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## Lampiran 1. Surat persetujuan penelitian dari atasan yang berwenang



**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
UNIVERSITAS HASANUDDIN  
FAKULTAS KESEHATAN MASYARAKAT**

Sekretariat: Jl. Perintis Kemerdekaan Km. 10 Makassar 90245, Telp (0411) 585658  
Fax: (0411) 586013. Email: [dekanfkmuh@gmail.com](mailto:dekanfkmuh@gmail.com). Website: [www.fkm.unhas.ac.id](http://www.fkm.unhas.ac.id)

**SURAT PERSETUJUAN ATASAN YANG BERWENANG**

No: 2027/UN4.14.8/DI.03/2023

Yang bertanda tangan dibawah ini :

Nama : Dr. Aminuddin Syam, SKM,M.Kes,M.Med.E.D  
N I P : 19670607 199903 1 001  
Jabatan : Ketua Program Studi S3 Ilmu Kesehatan Masyarakat  
Fakultas Kesehatan Masyarakat Universitas Hasanuddin

Menyatakan bahwa :

Nama : **Rahwan Ahmad**  
N I M : **K013211003**  
Judul Penelitian : Penggunaan Bahan Alami Limbah Kulit Durian (*Durio Zibethinus Murr*)  
Varietas Soya Sebagai Bahan Desinfeksi Bakteri *Escherichia Coli*  
Pada Air Baku Air Minum Rumah Tangga.

Disetujui untuk melakukan penelitian dengan judul tersebut di atas.

Demikian disampaikan untuk dapat dipergunakan sebagaimana mestinya.



Makassar, 14 Januari 2023

Ketua Program Studi S3 Ilmu Kesehatan Masyarakat,

Dr. Aminuddin Syam, SKM., M.Kes., M.Med. E.D  
NIP. 19670607 199903 1 001



## Lampiran 2. Rekomendasi persetujuan Etik



KEMENTERIAN PENDIDIKAN, KEBUDAYAAN  
RISET, DAN TEKNOLOGI  
UNIVERSITAS HASANUDDIN  
FAKULTAS KESEHATAN MASYARAKAT  
Jln. Perintis Kemerdekaan Km. 10 Makassar 90245, Telp. (0411) 585658,  
E-mail : [fkunhas@gmail.com](mailto:fkunhas@gmail.com), website: <https://fkunhas.ac.id/>

**REKOMENDASI PERSETUJUAN ETIK**

Nomor : 2680/UN4.14.1/TP.01.02/2023

Tanggal : 06 Maret 2023

Dengan ini Menyatakan bahwa Protokol dan Dokumen yang Berhubungan dengan Protokol berikut ini telah mendapatkan Persetujuan Etik :

|                                   |   |   |                              |
|-----------------------------------|---|---|------------------------------|
| No. Protokol                      | 22223093008   | No. Sponsor Protokol  |                              |
| Peneliti Utama                    | Rahwan Ahmad  | Sponsor   | Pribadi                      |
| Judul Peneliti                    | <b>Penggunaan Bahan Alami Limbah Kulit Durian (<i>Durio zibethinus Murr.</i>) Varietas Soya Sebagai Bahan Desinfeksi Bakteri <i>Escherichia Coli</i> Pada Air Baku Air Minum Rumah Tangga</b> |   |                              |
| No. Versi Protokol                | 1   | Tanggal Versi   | 22 Februari 2023             |
| No. Versi PSP                     | 1   | Tanggal Versi   | 22 Februari 2023             |
| Tempat Penelitian                 | <b>Laboratorium Balai Riset dan Standarisasi Industri (BARISTAN) Ambon</b>  |   |                              |
| Judul Review                      | <input type="checkbox"/> Exempted<br><input type="checkbox"/> Expedited<br><input checked="" type="checkbox"/> Fullboard.   | Masa Berlaku<br><b>06 Maret 2023</b><br>Sampai <b>06</b><br><b>Maret 2024</b> | Frekuensi review lanjutan    |
| Ketua Komisi Etik Penelitian      | Nama :<br>Prof.dr. Veni Hadju, M.Sc, Ph.D   | Tanda tangan<br>  | Tanggal<br><br>06 Maret 2023 |
| Sekretaris komisi Etik Penelitian | Nama :<br>Dr. Wahiduddin, SKM., M.Kes   | Tanda tangan<br>  | Tanggal<br><br>06 Maret 2023 |

Kewajiban Peneliti Utama :

1. Menyerahkan Amandemen Protokol untuk persetujuan sebelum di implementasikan
  2. Menyerahkan Laporan SAE ke Komisi Etik dalam 24 Jam dan dilengkapi dalam 7 hari dan Laporan SUSAR dalam 72 Jam setelah Peneliti Utama menerima laporan
  3. Menyerahkan Laporan Kemajuan (progress report) setiap 6 bulan untuk penelitian resiko tinggi dan setiap setahun untuk penelitian resiko rendah
  4. Menyerahkan laporan akhir setelah Penelitian berakhir
- Menyimpangan dari protocol yang disetujui (protocol deviation/violation) atau pelanggaran peraturan yang ditentukan



Optimization Software:  
[www.balesio.com](http://www.balesio.com)

## Lampiran 3. Surat Permohonan Izin Penelitian ke Gubernur Provinsi Maluku



**KEMENTERIAN PENDIDIKAN, KEBUDAYAAN  
RISET DAN TEKNOLOGI  
UNIVERSITAS HASANUDDIN  
FAKULTAS KESEHATAN MASYARAKAT**

*Jl. Perintis Kemerdekaan Km 10 Makassar 90245. Telp. (0411) 585658  
E-mail: [dekan@kkmh.hasanuddin.ac.id](mailto:dekan@kkmh.hasanuddin.ac.id), website: <http://km.unhas.ac.id>*

Nomor : 2175/UN4 14/PT 01 04/2023  
Lamp :  
Hal : Permohonan Izin Penelitian  
Kepada :  
Yth : **Gubernur Provinsi Maluku  
c.q Kesbangpol**  
di  
Maluku

Dengan hormat kami sampaikan bahwa mahasiswa Program Pascasarjana Universitas Hasanuddin yang tersebut dibawah ini :

Nama : **Rahwan Ahmad**  
Nim : **K013211003**  
Program Pendidikan : **Doktor (S3)**  
Program Studi : **Kesehatan Masyarakat**

Bermaksud melakukan penelitian dalam rangka persiapan penulisan Disertasi dengan Judul "Penggunaan Bahan Alami Limbah Kulit Durian (*Durio Zibethinus Murr*) Varietas Soya Sebagai Bahan Desinfeksi Bakteri *Escherichia Coli* Pada Air Baku Air Minum Rumah Tangga".

Promotor : Prof. Dr. Ridwan Amiruddin, SKM, M.Kes, M.Sc.PH  
Co-Promotor : Prof. Dr. drg. A. Arsunan Arsin, M.Kes  
Co-Promotor : Prof. Dr. Stang, M.Kes  
Waktu Penelitian : Maret – Agustus 2023

Sehubungan dengan hal tersebut kami mohon kebijaksanaan Bapak kiranya berkenan memberi izin kepada yang bersangkutan.

Atas perkenan dan kerjasamanya disampaikan terima kasih.

a.n. Dekan,  
Wakil Dekan Bidang Akademik  
dan Kemahasiswaan,  
  
**Dr. Wahiduddin, SKM.,M.Kes**  
Nip. 19760407 200501 1 004



## Lampiran 4. Surat Permohonan Izin Penelitian ke BARISTAN Ambon



**KEMENTERIAN PENDIDIKAN, KEBUDAYAAN  
RISET DAN TEKNOLOGI  
UNIVERSITAS HASANUDDIN  
FAKULTAS KESEHATAN MASYARAKAT**

Jl. Perintis Kemerdekaan Km 10 Makassar 90245 Telp. (0411) 585658  
E-mail: [akademika@hasanuddin.ac.id](mailto:akademika@hasanuddin.ac.id) website: <http://hasanuddin.ac.id>

Nomor : 2176/UN4.14/PT.01.04/2023

20 Februari 2023

Lamp.

Hal

Permohonan Izin Penelitian

Kepada

Yth

**Kepala Balai Riset dan Standardisasi Industri Ambon**

di

Ambon

Dengan hormat kami sampaikan bahwa mahasiswa Program Pascasarjana Universitas Hasanuddin yang tersebut dibawah ini :

Nama : **Rahwan Ahmad**  
Nim : **K013211003**  
Program Pendidikan : **Doktor (S3)**  
Program Studi : **Kesehatan Masyarakat**

Bermaksud melakukan penelitian dalam rangka persiapan penulisan Disertasi dengan Judul "Penggunaan Bahan Alami Limbah Kulit Durian (*Durio Zibethinus Murr*) Varietas Soya Sebagai Bahan Desinfeksi Bakteri *Escherichia Coli* Pada Air Baku Air Minum Rumah Tangga".

Promotor : Prof. Dr. Ridwan Amiruddin, SKM, M.Kes, M.Sc.PH  
Co-Promotor : Prof. Dr. drg. A. Arsunan Arsin, M.Kes  
Co-Promotor : Prof. Dr. Stang, M.Kes  
Waktu Penelitian : Maret – Agustus 2023

Sehubungan dengan hal tersebut kami mohon kebijaksanaan Bapak kiranya berkenan memberi izin kepada yang bersangkutan.

Atas perkenan dan kerjasamanya disampaikan terima kasih.

a.n. Dekan,  
Wakil Dekan Bidang Akademik  
dan Kemahasiswaan,

**Dr. Wahiduddin, SKM., M.Kes**  
Nip. 19760407 200501 1 004



Optimization Software:  
[www.balesio.com](http://www.balesio.com)

ngkutan

## Lampiran 5. Rekomendasi penelitian dari Gub. Maluku



**PEMERINTAH PROVINSI MALUKU**  
**BADAN KESATUAN BANGSA DAN POLITIK**  
 Jln. Raya Pattimura Nomor 1 Ambon 97124 - Lt. V Telp/ Fax. (0911) 351155  
 Website : [www.malukuprov.go.id](http://www.malukuprov.go.id), email : [kesbangpolpromal@malukuprov.go.id](mailto:kesbangpolpromal@malukuprov.go.id)

**REKOMENDASI PENELITIAN**

Nomor : 074 / 108 / 01 / BKBP / III / 2023

- a. Dasar : 1. Peraturan Menteri Dalam Negeri Republik Indonesia Nomor 3 Tahun 2018 Tentang Penerbitan Surat Keterangan Penelitian  
 2. Peraturan Menteri Dalam Negeri Nomor 20 Tahun 2011 tentang Pedoman Penelitian dan Pengembangan di lingkungan Kementerian Dalam Negeri dan Pemerintah Daerah.  
 3. Surat Keputusan Menteri Dalam Negeri Nomor : SD.6 / 2 / 12 tanggal 5 Juli 1972 tentang Kegiatan Riset dan Survey diwajibkan melaporkan diri kepada Gubernur Kepala Daerah atau Pejabat yang ditunjuk  
 4. Peraturan Gubernur Nomor : 34 Tahun 2020 tentang Kedudukan, Tugas dan Fungsi Susunan Organisasi dan Tata Kerja, Badan Pengelolah Perbatasan Badan Kesatuan Bangsa Dan Politik Provinsi Maluku  
 Surat Dekan Fakultas Kesehatan Masyarakat Universitas Hasanuddin Makassar Nomor: 2175/UN4.14/PT.01.04/2023 tanggal : 20 Februari 2023  
 Perihal: Permohonan Izin Penelitian
- b. Menimbang

**MEMBERITAHUKAN BAHWA :**

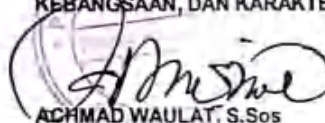
- a. Nama : **Rahwan Ahmad**  
 b. Identitas : Mahalwa Program Pascasarjana Program Studi Kesehatan Masyarakat Universitas Hasanuddin Makassar  
 c. Nim : K013211003  
 d. Untuk : 1) Melakukan penelitian dalam rangka penulisan Disertasi dengan judul:  
**"Penggunaan Bahan Alami Limbah Kulit Durian (*Durio Zibethinus Mur*) Varietas Soya Sebagai Bahan Desinfeksi Bakteri *Escherichia Coll* Pada Air Baku Minum Rumah Tangga"**  
 2) Lokasi Penelitian : Baristand Ambon, Desa Soya dan Desa Waiheru  
 3) Waktu/jama penelitian : 01 Maret 2023 s/d 30 Agustus 2023  
 4) Anggota : -  
 5) Bidang Penelitian : Kesehatan Masyarakat  
 6) Status Penelitian : Baru

Sehubungan dengan maksud tersebut di atas, maka dalam pelaksanaannya agar memperhatikan hal-hal sebagai berikut:

- Mentaati semua ketentuan / peraturan yang berlaku.
- Melaporkan kepada Instansi terkait untuk mendapatkan petunjuk yang diperlukan.
- Surat Rekomendasi ini hanya berlaku bagi kegiatan : *Penelitian*.
- Tidak menyimpang dari maksud yang diajukan serta tidak keluar dari lokasi Penelitian.
- Memperhatikan keamanan dan ketertiban umum selama pelaksanaan kegiatan berlangsung.
- Memperhatikan dan mentaati budaya dan adat istiadat setempat
- Menyampaikan 1 (satu) Eks. Hasil penelitian kepada Gubernur Maluku Cq. Ka. Badan Kesbangpol Prov. Maluku.
- Surat Rekomendasi ini berlaku sampai dengan **30 Agustus 2023**, serta dicabut apabila terdapat penyimpangan/pelanggaran dari ketentuan tersebut.

Demikian rekomendasi ini dibuat untuk dipergunakan seperlunya.

Ambon, 01 Maret 2023  
 An. GUBERNUR MALUKU  
 KEPALA BADAN KESATUAN BANGSA DAN POLITIK  
 PROVINSI MALUKU  
 Ub  
 KEPALA BIDANG BINA IDEOLOGI, WAWASAN  
 KEBANGSAAN, DAN KARAKTER BANGSA

  
**ACHMAD WAULAT, S.Sos**

Pembina  
 NIP. 19670416 199803 1 004



Optimization Software:  
[www.balesio.com](http://www.balesio.com)

da Yth :  
 (sebagai laporan)

- Berikan 1 ek. Rekomendasi Masyarakat UNHAS di Makassar
- Kepala Pemerintahan Desa soya
- Kepala Pemerintahan Desa Waiheru
- Sd/ V Rahwan Ahmad
- Analp

## Lampiran 6. Tanda daftar Varietas tanaman Durian Soya

**REPUBLIK INDONESIA**  
**KEMENTERIAN PERTANIAN**  
**PUSAT PERLINDUNGAN VARIETAS TANAMAN DAN PERIZINAN PERTANIAN**

*Tanda Daftar Varietas Tanaman*

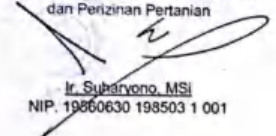
**VARIETAS LOKAL**  
**Nomor: 02/PVL/2012**

Berdasarkan Undang-Undang Nomor 29 Tahun 2000 tentang Perlindungan Varietas Tanaman; Peraturan Menteri Pertanian Nomor 01 Tahun 2004 tentang Penamaan, Pendaftaran dan Penggunaan Varietas Asal Untuk Pembuatan Varietas Hibrida; Peraturan Menteri Pertanian Nomor 01 Tahun 2006 tentang Syarat Penamaan dan Tata Cara Pendaftaran Varietas Lokal; dan Peraturan Menteri Pertanian Nomor 01 Tahun 2006 tentang Syarat Penamaan dan Tata Cara Pendaftaran Varietas Lokal bersama ini kami memberikan Tanda Daftar Varietas Lokal kepada:

|                                |   |  |
|--------------------------------|---|--|
| Nama Pemohon                   | : | Walikota Ambon                         |
| Alamat                         | : | Jl. Sultan Hairun No. 1 Ambon          |
| Tanggal Penerimaan Pendaftaran | : | 1 Februari 2012                        |
| Jenis Tanaman                  | : | Durian                                 |
| Nama Varietas                  | : | Soya<br>(deskripsi varietas terlampir) |

Dengan demikian varietas tersebut telah terdaftar di Pusat Perlindungan Varietas Tanaman dan Perizinan Pertanian sesuai dengan Peraturan Perundang-undangan yang berlaku dan dicatat dalam Daftar Umum PVT serta diumumkan dalam Berita Resmi PVT.

Jakarta, 26 Maret 2012  
Kepala Pusat Perlindungan Varietas Tanaman  
dan Perizinan Pertanian

  
Ir. Subaryono MSi  
NIP. 19860630 198503 1 001

Dipindai dengan CamScanner



## Lampiran 7. Hasil uji lab. skrining fitokimia kualitatif dan kuantitatif

**BALAI STANDARDISASI DAN PELAYANAN JASA INDUSTRI AMBON**  
**LABORATORIUM PENGUJIAN BSPJI AMBON**

Jl. Kebun Cengkeh Batu Merah Atas Sirmau Kota Ambon, Propinsi Maluku, Telp. 0911 - 341897, Fax. (0911) - 341897.  
 Website : bspjiambon.kemendagri.go.id, email : bspji\_ambon@kemendagri.go.id

**HASIL UJI SKRINING FITOKIMIA**

Bahan Uji : Ekstrak Kulit Durian Soya  
 Parameter Uji : Alkaloid, Flavonoid, Saponin, Fenol, Tanin, Steroid, Terpenoid dan Kuinon  
 Metode : Skrining Fitokimia kualitatif  
 Tanggal terima sampel : 12 Juni 2023  
 Tanggal Periksa sampel : 12 Juni 2023  
 Tanggal selesai periksa : 16 Juni 2023  
 Acuan : Safitri *et al.*, 2020

| Parameter Uji | Pereaksi                                   | Hasil Uji                         |             |
|---------------|--|-----------------------------------|-------------|
|               |  | Warna                             | Hasil (+/-) |
| Alkaloid      | Kloroform + H <sub>2</sub> SO <sub>4</sub> |                                   |             |
|               | +Pereaksi Dragendoff                       | Merah-jingga                      | +           |
|               | +Pereaksi Meyer                            | Putih kekuningan                  | +           |
|               | +Pereaksi Wanger                           | Coklat                            | +           |
| Flavonoid     | CH <sub>3</sub> COOH + HCL + bubuk Mg      | Merah tua                         | +           |
|               | Aquades                                    | Terbentuk busa putih              | +           |
| Fenol         | Etanol + FeCl <sub>3</sub> 5%              | Hijau                             | +           |
|               | Etanol + FeCl <sub>3</sub> 1%              | Hijau kebiruan                    | +           |
| Steroid       | Asam asetat glasial                        | Jingga atau ungu                  | +           |
|               | H <sub>2</sub> SO <sub>4</sub> p.a         |                                   |             |
| Terpenoid     | Etanol 70%                                 | lapisan berwarna merah kecoklatan | +           |
|               | Kloroform                                  |                                   |             |
| Kuinon        | H <sub>2</sub> SO <sub>4</sub>             |                                   |             |
|               | NaOH                                       | Tidak ada perubahan warna         | -           |





**BALAI STANDARDISASI DAN PELAYANAN JASA INDUSTRI AMBON**  
**LABORATORIUM PENGUJIAN BSPJI AMBON**

 Jl. Kebun Cengkeh Batu Merah Atas Sirimau Kola Ambon, Propinsi Maluku, Telp. 0911 - 341897, Fax. (0911) - 341897,  
 Website : bspjiambon.kemendagri.go.id, email : bspji\_ambon@kemendagri.go.id

**HASIL UJI SKRINING FITOKIMIA**
**Bahan Uji**

: Ekstrak Kulit Durian Soya

**Parameter Uji**

: Alkaloid, Flavonoid, Saponin, Fenol dan Tanin

**Metode**

: Skrining Fitokimia kuantitatif

Tanggal terima sampel : 15 Januari 2024

Tanggal Periksa sampel : 22 Januari 2024

Tanggal selesai periksa : 22 Januari 2024

| Parameter Uji | Pereaksi  | Hasil Uji |  |  | Acuan                           |
|---------------|---|-----------|--|--|---------------------------------|
|               |   | Satuan    |  |  |                                 |
| Alkaloid      | Bromocresol green   |           |  |  | Wahyuni <i>et al.</i> , 2020    |
|               | Natrium hidroksid (NaOH)                                    |           |  |  |                                 |
|               | Aquades   |           |  |  |                                 |
|               | Disodium fosfat (Na <sub>2</sub> PO <sub>4</sub> )          |           |  |  |                                 |
|               | Asam sitrat (C <sub>6</sub> H <sub>8</sub> O <sub>7</sub> ) |           |  |  |                                 |
|               | Kafein  |           |  |  |                                 |
|               | Etanol  |           |  |  |                                 |
|               | Aluminium korida  |           |  |  |                                 |
|               | Aquades   |           |  |  |                                 |
|               | Asam asetat   |           |  |  |                                 |
| Flavonoid     | Etanol  |           |  |  | Nursamsiar <i>et al.</i> , 2021 |
|               | HCl p.a   |           |  |  |                                 |
|               | Quersetin   |           |  |  |                                 |
|               | Etil asetat   |           |  |  |                                 |
|               | Serbuk magnesium sulfat                                     |           |  |  |                                 |
|               | Natrium asetat  |           |  |  |                                 |
|               |   |           |  |  |                                 |
|               |   |           |  |  |                                 |
|               |   |           |  |  |                                 |
|               |   |           |  |  |                                 |



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Website :bspjiambon.kemperin.go.id, email :bspji\_ambon@kemperin.go.id

|         |                                       |         |         |         |                              |
|---------|---------------------------------------|---------|---------|---------|------------------------------|
| Saponin | Etanol                                | 1,7412  | 1,7423  | 1,7503  | Noviyanty <i>et al.</i> 2021 |
|         | n-butanol                             |         |         |         |                              |
| Fenol   | Natrium klorida (NaCl)                |         |         |         |                              |
|         | Folin ciocalteu p.a                   |         |         |         |                              |
|         | Metanol p.a                           |         |         |         |                              |
|         | Etanol p.a                            |         |         |         |                              |
|         | Petroleum eter teknis                 | % (b/b) | 57,4967 | 57,4913 | Alfian & Susanti 2012        |
|         | Aquades                               |         |         |         |                              |
|         | Feriklorida p.a                       |         |         |         |                              |
| Tanin   | Natrium karbonat (NaCO <sub>3</sub> ) |         |         |         |                              |
|         | Asam tanat                            |         |         |         |                              |
|         | Aquades                               |         |         |         |                              |
|         | Sodium tungstate                      |         |         |         |                              |
|         | Asam fosfomolibdat                    | % (b/b) | 2,2703  | 2,2741  | Mamat <i>et al.</i> 2019     |
|         | Asam fosfat                           |         |         |         |                              |



# Photometric Report

01/15/2024 01:27:24 PM

File Name: D:\DATA SPEKTRO UV-VIS 1900\SAMPEL 2024\September\Kullit Durian dan Ekstrak Kulit Durian\Alkaloid 15012024.pho

[Wavelengths]  
 Wavelength Name: WL273.0  
 Wavelength: 273.00 nm

[Calibration Curve]  
 Column for Cal. Curve: WL273.0  
 Cal. Curve Type: Multi Point  
 Cal. Curve Unit: mg/l  
 Selected Wavelength: WL273.0  
 Calibration Equation: Abs = K1\*(Conc) + K0  
 Zero Interception: Not Selected

[Measurement Parameters(Standard)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Disabled

[Measurement Parameters(Sample)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Disabled

[Equations]

[Pass Fail]

[Method Summary]

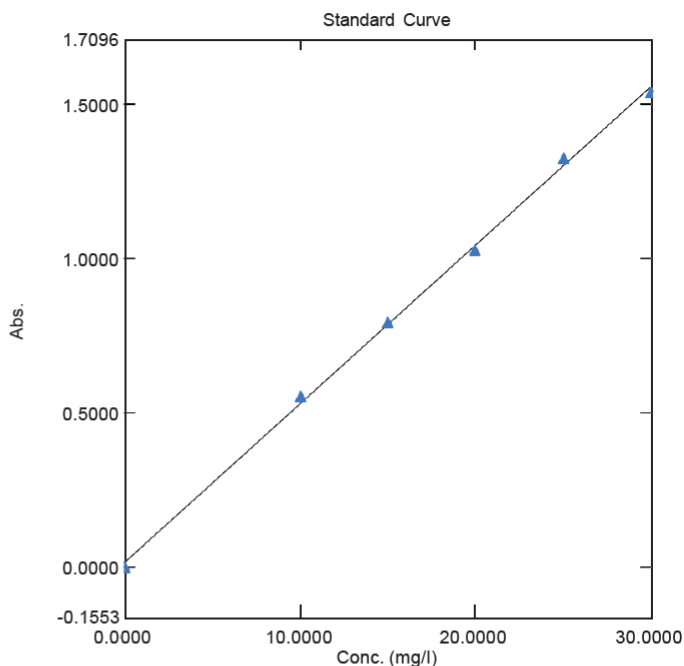
Title:  
 Date/Time: 01/15/2023 09:52:29 AM  
 Comments:  
 Sample Preparations:

[Instrument Properties]

Instrument Type: UV-1900 Series  
 Measuring Mode: Absorbance  
 Slit Width: 1.0 nm  
 Light Source Change Wavelength: 340.8 nm  
 S/R Exchange: Normal

[Attachment Properties]

Attachment: None



Sample Table

|    | Sample ID | Type       | Ex | Conc   | WL273.0 | Comments                   |
|----|-----------|------------|----|--------|---------|----------------------------|
| 10 | EKD1      | Unk-Repeat |    | 4.2485 | 0.2359  |                            |
| 11 | EKD1-2    | Unk-Repeat |    | 4.2329 | 0.2351  |                            |
| 12 | EKD1-Avg  | Average    |    | 4.2407 | 0.2355  | Avg of preceding 2 Samples |
| 13 | EKD2      | Unk-Repeat |    | 4.2446 | 0.2357  |                            |
| 14 | EKD2-2    | Unk-Repeat |    | 4.2426 | 0.2356  |                            |
| 15 | EKD2-Avg  | Average    |    | 4.2436 | 0.2357  | Avg of preceding 2 Samples |
|    |           | Repeat     |    | 4.2465 | 0.2358  |                            |
|    |           | Repeat     |    | 4.2407 | 0.2355  |                            |
|    |           | Average    |    | 4.2436 | 0.2357  | Avg of preceding 2 Samples |



# Photometric Report

01/15/2024 04:37:16 PM

File Name: C:\UVProbe-Data\SAMPEL 2024\Januari\Kulit durian dan Ekstrak Kulit Durian\Fenol.pho

[Wavelengths]  
 Wavelength Name: WL744.8  
 Wavelength: 744.80 nm

[Calibration Curve]  
 Column for Cal. Curve: WL744.8  
 Cal. Curve Type: Multi Point  
 Cal. Curve Unit: mg/l  
 Selected Wavelength: WL744.8  
 Calibration Equation:  $Abs = K1*(Conc) + K0$   
 Zero Interception: Not Selected

[Measurement Parameters(Standard)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Disabled

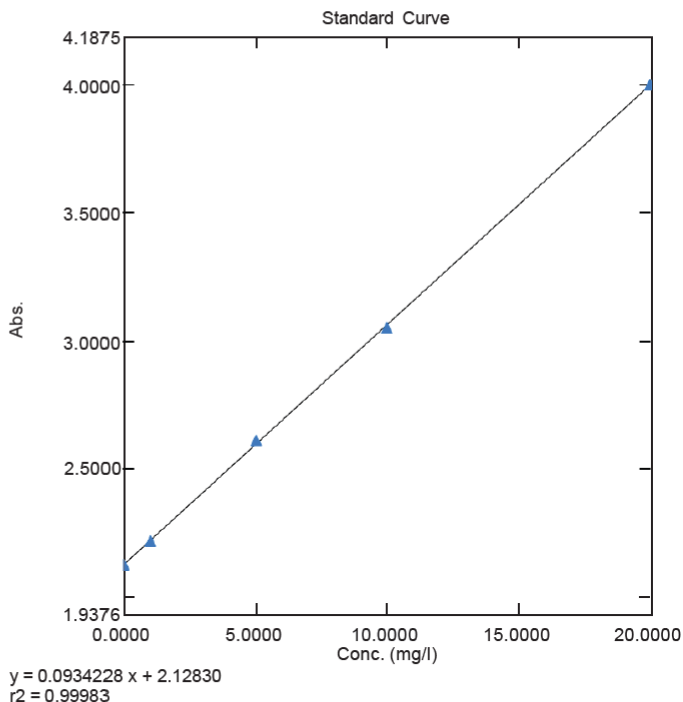
[Measurement Parameters(Sample)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Enabled  
 Repetitions: 2

[Equations]

[Pass Fail]

[Method Summary]  
 Title:  
 Date/Time: 01/15/2024 10:24:04 AM  
 Comments:  
 Sample Preparations:

[Instrument Properties]  
 Instrument Type: UV-1900 Series  
 Measuring Mode: Absorbance  
 Slit Width: 1.0 nm  
 Light Source Change Wavelength: 340.8 nm  
 S/R Exchange: Normal



Sample Table

| Sample ID | Type     | Ex | Conc    | WL744.8 | Comments                   |
|-----------|----------|----|---------|---------|----------------------------|
| 10        | EKD1     |    | 57.5662 | 2.6661  |                            |
| 11        | EKD1-2   |    | 57.4164 | 2.6647  |                            |
| 12        | EKD1-Avg |    | 57.4913 | 2.6654  | Avg of preceding 2 Samples |
| 13        | EKD2     |    | 57.4699 | 2.6652  |                            |
| 14        | EKD2-2   |    | 57.5234 | 2.6657  |                            |
|           |          |    | 57.4967 | 2.6655  | Avg of preceding 2 Samples |
|           |          |    | 57.5448 | 2.6659  |                            |
|           |          |    | 57.5127 | 2.6656  |                            |
|           |          |    | 57.5288 | 2.6658  | Avg of preceding 2 Samples |

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# Photometric Report

01/15/2024 04:35:19 PM

File Name: C:\UVProbe-Data\SAMPEL 2024\Januari\Kulit Durian dan Ekstrak Kulit Durian\Flavonoid.pho

[Wavelengths]  
 Wavelength Name: WL450.0  
 Wavelength: 450.00 nm

[Calibration Curve]  
 Column for Cal. Curve: WL450.0  
 Cal. Curve Type: Multi Point  
 Cal. Curve Unit: mg/l  
 Selected Wavelength: WL450.0  
 Calibration Equation: Abs = K1\*(Conc) + K0  
 Zero Interception: Not Selected

[Measurement Parameters(Standard)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Disabled

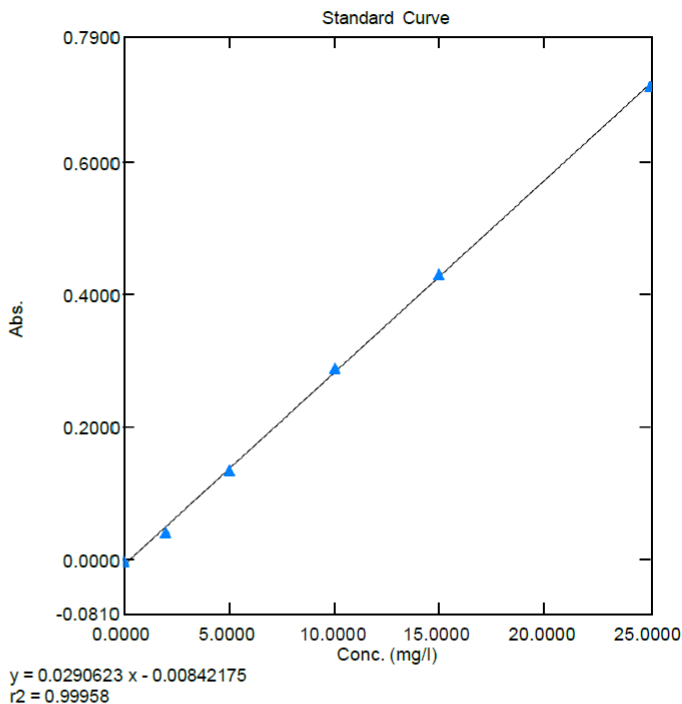
[Measurement Parameters(Sample)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Enabled  
 Repetitions: 2

[Equations]

[Pass Fail]

[Method Summary]  
 Title:  
 Date/Time: 01/15/2024 02:58:54 PM  
 Comments:  
 Sample Preparations:

[Instrument Properties]  
 Instrument Type: UV-1900 Series  
 Measuring Mode: Absorbance  
 Slit Width: 1.0 nm  
 Light Source Change Wavelength: 340.8 nm  
 S/R Exchange: Normal



SampleTable

|    | Sample ID | Type       | Ex | Conc    | WL744.8 | Comments                   |
|----|-----------|------------|----|---------|---------|----------------------------|
| 10 | EKD1      | Unk-Repeat |    | 22.9618 | 0.6589  |                            |
| 11 | EKD1-2    | Unk-Repeat |    | 22.9583 | 0.6588  |                            |
| 12 | EKD1-Avg  | Average    |    | 22.9600 | 0.6589  | Avg of preceding 2 Samples |
| 13 | EKD2      | Unk-Repeat |    | 22.9514 | 0.6586  |                            |
| 14 | EKD2-2    | Unk-Repeat |    | 22.9549 | 0.6587  |                            |
|    |           | age        |    | 22.9532 | 0.6587  | Avg of preceding 2 Samples |
|    |           | repeat     |    | 22.9446 | 0.6584  |                            |
|    |           | repeat     |    | 22.9377 | 0.6582  |                            |
|    |           | age        |    | 22.9411 | 0.6583  | Avg of preceding 2 Samples |

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# Photometric Report

01/15/2024 01:29:26 PM

File Name: D:\DATA SPEKTRO UV-VIS 1900\SAMPEL 2024\Januari\Kulit durian dan Ekstrak kulit durian\Tanin.pho

[Wavelengths]  
 Wavelength Name: WL649.9  
 Wavelength: 649.90 nm

[Calibration Curve]  
 Column for Cal. Curve: WL649.9  
 Cal. Curve Type: Multi Point  
 Cal. Curve Unit: mg/l  
 Selected Wavelength: WL649.9  
 Calibration Equation:  $Abs = K1*(Conc) + K0$   
 Zero Interception: Not Selected

[Measurement Parameters(Standard)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Disabled

[Measurement Parameters(Sample)]  
 Data Acquired by: Instrument  
 Delay sample read: Disabled  
 Repeat: Disabled

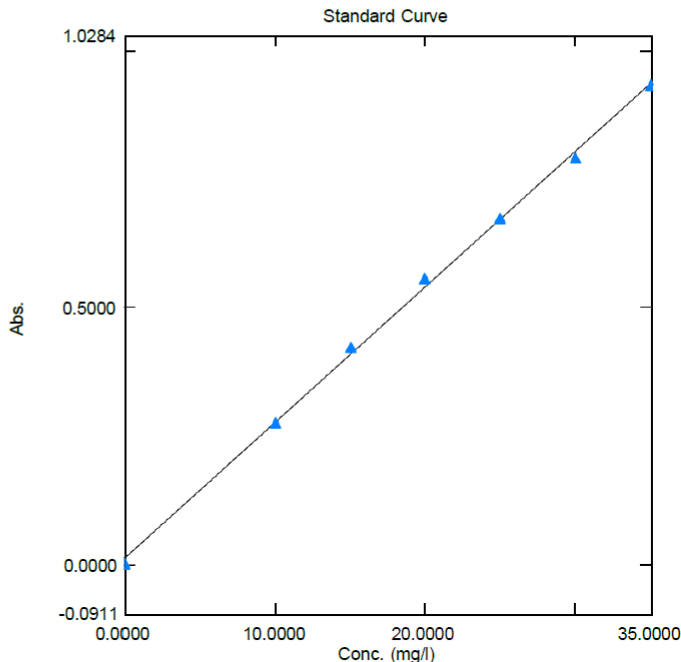
[Equations]

[Pass Fail]

[Method Summary]  
 Title:  
 Date/Time: 01/15/2024 12:05:34 PM  
 Comments:  
 Sample Preparations:

[Instrument Properties]  
 Instrument Type: UV-1900 Series  
 Measuring Mode: Absorbance  
 Slit Width: 1.0 nm  
 Light Source Change Wavelength: 340.8 nm  
 S/R Exchange: Normal

[Attachment Properties]  
 Attachment: None



Sample Table

|    | Sample ID | Type       | Ex | Conc   | WL649.9 | Comments                   |
|----|-----------|------------|----|--------|---------|----------------------------|
| 10 | EKD1      | Unk-Repeat |    | 2.2684 | 0.0741  |                            |
| 11 | EKD1-2    | Unk-Repeat |    | 2.2798 | 0.0744  |                            |
| 12 | EKD1-Avg  | Average    |    | 2.2741 | 0.0743  | Avg of preceding 2 Samples |
| 13 | EKD2      | Unk-Repeat |    | 2.2722 | 0.0742  |                            |
|    |           | Unk-Repeat |    | 2.2684 | 0.0741  |                            |
|    |           | Average    |    | 2.2703 | 0.0742  | Avg of preceding 2 Samples |
|    |           | Unk-Repeat |    | 2.2836 | 0.0745  |                            |
|    |           | Unk-Repeat |    | 2.2874 | 0.0746  |                            |
|    |           | Average    |    | 2.2855 | 0.0746  | Avg of preceding 2 Samples |

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## Lampiran 8. Hasil uji lab. KHM dan KBM ekstrak kulit durian Soya



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Website : bspjambon.kemiperin.go.id, email : bspj\_ambon@kemiperin.go.id

**AR HASIL UJI KONSENTRASI HAMBAT MINIMUM (KHM) DAN KONSENTRASI BUNUH MINIMUM (KBM)**

Bahan Uji : Ekstrak Kulit Durian Soya  
 Parameter : Konsentrasi hambat minimum (KHM) dan konsentrasi bunuh minimum (KBM)  
 Metode Uji : Tubidimetri (KHM) dan Difusi agar (KBM)  
 Acuan : Soelama, 2015  
 Bakteri Uji : *E.coli* ATCC 25922  
 Hari/Tgl terima sampel : 4 September 2023  
 Hari/Tgl selesai : 7 September 2023

| Konsentrasi ekstrak, % | Hasil       |   |   |   |                        |                        |                          |                        |                        |                        |                        |                        |
|------------------------|-------------|---|---|---|------------------------|------------------------|--------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
|                        | KHM/Ulangan |   |   |   |                        |                        | KBM, (koloni/ml)/ulangan |                        |                        |                        |                        |                        |
|                        | 1           | 2 | 3 | 4 | 1                      | 2                      | 3                        | 4                      | 1                      | 2                      | 3                      | 4                      |
| 100                    | -           | - | - | - | 0                      | 0                      | 0                        | 0                      | 0                      | 0                      | 0                      | 0                      |
| 50                     | -           | - | - | - | 0                      | 0                      | 0                        | 0                      | 0                      | 0                      | 0                      | 0                      |
| 25                     | -           | - | - | - | 0                      | 0                      | 0                        | 0                      | 0                      | 0                      | 0                      | 0                      |
| 12,5                   | -           | - | - | - | 0                      | 0                      | 0                        | 0                      | 0                      | 0                      | 0                      | 0                      |
| 6,25                   | -           | - | - | - | 0                      | 0                      | 0                        | 0                      | 0                      | 0                      | 0                      | 0                      |
| 3,12                   | -           | - | - | - | 8,00 x 10 <sup>6</sup> | 6,00 x 10 <sup>6</sup> | 9,00 x 10 <sup>6</sup>   | 1,10 x 10 <sup>7</sup> | 2,70 x 10 <sup>1</sup> | 3,30 x 10 <sup>1</sup> | 2,90 x 10 <sup>1</sup> | 2,90 x 10 <sup>1</sup> |
| 1,56                   | +           | + | + | + | 1,75 x 10 <sup>2</sup> | 1,81 x 10 <sup>2</sup> | 1,54 x 10 <sup>2</sup>   | 1,88 x 10 <sup>2</sup> | >250                   | >250                   | >250                   | >250                   |
| 0,78                   | +           | + | + | + | >250                   | >250                   | >250                     | >250                   | >250                   | >250                   | >250                   | >250                   |
| 0,39                   | +           | + | + | + | >250                   | >250                   | >250                     | >250                   | >250                   | >250                   | >250                   | >250                   |
| Kont (+)               | +           | + | + | + | 0                      | 0                      | 0                        | 0                      | 0                      | 0                      | 0                      | 0                      |
| Kont (-)               | -           | - | - | - | -                      | -                      | -                        | -                      | -                      | -                      | -                      | -                      |

+ = Keruh  
- = Bening



Lampiran 9. Hasil uji lab. Lethal Concentration (LC<sub>50</sub>) ekstrak kulit durian Soya
**BALAI STANDARDISASI DAN PELAYANAN JASA INDUSTRI AMBON**  
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**LEMBAR HASIL UJI LETHAL CONCENTRATION (LC<sub>50</sub>) EKSTRAK KULIT DURIAN**

Bahan Uji : Ekstrak Kulit Durian Soya  
 Metode Uji : *Brine Shrimp Lethally Test* (BSLT)  
 Hewan Uji : Larva Udang *Artemia salina* Leach  
 Tanggal terima sampel : 5 Oktober 2023  
 Tanggal selesai periksa sampel: 6 Oktober 2023

| Konsentrasi ekstrak, ppm | Hasil pengamatan 24 jam<br>(Jumlah Larva Mati) |    |    |
|--------------------------|--|----|----|
|                          | 1  | 2  | 3  |
| 500                      | 17   | 16 | 16 |
| 250                      | 13   | 13 | 15 |
| 125                      | 11   | 11 | 13 |
| 50                       | 8  | 8  | 11 |
| 10                       | 4  | 5  | 5  |
| Kontrol negatif          | 0  | 0  | 0  |

Catatan: Jumlah larva sebanyak 20 ekor/2 ml air laut/konsentrasi ekstrak

Ambon, 9 Oktober 2023



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Lampiran 10. Hasil uji lab. daya bunuh Serbuk Tabur Ekstrak Kulit Durian Soya (SATRIYA) pada air baku

**BALAI STANDARDISASI DAN PELAYANAN JASA INDUSTRI AMBON  
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**HASIL UJI DAYA BUNUH EKSTRAK LIMBAH KULIT DURIAN VARIETAS SOYA  
TERHADAP BAKTERI *Escherichia coli* PADA AIR BAKU AIR MINUM RUMAH TANGGA**

Bahan Uji : Air Baku  
Parameter : *E. coli*  
Metode Uji : Membran Filter  
Tanggal terima sampel : 03 Oktober 2023  
Tanggal periksa sampel : 03 Oktober 2023  
Tanggal selesai : 04 Oktober 2023

**Hasil Uji 5 Liter Air/waktu, koloni/100ml**

| Sampel | 0 Menit |    |    |    | 10 Menit |    |    |    | 20 Menit |    |    |    | 30 Menit |    |    |    | 40 Menit |    |    |    | 50 Menit |    |    |    | 60 Menit |    |     |    |   |
|--------|---------|----|----|----|----------|----|----|----|----------|----|----|----|----------|----|----|----|----------|----|----|----|----------|----|----|----|----------|----|-----|----|---|
|        | 1       | 2  | 3  | 4  | 1        | 2  | 3  | 4  | 1        | 2  | 3  | 4  | 1        | 2  | 3  | 4  | 1        | 2  | 3  | 4  | 1        | 2  | 3  | 4  | 1        | 2  | 3   | 4  |   |
| A      | 43      | 40 | 43 | 41 | 16       | 9  | 18 | 14 | 12       | 11 | 11 | 18 | 17       | 13 | 19 | 19 | 21       | 22 | 22 | 19 | 23       | 23 | 20 | 21 | 22       | 25 | 23  | 25 |   |
| B      | 44      | 43 | 44 | 44 | 11       | 16 | 7  | 10 | 11       | 10 | 9  | 9  | 11       | 14 | 14 | 13 | 15       | 14 | 17 | 17 | 18       | 18 | 18 | 16 | 17       | 19 | 19  | 20 |   |
| C      | 43      | 41 | 43 | 44 | 9        | 13 | 11 | 7  | 6        | 8  | 8  | 6  | 8        | 7  | 8  | 8  | 9        | 11 | 11 | 10 | 13       | 13 | 11 | 14 | 13       | 15 | 13  | 16 |   |
| D      | 43      | 42 | 41 | 43 | 1        | 0  | 0  | 0  | 0        | 1  | 0  | 0  | 1        | 0  | 0  | 1  | 1        | 0  | 0  | 0  | 0        | 0  | 0  | 0  | 1        | 1  | 0   | 1  | 0 |
| E      | 41      | 41 | 44 | 42 | 43       | 54 | 49 | 51 | 61       | 62 | 57 | 53 | 70       | 65 | 61 | 61 | 70       | 75 | 78 | 67 | 87       | 95 | 90 | 91 | 101      | 98 | 102 | 97 |   |
| F      | 11      | 15 | 22 | 18 | 13       | 17 | 15 | 21 | 21       | 15 | 19 | 26 | 25       | 17 | 28 | 34 | 37       | 32 | 29 | 28 | 35       | 41 | 37 | 40 | 46       | 51 | 48  | 51 |   |
| G      | 6       | 4  | 6  | 5  | 9        | 7  | 7  | 9  | 11       | 11 | 10 | 11 | 12       | 12 | 13 | 12 | 12       | 13 | 13 | 15 | 15       | 15 | 15 | 14 | 15       | 15 | 15  | 15 |   |

Ket: A= Air baku + 156,25 mg serbuk ekstrak setara ekstrak 6,25%  
 B= Air baku + 312,50 mg serbuk ekstrak setara ekstrak 12,5%  
 C= Air baku + 625 mg serbuk ekstrak setara ekstrak 25%  
 D= Air baku + kaporit  
 E= Air baku  
 F= Air R.O (Pembanding)  
 G= Air DSA (Pembanding)





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Website :bspjiambon.kemenperin.go.id, email :bspji\_ambon@kemenperin.go.id

**HASIL UJI DAYA BUNUH EKSTRAK LIMBAH KULIT DURIAN VARIETAS SOYA  
TERHADAP BAKTERI *Escherichia coli* PADA AIR BAKU AIR MINUM RUMAH TANGGA**

Bahan Uji : Air Baku  
Parameter : *E.coli*  
Metode Uji : Membran Filter  
Tanggal terima sampe : 03 Oktober 2023  
Tanggal selesai : 04 Oktober 2023

| Sam-<br>pel | Hasil Uji 5 Liter Air/waktu, koloni/100ml |                        |                        |                        |                        |                        |                        |                        |  |  |  |  |
|-------------|---|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|--|--|--|--|
|             | 180 Menit                                 |                        |                        |                        | 360 Menit              |                        |                        |                        |  |  |  |  |
| A           | 1   | 2                      | 3                      | 4                      | 1                      | 2                      | 3                      | 4                      |  |  |  |  |
| B           | 4   | 4                      | 6                      | 6                      | 12                     | 16                     | 12                     | 14                     |  |  |  |  |
| C           | 2   | 2                      | 3                      | 2                      | 8                      | 9                      | 7                      | 7                      |  |  |  |  |
| D           | 2   | 2                      | 2                      | 4                      | 6                      | 6                      | 5                      | 6                      |  |  |  |  |
| E           | 2   | 1                      | 0                      | 1                      | 1                      | 1                      | 0                      | 0                      |  |  |  |  |
| F           | 1,05 x 10 <sup>2</sup>                    | 1,10 x 10 <sup>2</sup> | 1,08 x 10 <sup>2</sup> | 1,08 x 10 <sup>2</sup> | 1,10 x 10 <sup>2</sup> | 1,14 x 10 <sup>2</sup> | 1,16 x 10 <sup>2</sup> | 1,16 x 10 <sup>2</sup> |  |  |  |  |
| G           | 40  | 42                     | 47                     | 45                     | 49                     | 48                     | 52                     | 50                     |  |  |  |  |
|             | 15  | 16                     | 15                     | 15                     | 16                     | 14                     | 17                     | 15                     |  |  |  |  |

Ket: A= Air baku + 156,25 mg serbuk ekstrak setara ekstrak 6,25%  
B= Air baku + 312,50 mg serbuk ekstrak setara ekstrak 12,5%  
C= Air baku + 625 mg serbuk ekstrak setara ekstrak 25%  
D= Air baku + kaporit  
E= Air baku  
F= Air R.O (Pembanding)  
G= Air DSA (Pembanding)



## Lampiran 11. Hasil uji statistik *One Way ANOVA* dan Regresi Linier Sederhana

### ➔ Oneway

[DataSet1] D:\doc. penelitian\hasil Penelitian wan\Siap Gabung\BAB OK 2\Uji Statistik\Sta

#### Descriptives

Koloni bakteri

|          | N  | Mean     | Std. Deviation | Std. Error | 95% Confidence Interval for Mean |             | Minimum | Maximum |
|----------|----|----------|----------------|------------|----------------------------------|-------------|---------|---------|
|          |    |          |                |            | Lower Bound                      | Upper Bound |         |         |
| kont (+) | 4  | 306.2500 | 3.77492        | 1.88746    | 300.2433                         | 312.2567    | 302.00  | 311.00  |
| 0,39%    | 4  | 266.7500 | 4.03113        | 2.01556    | 260.3356                         | 273.1644    | 262.00  | 271.00  |
| 0,78%    | 4  | 174.5000 | 14.66288       | 7.33144    | 151.1681                         | 197.8319    | 154.00  | 188.00  |
| 1,56%    | 4  | 30.7500  | 3.30404        | 1.65202    | 25.4925                          | 36.0075     | 27.00   | 34.00   |
| 3,12%    | 4  | 8.5000   | 2.08167        | 1.04083    | 5.1876                           | 11.8124     | 6.00    | 11.00   |
| Total    | 20 | 157.3500 | 123.81067      | 27.68491   | 99.4048                          | 215.2952    | 6.00    | 311.00  |

#### Test of Homogeneity of Variances

|                |                                      | Levene Statistic | df1 | df2   | Sig. |
|----------------|--------------------------------------|------------------|-----|-------|------|
| Koloni bakteri | Based on Mean                        | 2.934            | 4   | 15    | .056 |
|                | Based on Median                      | 2.151            | 4   | 15    | .125 |
|                | Based on Median and with adjusted df | 2.151            | 4   | 3.550 | .254 |
|                | Based on trimmed mean                | 2.621            | 4   | 15    | .077 |

#### ANOVA

Koloni bakteri

|                | Sum of Squares | df | Mean Square | F        | Sig. |
|----------------|----------------|----|-------------|----------|------|
| Between Groups | 290470.300     | 4  | 72617.575   | 1392.475 | .000 |
| Within Groups  | 782.250        | 15 | 52.150      |          |      |
| Total          | 1252.550       | 19 |             |          |      |



## Post Hoc Tests

### Multiple Comparisons

Dependent Variable: Koloni bakteri

LSD

| (I) Ekstrak kulit durian | (J) Ekstrak kulit durian | Mean Difference (I-J)   | Std. Error | Sig. | 95% Confidence Interval |             |
|--------------------------|--------------------------|-------------------------|------------|------|-------------------------|-------------|
|                          |                          |                         |            |      | Lower Bound             | Upper Bound |
| kont (+)                 | 0,39%                    | 39.50000 <sup>*</sup>   | 5.10637    | .000 | 28.6160                 | 50.3840     |
|                          | 0,78%                    | 131.75000 <sup>*</sup>  | 5.10637    | .000 | 120.8660                | 142.6340    |
|                          | 1,56%                    | 275.50000 <sup>*</sup>  | 5.10637    | .000 | 264.6160                | 286.3840    |
|                          | 3,12%                    | 297.75000 <sup>*</sup>  | 5.10637    | .000 | 286.8660                | 308.6340    |
| 0,39%                    | kont (+)                 | -39.50000 <sup>*</sup>  | 5.10637    | .000 | -50.3840                | -28.6160    |
|                          | 0,78%                    | 92.25000 <sup>*</sup>   | 5.10637    | .000 | 81.3660                 | 103.1340    |
|                          | 1,56%                    | 236.00000 <sup>*</sup>  | 5.10637    | .000 | 225.1160                | 246.8840    |
|                          | 3,12%                    | 258.25000 <sup>*</sup>  | 5.10637    | .000 | 247.3660                | 269.1340    |
| 0,78%                    | kont (+)                 | -131.75000 <sup>*</sup> | 5.10637    | .000 | -142.6340               | -120.8660   |
|                          | 0,39%                    | -92.25000 <sup>*</sup>  | 5.10637    | .000 | -103.1340               | -81.3660    |
|                          | 1,56%                    | 143.75000 <sup>*</sup>  | 5.10637    | .000 | 132.8660                | 154.6340    |
|                          | 3,12%                    | 166.00000 <sup>*</sup>  | 5.10637    | .000 | 155.1160                | 176.8840    |
| 1,56%                    | kont (+)                 | -275.50000 <sup>*</sup> | 5.10637    | .000 | -286.3840               | -264.6160   |
|                          | 0,39%                    | -236.00000 <sup>*</sup> | 5.10637    | .000 | -246.8840               | -225.1160   |
|                          | 0,78%                    | -143.75000 <sup>*</sup> | 5.10637    | .000 | -154.6340               | -132.8660   |
|                          | 3,12%                    | 22.25000 <sup>*</sup>   | 5.10637    | .001 | 11.3660                 | 33.1340     |
| 3,12%                    | kont (+)                 | -297.75000 <sup>*</sup> | 5.10637    | .000 | -308.6340               | -286.8660   |
|                          | 0,39%                    | -258.25000 <sup>*</sup> | 5.10637    | .000 | -269.1340               | -247.3660   |
|                          | 0,78%                    | -166.00000 <sup>*</sup> | 5.10637    | .000 | -176.8840               | -155.1160   |
|                          | 1,56%                    | -22.25000 <sup>*</sup>  | 5.10637    | .001 | -33.1340                | -11.3660    |

\*. The mean difference is significant at the 0.05 level.



## → Regression

### Variables Entered/Removed<sup>a</sup>

| Model | Variables Entered                 | Variables Removed | Method |
|-------|-----------------------------------|-------------------|--------|
| 1     | Ekstrak kulit durian <sup>b</sup> | .                 | Enter  |

a. Dependent Variable: Koloni bakteri

b. All requested variables entered.

### Model Summary

| Model | R                 | R Square | Adjusted R Square | Std. Error of the Estimate |
|-------|-------------------|----------|-------------------|----------------------------|
| 1     | .958 <sup>a</sup> | .917     | .914              | 37.44852                   |

a. Predictors: (Constant), Ekstrak kulit durian

### ANOVA<sup>a</sup>

| Model |            | Sum of Squares | df | Mean Square | F       | Sig.              |
|-------|------------|----------------|----|-------------|---------|-------------------|
| 1     | Regression | 342930.004     | 1  | 342930.004  | 244.532 | .000 <sup>b</sup> |
|       | Residual   | 30852.621      | 22 | 1402.392    |         |                   |
|       | Total      | 373782.625     | 23 |             |         |                   |

a. Dependent Variable: Koloni bakteri

b. Predictors: (Constant), Ekstrak kulit durian

### Coefficients<sup>a</sup>

|                      | Unstandardized Coefficients |            | Standardized Coefficients | t       | Sig. |
|----------------------|-----------------------------|------------|---------------------------|---------|------|
|                      | B                           | Std. Error | Beta                      |         |      |
| (t)                  | 376.100                     | 17.431     |                           | 21.576  | .000 |
| Ekstrak kulit durian | -69.993                     | 4.476      | -.958                     | -15.638 | .000 |

a. Dependent Variable: Koloni bakteri



Lampiran 12. Hasil uji statistik daya bunuh Serbuk Tabur Ekstrak Kulit Durian Soya (SATRIYA) pada air baku. (Two Way ANOVA dan GLM-RM)

## Univariate Analysis of Variance

### Between-Subjects Factors

|               |   | Value Label | N  |
|---------------|---|-------------|----|
| Dosis ekstrak | 1 | dosis 0,39% | 36 |
|               | 2 | dosis 1,56% | 36 |
|               | 3 | dosis 6,25% | 36 |
|               | 4 | air baku    | 36 |
| Waktu         | 1 | 0 Menit     | 16 |
|               | 2 | 10 Menit    | 16 |
|               | 3 | 20 Menit    | 16 |
|               | 4 | 30 Menit    | 16 |
|               | 5 | 40 Menit    | 16 |
|               | 6 | 50 Menit    | 16 |
|               | 7 | 60 Menit    | 16 |
|               | 8 | 180 Menit   | 16 |
|               | 9 | 360 Menit   | 16 |

### Tests of Between-Subjects Effects

Dependent Variable: Jumlah Kolonni E.coli

| Source          | Type III Sum of Squares | df  | Mean Square | F         | Sig. |
|-----------------|-------------------------|-----|-------------|-----------|------|
| Corrected Model | 138646.576 <sup>a</sup> | 35  | 3961.331    | 716.923   | .000 |
| Intercept       | 139813.674              | 1   | 139813.674  | 25303.522 | .000 |
| Dosis           | 104196.688              | 3   | 34732.229   | 6285.850  | .000 |
| Waktu           | 7218.764                | 8   | 902.345     | 163.307   | .000 |
| Dosis * Waktu   | 27231.125               | 24  | 1134.630    | 205.346   | .000 |
| Error           | 596.750                 | 108 | 5.525       |           |      |
| Total           | 279057.000              | 144 |             |           |      |
| Total Corrected | 139243.326              | 143 |             |           |      |

R Squared = ,996 (Adjusted R Squared = ,994)



## Tests of Within-Subjects Contrasts

Measure: MEASURE\_1

| Source             | Pengamatan          | Type III Sum of Squares | df | Mean Square | F        | Sig. | Partial Eta Squared | Noncent. Parameter | Observed Power <sup>a</sup> |
|--------------------|---------------------|-------------------------|----|-------------|----------|------|---------------------|--------------------|-----------------------------|
| Pengamatan         | Level 2 vs. Level 1 | 7353.063                | 1  | 7353.063    | 481.510  | .000 | .976                | 481.510            | 1.000                       |
|                    | Level 3 vs. Level 1 | 6765.063                | 1  | 6765.063    | 570.691  | .000 | .979                | 570.691            | 1.000                       |
|                    | Level 4 vs. Level 1 | 4658.063                | 1  | 4658.063    | 497.967  | .000 | .976                | 497.967            | 1.000                       |
|                    | Level 5 vs. Level 1 | 2575.563                | 1  | 2575.563    | 373.495  | .000 | .969                | 373.495            | 1.000                       |
|                    | Level 6 vs. Level 1 | 756.250                 | 1  | 756.250     | 123.469  | .000 | .911                | 123.469            | 1.000                       |
|                    | Level 7 vs. Level 1 | 196.000                 | 1  | 196.000     | 42.000   | .000 | .778                | 42.000             | 1.000                       |
|                    | Level 8 vs. Level 1 | 2782.563                | 1  | 2782.563    | 1141.564 | .000 | .990                | 1141.564           | 1.000                       |
|                    | Level 9 vs. Level 1 | 855.563                 | 1  | 855.563     | 169.000  | .000 | .934                | 169.000            | 1.000                       |
| Pengamatan * Dosis | Level 2 vs. Level 1 | 4462.688                | 3  | 1487.563    | 97.412   | .000 | .961                | 292.236            | 1.000                       |
|                    | Level 3 vs. Level 1 | 7333.687                | 3  | 2444.562    | 206.220  | .000 | .981                | 618.659            | 1.000                       |
|                    | Level 4 vs. Level 1 | 8454.688                | 3  | 2818.229    | 301.281  | .000 | .987                | 903.842            | 1.000                       |
|                    | Level 5 vs. Level 1 | 10228.687               | 3  | 3409.562    | 494.438  | .000 | .992                | 1483.314           | 1.000                       |
|                    | Level 6 vs. Level 1 | 16706.250               | 3  | 5568.750    | 909.184  | .000 | .996                | 2727.551           | 1.000                       |
|                    | Level 7 vs. Level 1 | 20074.000               | 3  | 6691.333    | 1433.857 | .000 | .997                | 4301.571           | 1.000                       |
|                    | Level 8 vs. Level 1 | 33281.188               | 3  | 11093.729   | 4551.274 | .000 | .999                | 13653.821          | 1.000                       |
|                    | Level 9 vs. Level 1 | 33732.687               | 3  | 11244.229   | 2221.082 | .000 | .998                | 6663.247           | 1.000                       |
| Error(Pengamatan)  | Level 2 vs. Level 1 | 183.250                 | 12 | 15.271      |          |      |                     |                    |                             |
|                    | Level 3 vs. Level 1 | 142.250                 | 12 | 11.854      |          |      |                     |                    |                             |
|                    | Level 4 vs. Level 1 | 112.250                 | 12 | 9.354       |          |      |                     |                    |                             |
|                    | Level 5 vs. Level 1 | 82.750                  | 12 | 6.896       |          |      |                     |                    |                             |
|                    | Level 6 vs. Level 1 | 73.500                  | 12 | 6.125       |          |      |                     |                    |                             |
|                    | Level 7 vs. Level 1 | 56.000                  | 12 | 4.667       |          |      |                     |                    |                             |
|                    | Level 8 vs. Level 1 | 29.250                  | 12 | 2.438       |          |      |                     |                    |                             |
|                    | Level 9 vs. Level 1 | 60.750                  | 12 | 5.063       |          |      |                     |                    |                             |

a. Computed using alpha = ,05



Optimization Software:  
[www.balesio.com](http://www.balesio.com)

## Dosis

### Multiple Comparisons

Measure: MEASURE\_1

Scheffe

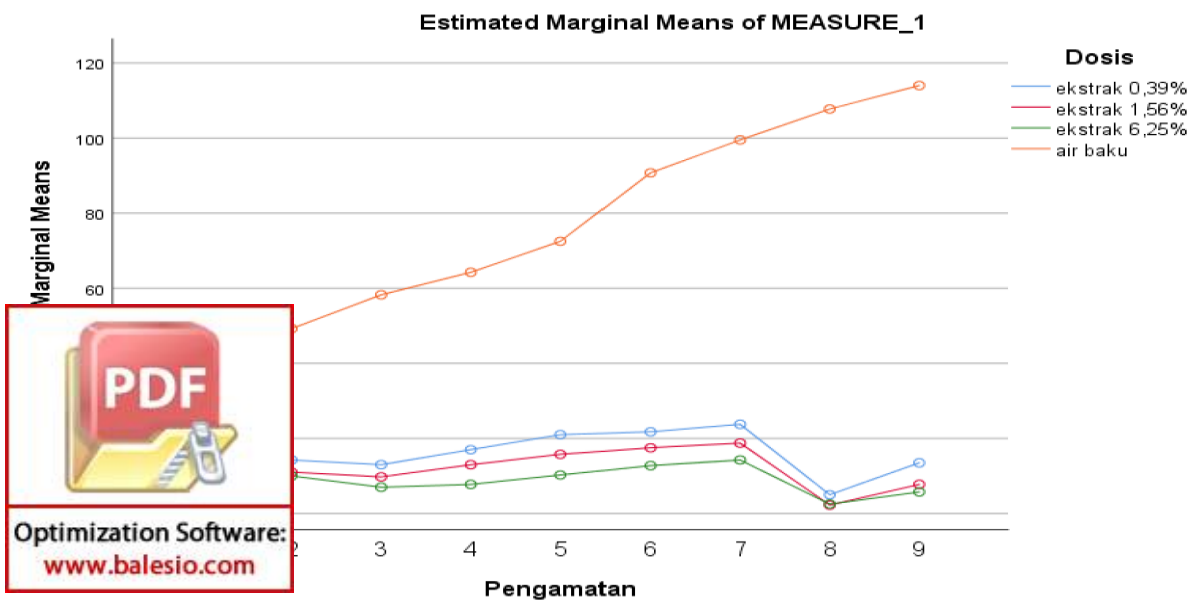
| (I) Dosis     | (J) Dosis     | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval |             |
|---------------|---------------|-----------------------|------------|------|-------------------------|-------------|
|               |               |                       |            |      | Lower Bound             | Upper Bound |
| ekstrak 0,39% | ekstrak 1,56% | 3.50 <sup>*</sup>     | .613       | .001 | 1.52                    | 5.48        |
|               | ekstrak 6,25% | 6.44 <sup>*</sup>     | .613       | .000 | 4.46                    | 8.43        |
|               | air baku      | -58.58 <sup>*</sup>   | .613       | .000 | -60.57                  | -56.60      |
| ekstrak 1,56% | ekstrak 0,39% | -3.50 <sup>*</sup>    | .613       | .001 | -5.48                   | -1.52       |
|               | ekstrak 6,25% | 2.94 <sup>*</sup>     | .613       | .004 | .96                     | 4.93        |
|               | air baku      | -62.08 <sup>*</sup>   | .613       | .000 | -64.07                  | -60.10      |
| ekstrak 6,25% | ekstrak 0,39% | -6.44 <sup>*</sup>    | .613       | .000 | -8.43                   | -4.46       |
|               | ekstrak 1,56% | -2.94 <sup>*</sup>    | .613       | .004 | -4.93                   | -.96        |
|               | air baku      | -65.03 <sup>*</sup>   | .613       | .000 | -67.01                  | -63.05      |
| air baku      | ekstrak 0,39% | 58.58 <sup>*</sup>    | .613       | .000 | 56.60                   | 60.57       |
|               | ekstrak 1,56% | 62.08 <sup>*</sup>    | .613       | .000 | 60.10                   | 64.07       |
|               | ekstrak 6,25% | 65.03 <sup>*</sup>    | .613       | .000 | 63.05                   | 67.01       |

Based on observed means.

The error term is Mean Square(Error) = ,751.

\*. The mean difference is significant at the ,05 level.

### Profile Plots





## Lampiran 13. Surat ket. Telah selesai penelitian dari desa Waiheru



**PEMERINTAH KOTA AMBON  
KECAMATAN TELUK AMBON BAGUALA  
DESA WAIHERU**

*Jln. Laksdya Leo Wattimena Km. 16 Waiheru - Ambon Kode Pos. 97233*

**SURAT KETERANGAN SELESAI PENELITIAN**  
**No. 140/011/SK/DW/VIII/2023**

Kepala Desa Waiheru Kecamatan Teluk Ambon Baguala Pemerintah Kota Ambon, dengan ini menerangkan bahwa :

|                       |  |
|-----------------------|--|
| N a m a               | : RAHWAN AHMAD   |
| Pekerjaan             | : Mahasiswa  |
| N I M                 | : K013211003   |
| Jurusan/Program Studi | : Kesehatan Masyarakat Universitas Hasanuddin Makassar |
| Alamat                | : RT.028/RW.007 Desa Waiheru                           |

Benar bersangkutan yang bernama tersebut diatas **TELAH SELESAI DALAM MELAKUKAN PENELITIAN BERJUDUL "PENGGUNAAN BAHAN ALAMI LIMBAH KULIT DURIAN (*Durio Zibethinus Murr*) VARIETAS SOYA SEBAGAI BAHAN DESINFEKSI BAKTERI *Escherichia Coli* PADA AIR BAKU MINUM RUMAH TANGGA"** dari tanggal 01 Maret 2023 s/d 30 Agustus 2023 yang berlokasi di Desa Waiheru

Demikianlah Surat Keterangan *Selesai Penelitian* ini kami buat untuk dapat diketahui dan dipergunakan seperlunya.

Waiheru, 30 Agustus 2023  
Kepala Desa Waiheru  
**USMAN ELY, SP**



## Lampiran 14. Surat ket. Telah selesai penelitian dari desa Soya



**PEMERINTAH KOTA AMBON  
KECAMATAN SIRIMAU  
NEGERI SOYA**

Jalan Sirimau, Negeri Soya No.Telp./Fax. (0911) 343957. A m b o n.

**SURAT KETERANGAN**  
Nomor : 471/1199/PNS/X/2023

Yang bertanda tangan di bawah ini, Pemerintah Negeri Soya, Kecamatan Sirimau, sehubungan penelitian oleh Mahasiswa Pasca Sarjana Program Study Kesehatan Masyarakat Fakultas Kesehatan Masyarakat, Universitas Hasanuddin atas nama : **Rahwan Ahmad, NIM : K013211003**, dengan judul "**PENGGUNAAN BAHAN ALAMI LIMBAH KULIT DURIAN (*Durio zibethinus Murr*) VARIETAS SOYA SEBAGAI BAHAN DESINFEKSI BAKTERI *Escherlchia coli* PADA AIR BAKU MINUM RUMAH TANGGA** ", maka bersama ini kami memberitahukan bahwa pengambilan Kulit Durian Soya sebagai bahan penelitian telah selesai dilakukan sejak tanggal 01 Maret 2023 s/d 30 Agustus 2023, di Negeri Soya

Demikian Surat Keterangan ini dibuat dan diberikan kepada yang bersangkutan untuk dipergunakan dalam pengurusan selanjutnya.

Ambon, 03 Oktober 2023

Pemerintah Negeri Soya  
R a j a

John L. Rehatta



Lampiran 15. Surat ket. Telah selesai penelitian dari BARISTAN Ambon



BADAN STANDARDISASI DAN KEBIJAKAN JASA INDUSTRI  
**BALAI STANDARDISASI DAN PELAYANAN**  
**JASA INDUSTRI AMBON**

Jl. Kebun Cengkeh (Batu Merah Atas) – Ambon, Kode Pos 97128, Telp. : 0911 – 341897, Fax : (0911) - 341897

**SURAT KETERANGAN**

No. 1596 /BSKJI/BSPJI-Ambon/X/2023

Yang bertanda tangan dibawah ini :

Nama : Ivone Ohoitumur  
 Jabatan : Kepala Sub. Bagian Tata Usaha  
 Alamat : Balai Standardisasi dan Pelayanan Jasa Industri Ambon Jalan Kebun  
 Cengkeh-Batu Merah Atas Ambon 97128

Menerangkan bahwa :

Nama : Rahwan Ahmad  
 NIM : K013211003  
 Tema Penelitian : Penggunaan Bahan Alami Kimbah Kulit Durian (*Durio zibethinus Murr*)  
 Pekerjaan : Mahasiswa Pasca Sarjana

Adalah benar yang bersangkutan telah melakukan pengujian di kantor Balai Standardisasi dan Pelayanan Jasa Industri (BSPJI) Ambon tanggal 10 Maret 2023 s/d 9 Oktober 2023 untuk penyusunan Desertasi dalam rangka menyelesaikan pendidikan pada Program Studi Kesehatan Masyarakat Fakultas Kesehatan Masyarakat Universitas Hasanuddin.  
 Demikian Surat Keterangan ini kami buat untuk dipergunakan sebagaimana mestinya.



Optimization Software:  
[www.balesio.com](http://www.balesio.com)

Lampiran 16. Dokumentasi kegiatan penelitian

Proses Pencacahan dan pengeringan kulit durian Soya



Sortasi kering kulit durian Soya dan proses penghalusan



Optimization Software:  
[www.balesio.com](http://www.balesio.com)


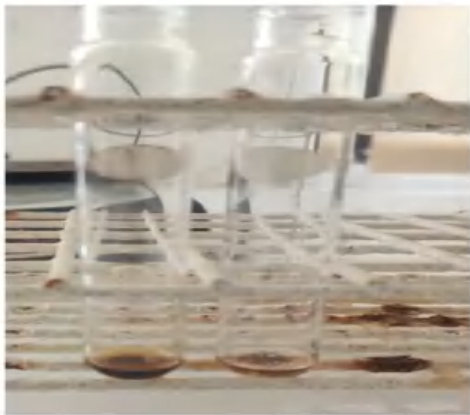
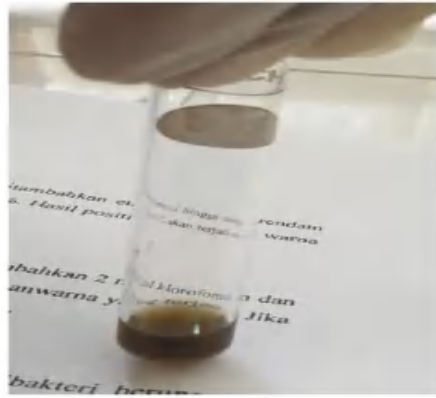



Proses maserasi kulit durian Soya dengan pelarut Etanol 96%



Proses Evaporasi hasil maserasi kulit durian soya menggunakan rotary evaporator



**Skrining fitokimia ekstrak kulit durian Soya**

| Alkaloid  | Flavonoid  |
|---|--|
|    |    |
| Fenol   | Tanin  |
|   |   |
| Saponin   | Kuinin   |
|  |  |



Uji Konsentrasi Hambat Minimum (KHM) dan Konsentrasi Bunuh Minimum (KBM)

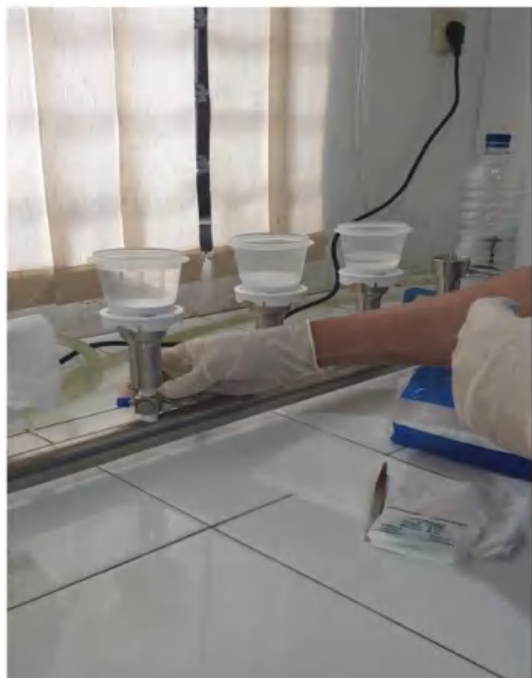
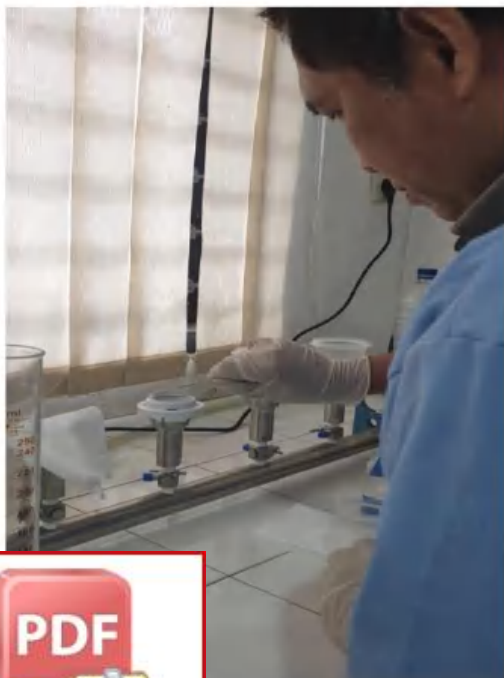


Uji Toksisitas LC<sub>50</sub> Ekstrak Kulit Durian Soya

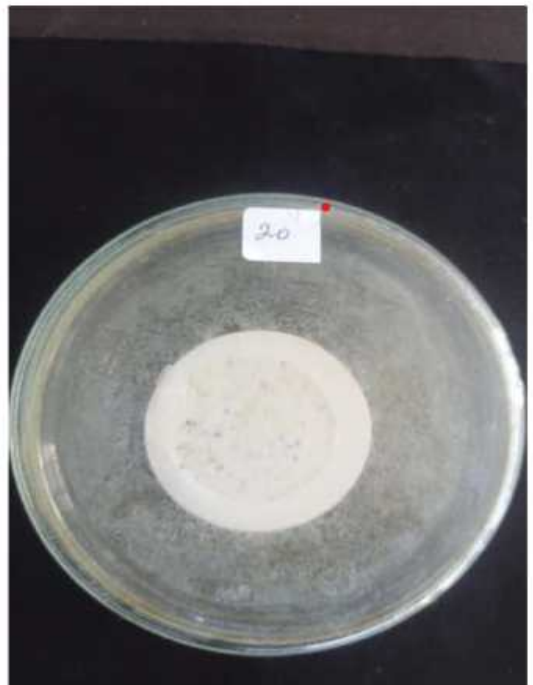
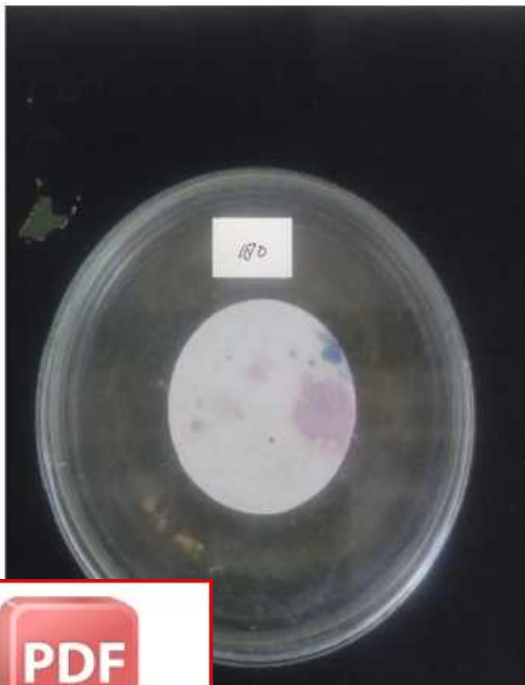
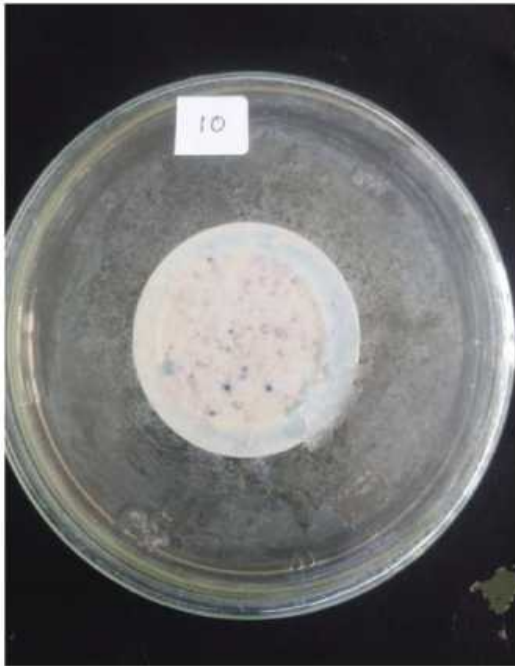


Optimization Software:  
[www.balesio.com](http://www.balesio.com)

Uji daya bunuh serbuk tabur ekstrak kulit durian Soya (SATRIYA)  
Terhadap bakteri *Escherichia coli*







Optimization Software:  
[www.balesio.com](http://www.balesio.com)