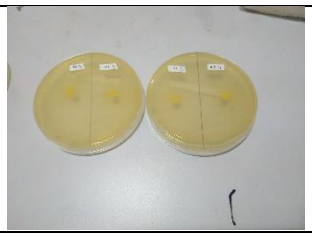
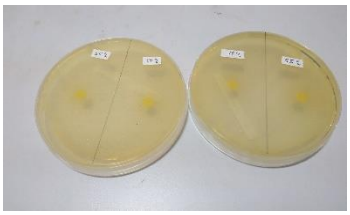
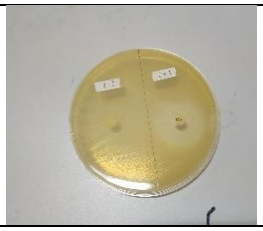
|  |  |  |
| Gambar 56. Proses inkubasi media | Gambar 57. Proses pengukuran zona hambat | Gambar 58. Hasil pengujian konsentrasi 25% |
|  |  |  |
| Gambar 59. Hasil pengujian konsentrasi 35% | Gambar 60. Hasil pengujian konsentrasi 45% | Gambar 61. Hasil pengujian konsentrasi 55% |
|  | | |
| Gambar 62. Hasil kontrol negatif dan positif | | |

## Lampiran 4. Form Bimbingan Karya Tulis Ilmiah

**Data Skripsi Mahasiswa**

| | |
|---|---|
| N I M | P07134019059 |
| Nama Mahasiswa | Aulia Shanti Rizqina |
| Info Akademik | Fakultas : Jurusan Teknologi Laboratorium Medis - Jurusan Program Studi Teknologi Laboratorium Medis Program Diploma Tiga<br>Semester : 6 |

Skripsi | Bimbingan | Jurnal Ilmiah | Seminar Proposal | Syarat Sidang

| | | | | |
|---|---|---|---|---|
| 19 | 196208181983031009 - NYOMAN MASTRA, SKM, S.Pd, M.Si | Bimbingan Karya Tulis Ilmiah | 10 Mei 2022 | ✓ |
| 20 | 196208181983031009 - NYOMAN MASTRA, SKM, S.Pd, M.Si | Bimbingan Revisi Karya Tulis Ilmiah | 20 Mei 2022 | ✓ |
| 21 | 196208181983031009 - NYOMAN MASTRA, SKM, S.Pd, M.Si | Bimbingan Revisi Karya Tulis Ilmiah | 25 Mei 2022 | ✓ |
| 22 | 196208181983031009 - NYOMAN MASTRA, SKM, S.Pd, M.Si | ACC Pembimbing Utama | 28 Mei 2022 | ✓ |
| 23 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Pengiriman dan Bimbingan BAB I Sampai dengan BAB IV Usulan Penelitian | 24 Peb 2022 | ✓ |
| 24 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Pengiriman dan Bimbingan BAB I Sampai dengan BAB IV Usulan Penelitian | 25 Peb 2022 | ✓ |
| 25 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Bimbingan BAB I Sampai dengan BAB IV Usulan Penelitian | 28 Peb 2022 | ✓ |
| 26 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Bimbingan BAB I Sampai dengan BAB IV Usulan Penelitian | 4 Mar 2022 | ✓ |
| 27 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Bimbingan BAB I Sampai dengan BAB IV Usulan Penelitian | 18 Mar 2022 | ✓ |
| 28 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Bimbingan BAB I Sampai dengan BAB IV Usulan Penelitian | 28 Mar 2022 | ✓ |
| 29 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Acc Usulan Penelitian oleh Pembimbing Pendamping | 29 Mar 2022 | ✓ |
| 30 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Bimbingan Karya Tulis Ilmiah | 25 Mei 2022 | ✓ |
| 31 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Bimbingan dan Revisi Karya Tulis Ilmiah | 30 Mei 2022 | ✓ |
| 32 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Bimbingan dan Revisi Karya Tulis Ilmiah | 31 Mei 2022 | ✓ |
| 33 | 199105272015032002 - PUTU AYU SURYANINGSIH, SST | Acc Karya Tulis Ilmiah oleh Pembimbing Pendamping | 31 Mei 2022 | ✓ |
| 34 | 196208181983031009 - NYOMAN MASTRA, SKM, S.Pd, M.Si | Revisi dan Bimbingan Karya Tulis Ilmiah | 31 Mei 2022 | ✓ |
| 35 | 196208181983031009 - NYOMAN MASTRA, SKM, S.Pd, M.Si | Acc dan Dokumen ditandatangani oleh Pembimbing Utama | 2 Jun 2022 | ✓ |

## Lampiran 5. Surat Pernyataan Persetujuan Publikasi Repository

### SURAT PERNYATAAN PERSETUJUAN PUBLIKASI REPOSITORY

Saya yang bertanda tangan di bawah ini :

| | | |
|---|---|---|
| Nama | : | Aulia Shanti Rizqina |
| NIM | : | P07134019059 |
| Program Studi | : | Diploma Tiga |
| Jurusan | : | Teknologi Laboratorium Medis |
| Tahun Akademik | : | 2021/2022 |
| Alamat | : | Jalan Batuyang Gang Kokokan No. 9, Batubulan Kangin, Gianyar |
| Nomor HP/Email | : | 085157354977/19059.auliashsantirizqina@gmail.com |

Dengan ini menyerahkan skripsi berupa Tugas Akhir dengan Judul :

Perbedaan Konsentrasi Air Rebusan Daun Afrika (*Vernonia amygdalina* Del) Terhadap Zona Hambat Pertumbuhan Bakteri *Escherichia coli*

1. Dan menyetujuinya menjadi hak milik Poltekkes Kemenkes Denpasar serta memberikan Hak Bebas Royalti Non-Eksklusif untuk disimpan, dialihkan mediakan, dikelola dalam pangkalan data dan dipublikasikannya di internet atau media lain untuk kepentingan akademis selama tetap mencantumkan nama penulis sebagai pemilik Hak Cipta

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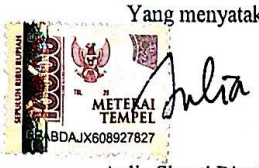
Denpasar, 9 Juli 2022

Yang menyatakan




Aulia Shanti Rizqina

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