# L A M P I R A N

**Lampiran 1. Hasil determinasi herba seledri (*Apium graveolens* L.)**

UNIVERSITAS SETIA BUDI

**UPT-LABORATORIUM**

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Nomor : 129/DET/UPT-LAB/15.02.2021
Hal : Hasil determinasi tumbuhan
Lamp. : -

Nama Pemesan : Marianti
NIM : 23175337A
Alamat : Program Studi S1 Farmasi, Universitas Setia Budi, Surakarta
Nama sampel : Seledri/*Apium graveolens* L.

HASIL DETERMINASI TUMBUHAN

**Klasifikasi**

Kingdom : Plantae
Super Divisi : Spermatophyta
Divisi : Magnoliophyta
Kelas : Magnoliopsida
Ordo : Apiales
Famili : Apiaceae
Genus : Apium
Species : *Apium graveolens* L

Hasil Determinasi menurut C.A. Backer & R.C. Bakhuizen van den Brink Jr. (1963) : 1b – 2b – 3b – 4b – 12b – 13b – 14b – 17b – 18b – 19b – 20b – 21b – 22b – 23b – 24b – 25b – 26b – 27a – 28b – 29b – 30b – 31a – 32a – 33c – 631a. familia 148. Apiaceae. 1b – 18b – 19b – 20a – 21a. 10. Apium. *Apium graveolens* L.

Deskripsi:

Habitus : Semak, anual atau bienial.

Akar : Akar tunggang.

Batang : Batang tidak berkayu, beralur, bersegi, beralur, beruas, bercabang banyak. Berbau spesifik.

Daun : Daun majemuk menyirip ganjil, anak daun 3 – 7 helai, panjang tangkai anak daun 2 – 7,5 cm, helaian daun tipis dan rapuh, pangkal dan ujung runcing, tepi beringgit, panjang 2 – 7,1 cm, lebar 2,1 – 4,9 cm, hijau, beraroma spesifik.

Bunga : Bunga majemuk, bentuk payung, terdiri 6 – 25 bunga, terminal, panjang 2 cm, petala putih kehijauan atau putih kekuningan, panjang 0,5 – 0,75 mm.

Buah : Buah kotak, berbentuk kerucut, panjang 1 – 1,5 cm, hijau kekuningan.

Surakarta, 15 Februari 2021

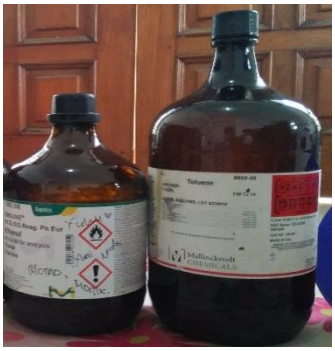
Kepala UPT-LAB
Universitas Setia Budi

Asik Gunawan, Amdk

Penanggung jawab
Determinasi Tumbuhan

Dra. Dewi Sulistyawati. M.Sc.

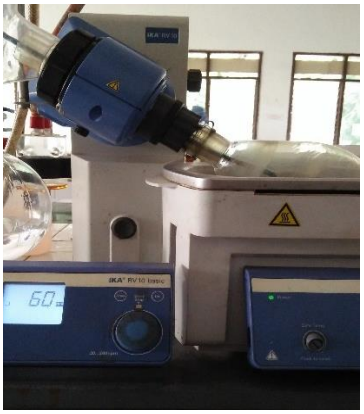
**Lampiran 2. Alat penelitian**



Botol maserasi

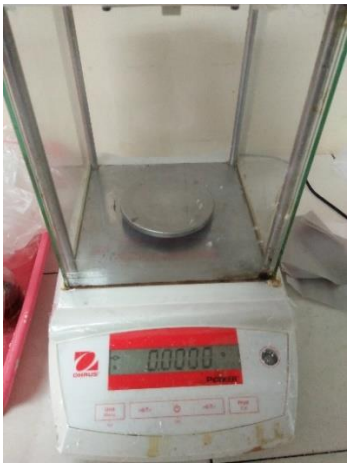
Mesh nomor 40

*Moisture balance*



*Rotary evaporator*

*Sterling bidwel*

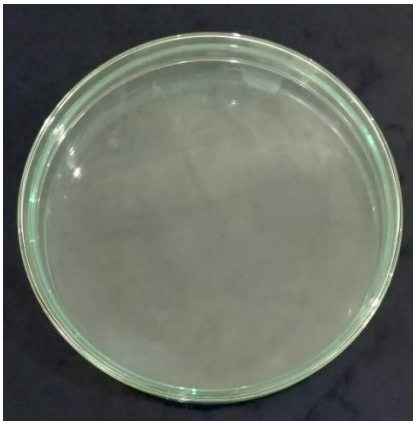


Timbangan analitik

pH meter

Oven

*Autoclave*



Cawan petri

Mikroskop

Inkubator

**Lampiran 3. Dokumentasi herba seledri**

Herba seledri segar

Proses penjemuran seledri

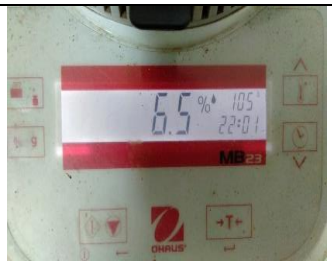
Proses penyerbukan

Proses maserasi

Proses penyaringan

Ekstrak seledri

**Lampiran 4. Uji susut pengeringan serbuk**

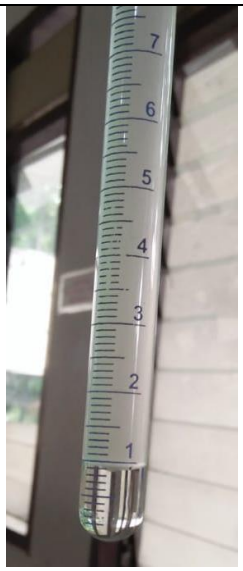
| Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|
|  |  |  |

**Lampiran 5. Uji identifikasi kandungan kimia ekstrak seledri**

| Kandungan kimia | Hasil | Dokumentasi |
|---|---|---|
| Flavonoid | Positif mengandung flavonoid ditandai dengan adanya warna jingga dan cincin amil |  |
| Tannin | Positif mengandung tannin ditandai dengan adanya warna hijau kehitaman |  |

| Kandungan kimia | Hasil | Dokumentasi |
|---|---|---|
| Saponin | Positif mengandung saponin ditandai dengan adanya busa yang stabil selama tujuh menit |  |
| Alkaloid | Positif mengandung alkaloid ditandai dengan terbentuknya endapan warna jingga ketika direaksikan dengan *baochardat* LP, dan adanya endapan warna coklat kehitaman ketika direaksikan dengan pereaksi *dragendroff* LP |   |
| Triterpenoid | Positif mengandung triterpenoid ditandai dengan warna merah |  |

**Lampiran 6. Uji kadar air ekstrak**

| Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|
|  |  |  |

**Lampiran 7. Hasil sediaan hair tonic ekstrak seledri**

| Formula | Dokumentasi |
|---|---|
| **Basis** |  |

| Formula | Dokumentasi |
|---|---|
| **Formula 1** |  |
| **Formula 2** |  |
| **Formula 3** |  |
| **Formula 4** |  |

**Lampiran 8. Hasil uji bobot jenis**

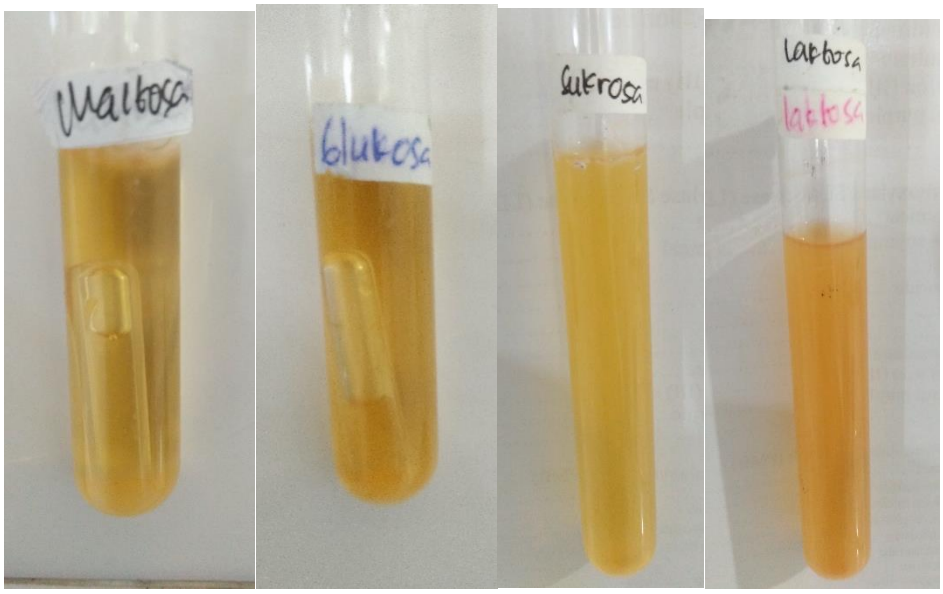
| Penimbangan pikno + aquadest | Penimbangan pikno + *hair tonic* |
|---|---|
|  |  |

**Lampiran 9. Hasil uji pH**

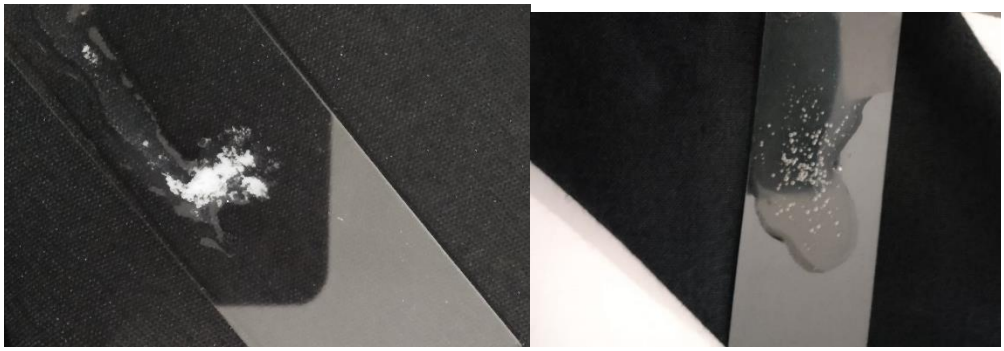
| Formula | Dokumentasi |
|---|---|
| **Basis** |  |
| **Formula 1** |  |

| Formula | Dokumentasi |
|---|---|
| **Formula 2** |  |
| **Formula 3** |  |
| **Formula 4** |  |

**Lampiran 10. Uji biokimia (uji katalase dan gula-gula)**

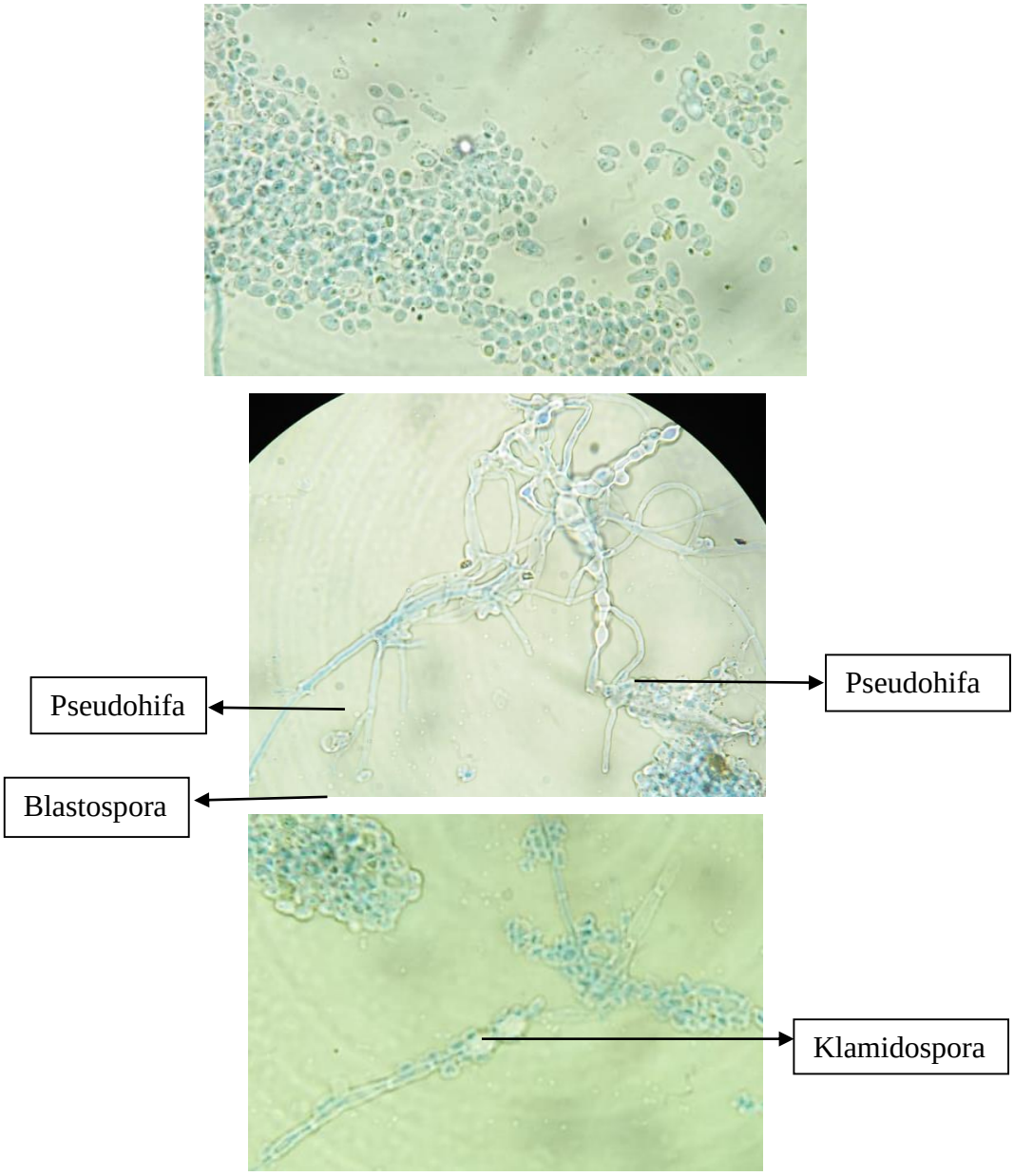


Maltosa Glukosa Sukrosa Laktosa

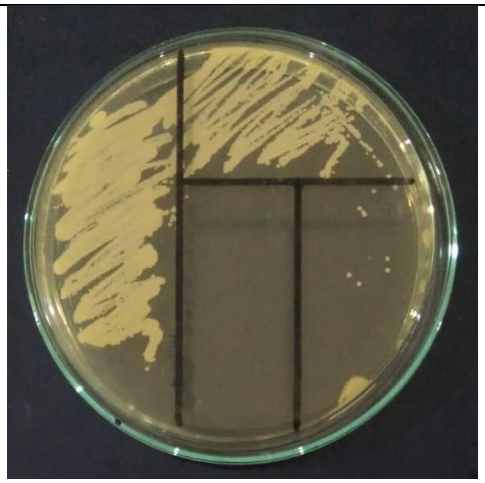


Hasil uji katalase

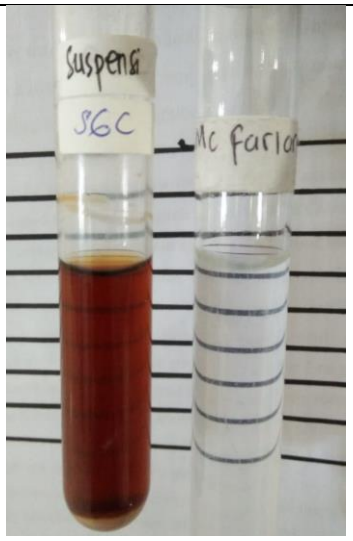
**Lampiran 11. Uji mikroskopis jamur Candida albicans**



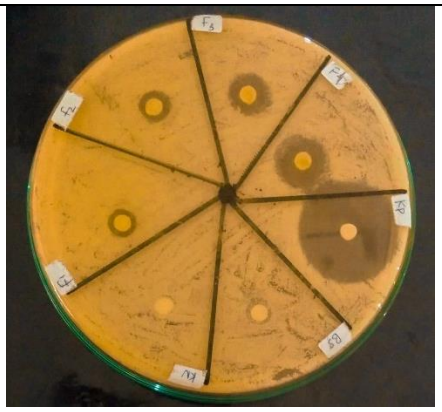
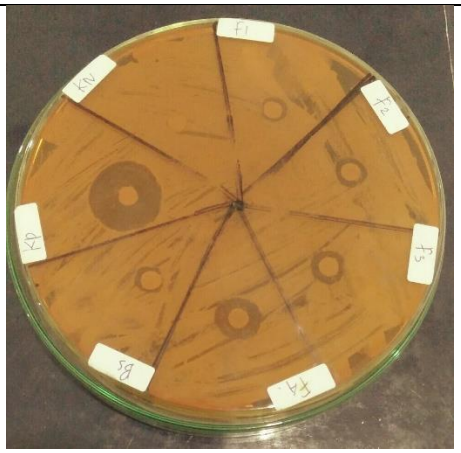
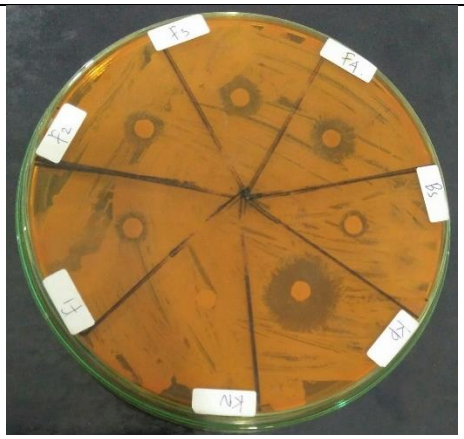
**Lampiran 12. Uji makroskopis jamur *Candida albicans***

| Hasil uji makroskopis | Dokumentasi |
|---|---|
| Hasil inokulasi jamur *Candida albicans* yang telah di inkubasi selama 24 jam dengan media SDA yaitu sel berwarna krem, dan berbau ragi. |  |

**Lampiran 13. Uji kekeruhan Mc.Farland 0,5**

| | |
|---|---|
| Membandingkan kekeruhan suspensi jamur Candida albicans dalam NaCl fisiologis dengan *Mc.Farland* 0,5 |  |
| Membandingkan kekeruhan suspensi jamur Candida albicans dalam media SGC dengan *Mc.Farland* 0,5 |  |

**Lampiran 14. Uji aktivitas antijamur hair tonic ekstrak seledri**

| **Replikasi** | **Dokumentasi** |
|---|---|
| Replikasi 1<br>Uji aktivitas antijamur menggunakan media SDA dengan waktu inkubasi selama 48 jam |  |
| Replikasi 2<br>Uji aktivitas antijamur menggunakan media SDA dengan waktu inkubasi selama 48 jam |  |
| Replikasi 3<br>Uji aktivitas antijamur menggunakan media SDA dengan waktu inkubasi selama 48 jam |  |

**Lampiran 15. Perhitungan kadar air ekstrak herba seledri**

| Replikasi | Berat serbuk (g) | Volume air (ml) | Kadar air (%) |
|---|---|---|---|
| 1 | 10,01 | 1,0 | 9,99 |
| 2 | 10,00 | 0,8 | 8,00 |
| 3 | 10,04 | 1,1 | 10,95 |
| Rata-rata | | 2,9 | 9,64 |

Kadar air serbuk = $\frac{Volume\ air\ (ml)}{Berat\ serbuk\ (g)}\ x\ 100\%$

1. Kadar air serbuk = $\frac{1{,}0\ ml}{10{,}01\ g}\ x\ 100\% = 9{,}99\%$
2. Kadar air serbuk = $\frac{0{,}8\ ml}{10{,}00\ g}\ x\ 100\% = 8{,}00\%$
3. Kadar air serbuk = $\frac{1{,}1\ ml}{10{,}04\ g}\ x\ 100\% = 10{,}95\%$

Rata-rata kadar air = $\frac{9{,}99\%+8{,}00\%+10{,}95\%}{3} = 9{,}64\%$

**Lampiran 16. Perhitungan bobot jenis hari ke-1**

$$\rho = \frac{w3\ -\ w1}{w2\ -\ w1}$$

Keterangan :

*w*1 = bobot pikno kosong

*w*2 = bobot pikno + aquadest

*w*3 = bobot pikno + sediaan *hair tonic*

$\rho$ = bobot jenis sediaan *hair tonic*

Diketahui :

*w*1 = 13,5785

*w*2 = 23,5312

**Basis**

$w3 = 23{,}2456$

$$\rho = \frac{23{,}2456 - 13{,}5785}{23{,}5312 - 13{,}5785}$$

$$= \frac{9{,}6671}{9{,}9527}$$

$$= 0{,}9713$$

**Formula 1**

$w3 = 23{,}4360$

$$\rho = \frac{23{,}4360 - 13{,}5785}{23{,}5312 - 13{,}5785}$$

$$= \frac{9{,}8575}{9{,}9527}$$

$$= 0{,}9904$$

**Formula 2**

$w3 = 23{,}5296$

$$\rho = \frac{23{,}5296 - 13{,}5785}{23{,}5312 - 13{,}5785}$$

$$= \frac{9{,}9511}{9{,}9527}$$

$$= 0{,}9998$$

**Formula 3**

$w3 = 23{,}5957$

$$\rho = \frac{23{,}5957 - 13{,}5785}{23{,}5312 - 13{,}5785}$$

$$= \frac{10{,}0172}{9{,}9527}$$

$$= 1{,}0064$$

**Formula 4**

$w3 = 23{,}6551$

$$\rho = \frac{23{,}6551 - 13{,}5785}{23{,}5312 - 13{,}5785}$$

$$= \frac{10{,}0766}{9{,}9527}$$

$$= 1{,}0124$$

**Lampiran 17. Perhitungan viskositas hari ke-1**

$$\frac{\eta 1}{\eta 2} = \frac{t1 \times \rho 1}{t2 \times \rho 2}$$

Keterangan :

$\eta 1$ = viskositas aquadest (cP)

$\eta 2$ = viskositas *hair tonic* (cP)

$t1$ = waktu aliran aquadest (detik)

$t2$ = waktu aliran *hair tonic* (detik)

$\rho 1$ = bobot jenis aquadest (g/mL)

$\rho 2$ = bobot jenis *hair tonic* (g/mL)

Diketahui :

$\eta 1$ = 0,899 cP

$\rho 1$ = 1 g/mL

$t1$ = 4,20 detik

| **Formula** | **Replikasi 1** | **Replikasi 2** | **Replikasi 3** |
|---|---|---|---|
| **Basis** | $t2$ = 5,48<br>$\rho 2$ = 0,9713<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{5,48 \times 0,9713}$<br>= 1,1393 cP | $t2$ = 5,46<br>$\rho 2$ = 0,9713<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{5,46 \times 0,9713}$<br>= 1,1351 cP | $t2$ = 5,46<br>$\rho 2$ = 0,9713<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{5,46 \times 0,9713}$<br>= 1,1351 cP |
| **Formula 1** | $t2$ = 5,72<br>$\rho 2$ = 0,9904<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{5,72 \times 0,9904}$<br>= 1,2125 cP | $t2$ = 5,70<br>$\rho 2$ = 0,9904<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{5,70 \times 0,9904}$<br>= 1,2083 cP | $t2$ = 5,73<br>$\rho 2$ = 0,9904<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{5,73 \times 0,9904}$<br>= 1,2147 cP |
| **Formula 2** | $t2$ = 6,06<br>$\rho 2$ = 0,9998<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,06 \times 0,9998}$<br>= 1,2968 cP | $t2$ = 6,10<br>$\rho 2$ = 0,9998<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,10 \times 0,9998}$<br>= 1,3054 cP | $t2$ = 6,08<br>$\rho 2$ = 0,9998<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,10 \times 0,9998}$<br>= 1,3011 cP |
| **Formula 3** | $t2$ = 6,31<br>$\rho 2$ = 1,0064<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,31 \times 1,0064}$<br>= 1,3592 cP | $t2$ = 6,28<br>$\rho 2$ = 1,0064<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,28 \times 1,0064}$<br>= 1,3528 cP | $t2$ = 6,30<br>$\rho 2$ = 1,0064<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,30 \times 1,0064}$<br>= 1,3571 cP |
| **Formula 4** | $t2$ = 6,64<br>$\rho 2$ = 1,0124<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,64 \times 1,0124}$<br>= 1,4389 cP | $t2$ = 6,60<br>$\rho 2$ = 1,0124<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,60 \times 1,0124}$<br>= 1,4302 cP | $t2$ = 6,65<br>$\rho 2$ = 1,0124<br>$\frac{0,899}{\eta 2} = \frac{4,20 \times 1}{6,65 \times 1,0124}$<br>= 1,4410 cP |

**Lampiran 18. Perhitungan bobot jenis hari ke-21**

$$\rho = \frac{w3 - w1}{w2 - w1}$$

Keterangan :

*w*1 = bobot pikno kosong

*w*2 = bobot pikno + aquadest

*w*3 = bobot pikno + sediaan *hair tonic*

$\rho$ = bobot jenis sediaan *hair tonic*

Diketahui :

*w*1 = 13,5914

*w*2 = 23,5321

**Basis**

*w*3 = 23,3154

$\rho = \frac{23,3154 - 13,5914}{23,5321 - 13,5914}$

$= \frac{9,7240}{9,9407}$

= 0,9782

**Formula 1**

*w*3 = 23,5325

$\rho = \frac{23,5325 - 13,5914}{23,5321 - 13,5914}$

$= \frac{9,9411}{9,9407}$

= 1

**Formula 2**

*w*3 = 23,6102

$\rho = \frac{23,6102 - 13,5914}{23,5321 - 13,5914}$

$= \frac{10,0188}{9,9407}$

= 1,0078

**Formula 3**

*w*3 = 23,7106

$\rho = \frac{23,7106 - 13,5914}{23,5321 - 13,5914}$

$= \frac{10,1192}{9,9407}$

=1,0179

**Formula 4**

*w*3 = 23,7768

$\rho = \frac{23,7768 - 13,5914}{23,5321 - 13,5914}$

$= \frac{10,1854}{9,9437}$

=1,0243

**Lampiran 19. Perhitungan viskositas hari ke-12**

$$\frac{\eta 1}{\eta 2} = \frac{t1 \times \rho 1}{t2 \times \rho 2}$$

Keterangan :

$\eta 1$ = viskositas aquadest (cP)

$\eta 2$ = viskositas *hair tonic* (cP)

$t1$ = waktu aliran aquadest (detik)

$t2$ = waktu aliran *hair tonic* (detik)

$\rho 1$ = bobot jenis aquadest (g/mL)

$\rho 2$ = bobot jenis *hair tonic* (g/mL)

Diketahui :

$\eta 1$ = 0,899 cP

$\rho 1$ = 1 g/mL

$t1$ = 4,22 detik

| **Formula** | **Replikasi 1** | **Replikasi 2** | **Replikasi 3** |
|---|---|---|---|
| Basis | $t2$ = 4,62<br>$\rho 2$ = 0,9782<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,62 \times 0,9782}$<br>= 0,9627 cP | $t2$ = 4,59<br>$\rho 2$ = 0,9713<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,59 \times 0,9713}$<br>= 0,9565 cP | $t2$ = 4,61<br>$\rho 2$ = 0,9713<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,61 \times 0,9713}$<br>= 0,9606 cP |
| Formula 1 | $t2$ = 4,94<br>$\rho 2$ = 1<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,94 \times 1}$<br>= 1,0523 cP | $t2$ = 4,98<br>$\rho 2$ = 1<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,98 \times 1}$<br>= 1,0609 cP | $t2$ = 4,97<br>$\rho 2$ = 1<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,97 \times 1}$<br>= 1,0587 cP |
| Formula 2 | $t2$ = 5,28<br>$\rho 2$ = 1,0078<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,28 \times 1,0078}$<br>= 1,1335 cP | $t2$ = 5,31<br>$\rho 2$ = 1,0078<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,31 \times 1,0078}$<br>= 1,1400 cP | $t2$ = 5,26<br>$\rho 2$ = 1,0078<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,26 \times 1,0078}$<br>= 1,1292 cP |
| Formula 3 | $t2$ = 5,60<br>$\rho 2$ = 1,2143<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,60 \times 1,2143}$<br>= 1,2143 cP | $t2$ = 5,61<br>$\rho 2$ = 1,2143<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,61 \times 1,2143}$<br>= 1,2165 cP | $t2$ = 5,65<br>$\rho 2$ = 1,2143<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,65 \times 1,2143}$<br>= 1,2251 cP |
| Formula 4 | $t2$ = 5,96<br>$\rho 2$ = 1,0243<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,96 \times 1,0243}$<br>= 1,3005 cP | $t2$ = 5,92<br>$\rho 2$ = 1,0243<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,92 \times 1,0243}$<br>= 1,2918 cP | $t2$ = 5,98<br>$\rho 2$ = 1,0243<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,98 \times 1,0243}$<br>= 1,3048 cP |

**Lampiran 20. Perhitungan bobot jenis stabilitas**

$$\rho = \frac{w3 - w1}{w2 - w1}$$

Keterangan :

*w*1 = bobot pikno kosong

*w*2 = bobot pikno + aquadest

*w*3 = bobot pikno + sediaan *hair tonic*

$\rho$ = bobot jenis sediaan *hair tonic*

Diketahui :

*w*1 = 13,5930

*w*2 = 23,5323

**Basis**

*w*3 = 23,3079

$\rho = \frac{23,3079 - 13,5930}{23,5323 - 13,5930}$

$= \frac{9,7149}{9,9393}$

= 0,9774

**Formula 1**

*w*3 = 23,5060

$\rho = \frac{23,5060 - 13,5930}{23,5323 - 13,5930}$

$= \frac{9,9130}{9,9393}$

= 0,9973

**Formula 2**

*w*3 = 23,6044

$\rho = \frac{23,6044 - 13,5930}{23,5323 - 13,5930}$

$= \frac{10,0114}{9,9393}$

= 1,0072

**Formula 3**

*w*3 = 23,6680

$\rho = \frac{23,6680 - 13,5930}{23,5323 - 13,5930}$

$= \frac{10,0750}{9,9393}$

=1,0136

**Formula 4**

*w*3 = 23,7406

$\rho = \frac{23,7406 - 13,5930}{23,5323 - 13,5930}$

$= \frac{10,1476}{9,9393}$

=1,0209

**Lampiran 21. Perhitungan viskositas stabilitas**

$$\frac{\eta 1}{\eta 2} = \frac{t1 \times \rho 1}{t2 \times \rho 2}$$

Keterangan :

$\eta 1$ = viskositas aquadest (cP)

$\eta 2$ = viskositas *hair tonic* (cP)

$t1$ = waktu aliran aquadest (detik)

$t2$ = waktu aliran *hair tonic* (detik)

$\rho 1$ = bobot jenis aquadest (g/mL)

$\rho 2$ = bobot jenis *hair tonic* (g/mL)

Diketahui :

$\eta 1$ = 0,899 cP

$\rho 1$ = 1 g/mL

$t1$ = 4,22 detik

| **Formula** | **Replikasi 1** | **Replikasi 2** | **Replikasi 3** |
|---|---|---|---|
| Basis | $t2$ = 4,69<br>$\rho 2$ = 0,9774<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,69 \times 0,9774}$<br>= 0,9765 cP | $t2$ = 4,65<br>$\rho 2$ = 0,9774<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,65 \times 0,9774}$<br>= 0,9682 cP | $t2$ = 4,70<br>$\rho 2$ = 0,9774<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,70 \times 0,9774}$<br>= 0,9786 cP |
| Formula 1 | $t2$ = 4,98<br>$\rho 2$ = 0,9973<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,98 \times 0,9973}$<br>= 1,0580 cP | $t2$ = 4,90<br>$\rho 2$ = 0,9973<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,90 \times 0,9973}$<br>= 1,0410 cP | $t2$ = 4,93<br>$\rho 2$ = 0,9973<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{4,93 \times 0,9973}$<br>= 1,0474 cP |
| Formula 2 | $t2$ = 5,23<br>$\rho 2$ = 1,0072<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,23 \times 1,0072}$<br>= 1,1221 cP | $t2$ = 5,27<br>$\rho 2$ = 1,0072<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,27 \times 1,0072}$<br>= 1,1307 cP | $t2$ = 5,21<br>$\rho 2$ = 1,0072<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,21 \times 1,0072}$<br>= 1,1178 cP |
| Formula 3 | $t2$ = 5,45<br>$\rho 2$ = 1,0136<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,45 \times 1,0136}$<br>= 1,1768 cP | $t2$ = 5,50<br>$\rho 2$ = 1,0136<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,50 \times 1,0136}$<br>= 1,1876 cP | $t2$ = 5,48<br>$\rho 2$ = 1,0136<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,48 \times 1,0136}$<br>= 1,1832 cP |
| Formula 4 | $t2$ = 5,62<br>$\rho 2$ = 1,0209<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,62 \times 1,0209}$<br>= 1,2222 cP | $t2$ = 5,60<br>$\rho 2$ = 1,0209<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,60 \times 1,0209}$<br>= 1,2179 cP | $t2$ = 5,66<br>$\rho 2$ = 1,0209<br>$\frac{0,899}{\eta 2} = \frac{4,22 \times 1}{5,66 \times 1,0209}$<br>= 1,2309 cP |

**Lampiran 22. Analisis SPSS uji viskositas**

Pengujian hari ke 1 dan 21

**Tests of Normality**

| | Viskositas | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | Df | Sig. |
| Nilai | hari ke 1 | .147 | 15 | .200* | .912 | 15 | .147 |
| | hari ke 21 | .142 | 15 | .200* | .922 | 15 | .209 |

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

**Group Statistics**

| | Viskositas | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Nilai | hari ke 1 | 15 | 1.2833 | .11011 | .02843 |
| | hari ke 21 | 15 | 1.1300 | .12317 | .03180 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Nilai | Equal variances assumed | .181 | .674 | 3.595 | 28 | .001 | .15333 | .04266 | .06595 | .24071 |
| | Equal variances not assumed | | | 3.595 | 27.655 | .001 | .15333 | .04266 | .06590 | .24076 |

Pengujian antar formula

**Tests of Normality**

| | Formula | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| viskositas | Basis | .319 | 6 | .056 | .706 | 6 | .007 |
| | formula 1 | .297 | 6 | .106 | .724 | 6 | .011 |
| | formula 2 | .299 | 6 | .101 | .745 | 6 | .018 |
| | formula 3 | .319 | 6 | .056 | .706 | 6 | .007 |
| | formula 4 | .307 | 6 | .081 | .741 | 6 | .016 |

a. Lilliefors Significance Correction

Kruskal wallis

**Ranks**

| | Formula | N | Mean Rank |
|---|---|---|---|
| viskositas | Basis | 6 | 5.75 |
| | formula 1 | 6 | 9.83 |
| | formula 2 | 6 | 15.50 |
| | formula 3 | 6 | 21.17 |
| | formula 4 | 6 | 25.25 |
| | Total | 30 | |

**Test Statistics[a,b]**

| | Viskositas |
|---|---|
| Chi-Square | 19.859 |
| df | 4 |
| Asymp. Sig. | .001 |

a. Kruskal Wallis Test
b. Grouping Variable: formula

**Lampiran 23. Analisis SPSS uji pH**

Pengujian pH hari ke 1 dan 21

**Tests of Normality**

| pH | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | Df | Sig. |
| nama | hari ke 1 | .149 | 15 | .200* | .911 | 15 | .142 |
| | hari ke 21 | .147 | 15 | .200* | .911 | 15 | .141 |

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

**Group Statistics**

| pH | | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| Nama | hari ke 1 | 15 | 5.2313 | .34025 | .08785 |
| | hari ke 21 | 15 | 5.1033 | .34129 | .08812 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | T | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| Nama | Equal variances assumed | .002 | .963 | 1.029 | 28 | .312 | .12800 | .12443 | -.12689 | .38289 |
| | Equal variances not assumed | | | 1.029 | 28.000 | .312 | .12800 | .12443 | -.12689 | .38289 |

Pengujian antar formula

**Tests of Normality**

| | formula | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | Df | Sig. |
| pH | basis | .319 | 6 | .056 | .708 | 6 | .007 |
| | formula 1 | .318 | 6 | .058 | .737 | 6 | .015 |
| | formula 2 | .291 | 6 | .123 | .797 | 6 | .055 |
| | formula 3 | .318 | 6 | .058 | .745 | 6 | .018 |
| | formula 4 | .264 | 6 | .200* | .789 | 6 | .047 |

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

Kruskal wallis test

**Ranks**

| | formula | N | Mean Rank |
|---|---|---|---|
| pH | basis | 6 | 3.50 |
| | formula 1 | 6 | 9.50 |
| | formula 2 | 6 | 15.50 |
| | formula 3 | 6 | 21.50 |
| | formula 4 | 6 | 27.50 |
| | Total | 30 | |

**Test Statistics[a,b]**

| | pH |
|---|---|
| Chi-Square | 27.983 |
| df | 4 |
| Asymp. Sig. | .000 |

a. Kruskal Wallis Test
b. Grouping Variable: formula

**Lampiran 24. Analisis SPSS uji bobot jenis**

**Tests of Normality**

| | bobot jenis | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| nama | hari ke 1 | .246 | 5 | .200* | .956 | 5 | .777 |
| | hari ke 21 | .300 | 5 | .161 | .908 | 5 | .453 |

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

T test

**Group Statistics**

| | bobot jenis | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| nama | hari ke 1 | 5 | .9920 | .01483 | .00663 |
| | hari ke 21 | 5 | 1.0000 | .01871 | .00837 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| nama | Equal variances assumed | .050 | .828 | -.749 | 8 | .475 | -.00800 | .01068 | -.03262 | .01662 |
| | Equal variances not assumed | | | -.749 | 7.604 | .476 | -.00800 | .01068 | -.03285 | .01685 |

**Lampiran 25. Analisis SPSS stabilitas pH**

**Tests of Normality**

| | formula | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| nilai | sebelum | .160 | 15 | .200* | .904 | 15 | .108 |
| | sesudah | .206 | 15 | .087 | .894 | 15 | .077 |

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

**Group Statistics**

| | formula | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| nilai | sebelum | 15 | 5.1233 | .27380 | .07069 |
| | sesudah | 15 | 4.9900 | .26665 | .06885 |

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | t | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| nilai | Equal variances assumed | .012 | .914 | 1.351 | 28 | .187 | .13333 | .09868 | -.06880 | .33547 |
| | Equal variances not assumed | | | 1.351 | 27.980 | .187 | .13333 | .09868 | -.06881 | .33548 |

**Lampiran 26. Analisis SPSS stabilitas viskositas**

**Tests of Normality**

| | formula | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | df | Sig. | Statistic | df | Sig. |
| nilai | sebelum | .147 | 15 | .200* | .912 | 15 | .147 |
| | sesudah | .153 | 15 | .200* | .914 | 15 | .156 |

*. This is a lower bound of the true significance.
a. Lilliefors Significance Correction

**Independent Samples Test**

| | | Levene's Test for Equality of Variances | | t-test for Equality of Means | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | F | Sig. | T | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference | |
| | | | | | | | | | Lower | Upper |
| nilai | Equal variances assumed | .405 | .529 | 4.750 | 28 | .000 | .17800 | .03747 | .10124 | .25476 |
| | Equal variances not assumed | | | 4.750 | 27.375 | .000 | .17800 | .03747 | .10116 | .25484 |

**Group Statistics**

| | formula | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|---|
| nilai | sebelum | 15 | 1.2833 | .11011 | .02843 |
| | sesudah | 15 | 1.1053 | .09456 | .02441 |

**Lampiran 27. Analisis SPSS uji aktivitas**

**Tests of Normality[b]**

| | formula | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | | Statistic | Df | Sig. | Statistic | df | Sig. |
| nilai | kontrol positif | .351 | 3 | . | .828 | 3 | .183 |
| | F0 (basis) | .175 | 3 | . | 1.000 | 3 | 1.000 |
| | F1 | .175 | 3 | . | 1.000 | 3 | 1.000 |
| | F2 | .253 | 3 | . | .964 | 3 | .637 |
| | F3 | .346 | 3 | . | .837 | 3 | .206 |
| | F4 | .219 | 3 | . | .987 | 3 | .780 |

a. Lilliefors Significance Correction
b. nilai is constant when formula = kontrol negatif. It has been omitted.

**ANOVA**

nilai

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 35.255 | 6 | 5.876 | 1940.123 | .000 |
| Within Groups | .042 | 14 | .003 | | |
| Total | 35.297 | 20 | | | |

**nilai**

Tukey HSD[a]

| Formula | N | Subset for alpha = 0.05 | | | | | |
|---|---|---|---|---|---|---|---|
| | | 1 | 2 | 3 | 4 | 5 | 6 |
| kontrol negatif | 3 | .0000 | | | | | |
| F0 (basis) | 3 | .1300 | | | | | |
| F1 | 3 | | 1.1000 | | | | |
| F2 | 3 | | | 1.4567 | | | |
| F3 | 3 | | | | 1.8967 | | |
| F4 | 3 | | | | | 2.3267 | |
| kontrol positif | 3 | | | | | | 4.0800 |
| Sig. | | .123 | 1.000 | 1.000 | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.
a. Uses Harmonic Mean Sample Size = 3.000.