

# L A M P I R A N

## Lampiran 1. Hasil determinasi daun kembang sepatu



**KEMENTERIAN KESEHATAN REPUBLIK INDONESIA**  
**BADAN KEBIJAKAN PEMBANGUNAN KESEHATAN**  
 BALAI BESAR PENELITIAN DAN PENGEMBANGAN  
 TANAMAN OBAT DAN OBAT TRADISIONAL  
 Jalan Lawu No.11 Tawamangu, Karanganyar, Jawa Tengah 57792  
 Telepon (0271) 697 010 Faksimile (0271) 697 451  
 Laman b2p2toot.litbang.kemkes.go.id Surat Elektronik b2p2toot@litbang.kemkes.go.id

Nomor : KM.04.02/2/1190/2022  
 Hal : Keterangan Determinasi

27 Juni 2022

Yth. Dekan Fakultas Farmasi Universitas Setia Budi  
 Jalan Let. Jend. Sutoyo, Solo 57127

Merujuk surat Saudara nomor: 777/H6-04/13.06.2022 tanggal 13 Juni 2022 hal permohonan determinasi, dengan ini kami sampaikan bahwa hasil determinasi sampel tanaman sebagai berikut:

Nama Pemohon : Anti Faidatuz Zuhro'  
 Nama Sampel : Kembang Sepatu  
 Sampel : Tanaman Segar  
 Spesies : *Hibiscus rosa-sinensis* L.  
 Sinonim : *Hibiscus boryanus* DC.  
 Familia : Malvaceae  
 Penanggung Jawab : Nina Kurnianingrum, S.Si.

Hasil determinasi tersebut hanya mencakup sampel tanaman yang telah dikirimkan ke dan/atau berasal dari B2P2TOOT.

Atas perhatian Saudara, kami sampaikan terima kasih.

Kepala Balai Besar Penelitian  
 dan Pengembangan Tanaman Obat  
 dan Obat Tradisional



Akhmad Saikhu, S.K.M.,  
 M.Sc.PH.

Lampiran 2. Hasil *Ethical Clearance*

8/16/22, 3:03 PM

KEPK-RSDM



**HEALTH RESEARCH ETHICS COMMITTEE**  
**KOMISI ETIK PENELITIAN KESEHATAN**

**Dr. Moewardi General Hospital**  
**RSUD Dr. Moewardi**

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**ETHICAL CLEARANCE**  
**KELAIKAN ETIK**

**Nomor : 1.066 / VIII / HREC / 2022**

The Health Research Ethics Committee Dr. Moewardi  
Komisi Etik Penelitian Kesehatan RSUD Dr. Moewardi

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

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

**FORMULASI, UJI MUTU FISIK SEDIAAN HAIR TONIC DAN UJI AKTIVITAS PERTUMBUHAN RAMBUT EKSTRAK DAUN KEMBANG SEPATU (Hibiscus rosa-sinensis L) PADA RAMBUT KELINCI NEW ZEALAND WHITE.**

Principal Investigator  
Peneliti Utama : Anti Faidatuz Zuhro'  
25195946A

Location of research  
Lokasi Tempat Penelitian : Laboratorium Universitas Setia Budi surakarta

Is ethically approved  
Dinyatakan layak etik

Issued on : 16 Agustus 2022



**Chairman**  
**Ketua**  
**Dr. Wahyu Dwi Afmoko, Sp.F.**  
19770224 201001 1 004

**Lampiran 3. Gambar bahan penelitian**

Pengeringan simplisia



Serbuk daun kembang sepatu



Ekstrak daun kembang sepatu

Sediaan *hair tonic*

Sediaan natur (bungkus)



Sediaan natur

**Lampiran 4. Perhitungan randemen serbuk daun kembang sepatu**

Daun kembang sepatu segar sebanyak 15000 gram dan dihasilkan daun kembang sepatu kering sebesar 3020 gram, setelah itu diperoleh bobot serbuk daun kembang sepatu sebesar 1300 gram. Randemen yang didapat yaitu :

$$\text{Persentase randemen} = \frac{\text{bobot simplisia}}{\text{bobot simplisia segar}} \times 100\%$$

$$\text{Persentase randemen} = \frac{1300 \text{ (gram)}}{3020 \text{ (gram)}} \times 100\%$$

$$\text{Persentase randemen} = 43\%$$

**Lampiran 5. Perhitungan kadar sari larut air dan kadar sari larut etanol**

| <b>Bobot serbuk (gram)</b> | <b>Replikasi</b> | <b>Hasil (%)</b> |
|----------------------------|------------------|------------------|
| 5,0166                     | 1                | 22               |
| 5,0013                     | 2                | 22               |
| 5,0018                     | 3                | 21               |

| <b>Replikasi</b> | <b>Bobot tiap pemanasan</b> |                                  |                                   |
|------------------|-----------------------------|----------------------------------|-----------------------------------|
|                  | <b>Pemanasan 1 jam (g)</b>  | <b>Pemanasan 1 jam kedua (g)</b> | <b>Pemanasan 1 jam ketiga (g)</b> |
| 1                | 28,2330                     | 28,2325                          | 28,2322                           |
| 2                | 40,3320                     | 40,3315                          | 40,3312                           |
| 3                | 28,1120                     | 28,1116                          | 28,1115                           |

**Kadar sari larut air serbuk daun kembang sepatu**

$$1) \text{ Kadar sari larut air} = \frac{\text{berat sari}}{\text{berat sampel}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut air} = \frac{0,2172 \text{ gram}}{5,0166 \text{ gram}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut air} = 22\%$$

$$2) \text{ Kadar sari larut air} = \frac{\text{berat sari}}{\text{berat sampel}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut air} = \frac{0,2182 \text{ gram}}{5,0013 \text{ gram}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut air} = 22\%$$

$$3) \text{ Kadar sari larut air} = \frac{\text{berat sari}}{\text{berat sampel}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut air} = \frac{0,209 \text{ gram}}{5,0018 \text{ gram}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut air} = 21\%$$

**Kadar sari larut etanol serbuk daun kembang sepatu**

| <b>Bobot serbuk<br/>(gram)</b> | <b>Replikasi</b> | <b>Hasil (%)</b> |
|--------------------------------|------------------|------------------|
| 5,009                          | 1                | 42               |
| 5,028                          | 2                | 43               |
| 5,013                          | 3                | 17,5             |

| <b>Replikasi</b> | <b>Bobot tiap pemanasan</b>    |                                      |                                       |
|------------------|--------------------------------|--------------------------------------|---------------------------------------|
|                  | <b>Pemanasan 1<br/>jam (g)</b> | <b>Pemanasan 1<br/>jam kedua (g)</b> | <b>Pemanasan 1<br/>jam ketiga (g)</b> |
| 1                | 42,6520                        | 42,6515                              | 42,6512                               |
| 2                | 42,6040                        | 42,6035                              | 42,6032                               |
| 3                | 41,9990                        | 41,9986                              | 41,9985                               |

$$1) \text{ Kadar sari larut etanol} = \frac{\text{berat sari}}{\text{berat sampel}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut etanol} = \frac{0,4182 \text{ gram}}{5,009 \text{ gram}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut etanol} = 42\%$$

$$2) \text{ Kadar sari larut etanol} = \frac{\text{berat sari}}{\text{berat sampel}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut etanol} = \frac{0,4342 \text{ gram}}{5,028 \text{ gram}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut etanol} = 43\%$$

$$3) \text{ Kadar sari larut etanol} = \frac{\text{berat sari}}{\text{berat sampel}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut etanol} = \frac{0,1745 \text{ gram}}{5,013 \text{ gram}} \times \frac{100}{20} \times 100\%$$

$$\text{Kadar sari larut etanol} = 17,5\%$$

**Lampiran 6. Perhitungan susut pengeringan serbuk**

| Berat awal<br>(gram) | Berat akhir<br>(gram) | Susut pengeringan<br>(%) |
|----------------------|-----------------------|--------------------------|
| 2                    | 1,87                  | 6,5                      |
| 2                    | 1,89                  | 5,5                      |
| 2                    | 1,87                  | 6,5                      |
| Rata-rata            |                       | 6,17±0,58                |

**Lampiran 7. Perhitungan randemen ekstrak daun kembang sepatu**

| Berat serbuk<br>(gram) | Berat jar<br>(gram) | Berat jar + ekstrak<br>(gram) | Berat ekstrak<br>(gram) | Presentase randemen<br>(%) |
|------------------------|---------------------|-------------------------------|-------------------------|----------------------------|
| 1000                   | 198,58              | 363,58                        | 165                     | 16,5                       |

Persentase randemen ekstrak kental daun kembang sepatu

$$\text{Persentase randemen ekstrak} = \frac{\text{bobot ekstrak (gram)}}{\text{bobot serbuk (gram)}} \times 100\%$$

$$\text{Persentase randemen ekstrak} = \frac{165 \text{ gram}}{1000 \text{ gram}} \times 100\%$$

$$\text{Persentase randemen ekstrak} = 16,5\%$$

**Lampiran 8. Perhitungan kadar sari larut air dan kadar sari larut etanol**

| Berat ekstrak<br>(gram) | Replikasi | Berat cursh kosong<br>(g) | Berat cursh + sampel konstan | Hasil<br>(%) |
|-------------------------|-----------|---------------------------|------------------------------|--------------|
| 0,503                   | 1         | 29,8578                   | 30,0262                      | 78           |
| 0,504                   | 2         | 29,9634                   | 30,1072                      | 67           |
| 0,508                   | 3         | 44,4080                   | 44,5332                      | 75           |

| Replikasi | Bobot tiap pemanasan |                           |                            |
|-----------|----------------------|---------------------------|----------------------------|
|           | Pemanasan 1 jam (g)  | Pemanasan 1 jam kedua (g) | Pemanasan 1 jam ketiga (g) |
| 1         | 30,0270              | 30,0265                   | 30,0262                    |
| 2         | 30,1080              | 30,1075                   | 30,1072                    |
| 3         | 44,5340              | 44,5336                   | 44,5332                    |

### Kadar sari larut air ekstrak daun kembang sepatu

1) Kadar sari larut air =

$$\frac{\text{berat cursh+ sampel konstan-berat cursh kosong}}{\text{berat sampel}} \times 100\%$$

$$\text{Kadar sari larut air} = \frac{30,0262 \text{ gram}-29,8578 \text{ gram}}{0,503 \text{ gram}} \times 100\%$$

$$\text{Kadar sari larut air} = 11,18\%$$

2) Kadar sari larut air =

$$\frac{\text{berat cursh+ sampel konstan-berat cursh kosong}}{\text{berat sampel}} \times 100\%$$

$$\text{Kadar sari larut air} = \frac{30,1072 \text{ gram}-29,9634 \text{ gram}}{0,504 \text{ gram}} \times 100\%$$

$$\text{Kadar sari larut air} = 28,5\%$$

3) Kadar sari larut air =

$$\frac{\text{berat cursh+ sampel konstan-berat cursh kosong}}{\text{berat sampel}} \times 100\%$$

$$\text{Kadar sari larut air} =$$

$$\frac{44,5332 \text{ gram}-44,4080 \text{ gram}}{0,508 \text{ gram}} \times 100\%$$

$$\text{Kadar sari larut air} = 0,150 \times 5 \times 100\%$$

$$\text{Kadar sari larut air} = 24,6\%$$

### Kadar sari larut etanol ekstrak daun kembang sepatu

| Berat ekstrak (gram) | Replikasi | Berat cursh kosong (g) | Berat cursh + sampel konstan (g) | Hasil (%) |
|----------------------|-----------|------------------------|----------------------------------|-----------|
| 0,515                | 1         | 26,0344                | 26,2088                          | 33,8      |
| 0,507                | 2         | 21,2919                | 21,5345                          | 47,8      |
| 0,507                | 3         | 21,5074                | 21,7583                          | 49,4      |

| Replikasi | Bobot tiap pemanasan |                           |                            |
|-----------|----------------------|---------------------------|----------------------------|
|           | Pemanasan 1 jam (g)  | Pemanasan 1 jam kedua (g) | Pemanasan 1 jam ketiga (g) |
| 1         | 26,2094              | 26,2090                   | 26,2088                    |
| 2         | 21,5350              | 21,5347                   | 21,5345                    |
| 3         | 21,7590              | 21,7587                   | 21,7583                    |

- 1) Kadar sari larut etanol =  

$$\frac{\text{berat cursh+ sampel konstan}-\text{berat cursh kosong}}{\text{berat sampel}} \times 100\%$$

$$\text{Kadar sari larut etanol} = \frac{26,2088 \text{ gram}-26,0344 \text{ gram}}{0,515 \text{ gram}} \times 100\%$$

$$\text{Kadar sari larut etanol} = 33,8\%$$
- 2) Kadar sari larut etanol =  

$$\frac{\text{berat cursh+ sampel konstan}-\text{berat cursh kosong}}{\text{berat sampel}} \times 100\%$$

$$\text{Kadar sari larut etanol} = \frac{21,5345 \text{ gram}-21,2919 \text{ gram}}{0,507 \text{ gram}} \times 100\%$$

$$\text{Kadar sari larut etanol} = 47,8\%$$
- 3) Kadar sari larut etanol =  

$$\frac{\text{berat cursh+ sampel konstan}-\text{berat cursh kosong}}{\text{berat sampel}} \times 100\%$$

$$\text{Kadar sari larut etanol} = \frac{21,7583 \text{ gram}-21,5074 \text{ gram}}{0,507 \text{ gram}} \times 100\%$$

$$\text{Kadar sari larut etanol} = 49,4\%$$

#### Lampiran 9. Perhitungan susut pengeringan ekstrak

| Berat awal (gram) | Susut pengeringan (%) |
|-------------------|-----------------------|
| 2,01              | 9                     |
| 2,02              | 8                     |
| 2,01              | 9                     |
| Rata-rata         | 8,7±0,58              |

**Lampiran 10. Hasil identifikasi kandungan senyawa serbuk dan ekstrak****Uji identifikasi kandungan senyawa serbuk**

Uji flavonoid : filtrat serbuk + serbuk Mg + HCL pekat + amyl alcohol



Uji saponin : filtrat serbuk + air panas



Uji tanin : filtrat serbuk + larutan besi III klorida 1% kehijauan



Uji alkaloid : filtrat serbuk + reagen lieberman bouchard



Uji alkaloid : filtrat serbuk + reagen dragendrof



### **Uji kandungan senyawa ekstrak**

Uji flavonoid : filtrat ekstrak + serbuk Mg + HCL pekat + amyl alcohol



Uji saponin : filtrat ekstrak + air panas



Uji alkaloid : filtrat ekstrak + reagen dragendrof



Uji alkaloid : filtrat ekstrak + pereaksi lieberman bourchard



Uji tanin : filtrat ekstrak + larutan besi III klorida 1%



**Lampiran 11. Uji mutu fisik *hair tonic***

| Pemeriksaan | Organoleptis |           |           |           |           |
|-------------|--------------|-----------|-----------|-----------|-----------|
|             | Waktu        | Formula 1 | Formula 2 | Formula 3 | Kontrol - |
| Warna       | Minggu 1     | Coklat    | Coklat    | Coklat    | Putih     |
|             | Minggu 4     | Coklat    | Coklat    | Coklat    | Putih     |
| Bau         | Minggu 1     | Wangi     | Wangi     | Wangi     | Wangi     |
|             | Minggu 4     | Wangi     | Wangi     | Wangi     | Wangi     |
| Bentuk      | Minggu 1     | Cair      | Cair      | Cair      | Cair      |
|             | Minggu 4     | Cair      | Cair      | Cair      | Cair      |

**Lampiran 12. Hasil data uji pH**

| Minggu 1  |      |      |      |      |      |
|-----------|------|------|------|------|------|
|           | R1   | R2   | R3   | Mean | SD   |
| Formula 1 | 5,14 | 5,16 | 5,18 | 5,16 | 0,02 |
| Formula 2 | 5,89 | 5,91 | 5,92 | 5,91 | 0,02 |
| Formula 3 | 5,9  | 5,89 | 5,98 | 5,92 | 0,05 |
| Kontrol - | 5,99 | 5,98 | 5,98 | 5,98 | 0,00 |
| Minggu 4  |      |      |      |      |      |
|           | R1   | R2   | R3   | mean | SD   |
| Formula 1 | 5    | 5,12 | 5,15 | 5,09 | 0,08 |
| Formula 2 | 5,79 | 5,87 | 5,9  | 5,85 | 0,06 |
| Formula 3 | 5,85 | 5,83 | 5,9  | 5,86 | 0,04 |
| Kontrol - | 5,9  | 5,95 | 5,89 | 5,91 | 0,03 |

**Case Processing Summary**

|    |                          | Valid |         | Cases Missing |         | Total |         |
|----|--------------------------|-------|---------|---------------|---------|-------|---------|
|    |                          | N     | Percent | N             | Percent | N     | Percent |
| pH | Kelompok                 |       |         |               |         |       |         |
|    | Formula 1 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|    | Formula 1 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|    | Formula 2 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|    | Formula 2 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|    | Formula 3 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|    | Formula 3 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|    | Kontrol negatif minggu 1 | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|    | Kontrol negatif minggu 4 | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |

## Descriptives

|    | Kelompok              |                                  | Statistic             | Std. Error |
|----|-----------------------|----------------------------------|-----------------------|------------|
| pH | Formula 1<br>minggu 1 | Mean                             | 5,1600                | ,01155     |
|    |                       | 95% Confidence Interval for Mean | Lower Bound<br>5,1103 |            |
|    |                       |                                  | Upper Bound<br>5,2097 |            |
|    |                       | 5% Trimmed Mean                  | .                     |            |
|    |                       | Median                           | 5,1600                |            |
|    |                       | Variance                         | ,000                  |            |
|    |                       | Std. Deviation                   | ,02000                |            |
|    |                       | Minimum                          | 5,14                  |            |
|    |                       | Maximum                          | 5,18                  |            |
|    |                       | Range                            | ,04                   |            |
|    |                       | Interquartile Range              | .                     |            |
|    |                       | Skewness                         | ,000                  | 1,225      |
|    |                       | Kurtosis                         | .                     | .          |
|    | Formula 1<br>minggu 4 | Mean                             | 5,0900                | ,04583     |
|    |                       | 95% Confidence Interval for Mean | Lower Bound<br>4,8928 |            |
|    |                       |                                  | Upper Bound<br>5,2872 |            |
|    |                       | 5% Trimmed Mean                  | .                     |            |
|    |                       | Median                           | 5,1200                |            |
|    |                       | Variance                         | ,006                  |            |
|    |                       | Std. Deviation                   | ,07937                |            |
|    |                       | Minimum                          | 5,00                  |            |
|    |                       | Maximum                          | 5,15                  |            |
|    |                       | Range                            | ,15                   |            |
|    |                       | Interquartile Range              | .                     |            |
|    |                       | Skewness                         | -1,458                | 1,225      |
|    |                       | Kurtosis                         | .                     | .          |
|    | Formula 2<br>minggu 1 | Mean                             | 5,9067                | ,00882     |
|    |                       | 95% Confidence Interval for Mean | Lower Bound<br>5,8687 |            |
|    |                       |                                  | Upper Bound<br>5,9446 |            |
|    |                       | 5% Trimmed Mean                  | .                     |            |
|    |                       | Median                           | 5,9100                |            |
|    |                       | Variance                         | ,000                  |            |
|    |                       | Std. Deviation                   | ,01528                |            |
|    |                       | Minimum                          | 5,89                  |            |
|    |                       | Maximum                          | 5,92                  |            |
|    |                       | Range                            | ,03                   |            |
|    |                       | Interquartile Range              | .                     |            |
|    |                       | Skewness                         | -,935                 | 1,225      |
|    |                       | Kurtosis                         | .                     | .          |
|    | Formula 2<br>minggu 4 | Mean                             | 5,8533                | ,03283     |
|    |                       | 95% Confidence Interval for Mean | Lower Bound<br>5,7121 |            |
|    |                       |                                  | Upper Bound<br>5,9946 |            |
|    |                       | 5% Trimmed Mean                  | .                     |            |
|    |                       | Median                           | 5,8700                |            |
|    |                       | Variance                         | ,003                  |            |

|                             |                                  |             |        |        |
|-----------------------------|----------------------------------|-------------|--------|--------|
| Formula 3<br>minggu 1       | Std. Deviation                   |             | ,05686 |        |
|                             | Minimum                          |             | 5,79   |        |
|                             | Maximum                          |             | 5,90   |        |
|                             | Range                            |             | ,11    |        |
|                             | Interquartile Range              |             | .      |        |
|                             | Skewness                         |             | -1,206 | 1,225  |
|                             | Kurtosis                         |             | .      | .      |
|                             | Mean                             |             | 5,9233 | ,02848 |
|                             | 95% Confidence Interval for Mean | Lower Bound | 5,8008 |        |
|                             |                                  | Upper Bound | 6,0459 |        |
|                             | 5% Trimmed Mean                  |             | .      |        |
|                             | Median                           |             | 5,9000 |        |
|                             | Variance                         |             | ,002   |        |
|                             | Std. Deviation                   |             | ,04933 |        |
|                             | Minimum                          |             | 5,89   |        |
|                             | Maximum                          |             | 5,98   |        |
|                             | Range                            |             | ,09    |        |
|                             | Interquartile Range              |             | .      |        |
|                             | Skewness                         |             | 1,652  | 1,225  |
|                             | Kurtosis                         |             | .      | .      |
| Formula 3<br>minggu 4       | Mean                             |             | 5,8600 | ,02082 |
|                             | 95% Confidence Interval for Mean | Lower Bound | 5,7704 |        |
|                             |                                  | Upper Bound | 5,9496 |        |
|                             | 5% Trimmed Mean                  |             | .      |        |
|                             | Median                           |             | 5,8500 |        |
|                             | Variance                         |             | ,001   |        |
|                             | Std. Deviation                   |             | ,03606 |        |
|                             | Minimum                          |             | 5,83   |        |
|                             | Maximum                          |             | 5,90   |        |
|                             | Range                            |             | ,07    |        |
|                             | Interquartile Range              |             | .      |        |
|                             | Skewness                         |             | 1,152  | 1,225  |
|                             | Kurtosis                         |             | .      | .      |
| Kontrol negatif<br>minggu 1 | Mean                             |             | 5,9833 | ,00333 |
|                             | 95% Confidence Interval for Mean | Lower Bound | 5,9690 |        |
|                             |                                  | Upper Bound | 5,9977 |        |
|                             | 5% Trimmed Mean                  |             | .      |        |
|                             | Median                           |             | 5,9800 |        |
|                             | Variance                         |             | ,000   |        |
|                             | Std. Deviation                   |             | ,00577 |        |
|                             | Minimum                          |             | 5,98   |        |
|                             | Maximum                          |             | 5,99   |        |
|                             | Range                            |             | ,01    |        |
|                             | Interquartile Range              |             | .      |        |
|                             | Skewness                         |             | 1,732  | 1,225  |
|                             | Kurtosis                         |             | .      | .      |
| Kontrol negatif             | Mean                             |             | 5,9133 | ,01856 |

|          |                                  |             |        |       |
|----------|----------------------------------|-------------|--------|-------|
| minggu 4 | 95% Confidence Interval for Mean | Lower Bound | 5,8335 |       |
|          |                                  | Upper Bound | 5,9932 |       |
|          | 5% Trimmed Mean                  |             | .      |       |
|          | Median                           |             | 5,9000 |       |
|          | Variance                         |             | ,001   |       |
|          | Std. Deviation                   |             | ,03215 |       |
|          | Minimum                          |             | 5,89   |       |
|          | Maximum                          |             | 5,95   |       |
|          | Range                            |             | ,06    |       |
|          | Interquartile Range              |             | .      |       |
|          | Skewness                         |             | 1,545  | 1,225 |
|          | Kurtosis                         |             | .      | .     |

### Tests of Normality

|    | Kelompok                 | Kolmogorov-Smirnov <sup>a</sup> |    |      | Shapiro-Wilk |    |       |
|----|--------------------------|---------------------------------|----|------|--------------|----|-------|
|    |                          | Statistic                       | df | Sig. | Statistic    | df | Sig.  |
| pH | Formula 1 minggu 1       | ,175                            | 3  | .    | 1,000        | 3  | 1,000 |
|    | Formula 1 minggu 4       | ,314                            | 3  | .    | ,893         | 3  | ,363  |
|    | Formula 2 minggu 1       | ,253                            | 3  | .    | ,964         | 3  | ,637  |
|    | Formula 2 minggu 4       | ,282                            | 3  | .    | ,936         | 3  | ,510  |
|    | Formula 3 minggu 1       | ,349                            | 3  | .    | ,832         | 3  | ,194  |
|    | Formula 3 minggu 4       | ,276                            | 3  | .    | ,942         | 3  | ,537  |
|    | Kontrol negatif minggu 1 | ,385                            | 3  | .    | ,750         | 3  | ,000  |
|    | Kontrol negatif minggu 4 | ,328                            | 3  | .    | ,871         | 3  | ,298  |

a. Lilliefors Significance Correction

### Ranks

|    | Kelompok                 | N  | Mean Rank |
|----|--------------------------|----|-----------|
| pH | Formula 1 minggu 1       | 3  | 4,67      |
|    | Formula 1 minggu 4       | 3  | 2,33      |
|    | Formula 2 minggu 1       | 3  | 16,33     |
|    | Formula 2 minggu 4       | 3  | 10,83     |
|    | Formula 3 minggu 1       | 3  | 16,50     |
|    | Formula 3 minggu 4       | 3  | 10,83     |
|    | Kontrol negatif minggu 1 | 3  | 22,67     |
|    | Kontrol negatif minggu 4 | 3  | 15,83     |
|    | Total                    | 24 |           |

### Test Statistics<sup>a,b</sup>

|                  | pH     |
|------------------|--------|
| Kruskal-Wallis H | 19,076 |
| Df               | 7      |
| Asymp. Sig.      | ,008   |

a. Kruskal Wallis Test

b. Grouping Variable: Kelompok

## ANOVA

pH

|                | Sum of Squares | df | Mean Square | F       | Sig. |
|----------------|----------------|----|-------------|---------|------|
| Between Groups | 2,791          | 7  | ,399        | 213,085 | ,000 |
| Within Groups  | ,030           | 16 | ,002        |         |      |
| Total          | 2,820          | 23 |             |         |      |

## Multiple Comparisons

Dependent Variable: pH

Tukey HSD

| (I) Kelompok       | (J) Kelompok             | Mean Difference (I-J) | Std. Error | Sig.  | 95% Confidence Interval |             |
|--------------------|--------------------------|-----------------------|------------|-------|-------------------------|-------------|
|                    |                          |                       |            |       | Lower Bound             | Upper Bound |
| Formula 1 minggu 1 | Formula 1 minggu 4       | ,07000                | ,03532     | ,521  | -,0523                  | ,1923       |
|                    | Formula 2 minggu 1       | -,74667*              | ,03532     | ,000  | -,8689                  | -,6244      |
|                    | Formula 2 minggu 4       | -,69333*              | ,03532     | ,000  | -,8156                  | -,5711      |
|                    | Formula 3 minggu 1       | -,76333*              | ,03532     | ,000  | -,8856                  | -,6411      |
|                    | Formula 3 minggu 4       | -,70000*              | ,03532     | ,000  | -,8223                  | -,5777      |
|                    | Kontrol negatif minggu 1 | -,82333*              | ,03532     | ,000  | -,9456                  | -,7011      |
|                    | Kontrol negatif minggu 4 | -,75333*              | ,03532     | ,000  | -,8756                  | -,6311      |
| Formula 1 minggu 4 | Formula 1 minggu 1       | -,07000               | ,03532     | ,521  | -,1923                  | ,0523       |
|                    | Formula 2 minggu 1       | -,81667*              | ,03532     | ,000  | -,9389                  | -,6944      |
|                    | Formula 2 minggu 4       | -,76333*              | ,03532     | ,000  | -,8856                  | -,6411      |
|                    | Formula 3 minggu 1       | -,83333*              | ,03532     | ,000  | -,9556                  | -,7111      |
|                    | Formula 3 minggu 4       | -,77000*              | ,03532     | ,000  | -,8923                  | -,6477      |
|                    | Kontrol negatif minggu 1 | -,89333*              | ,03532     | ,000  | -1,0156                 | -,7711      |
|                    | Kontrol negatif minggu 4 | -,82333*              | ,03532     | ,000  | -,9456                  | -,7011      |
| Formula 2 minggu 1 | Formula 1 minggu 1       | ,74667*               | ,03532     | ,000  | ,6244                   | ,8689       |
|                    | Formula 1 minggu 4       | ,81667*               | ,03532     | ,000  | ,6944                   | ,9389       |
|                    | Formula 2 minggu 4       | ,05333                | ,03532     | ,792  | -,0689                  | ,1756       |
|                    | Formula 3 minggu 1       | -,01667               | ,03532     | 1,000 | -,1389                  | ,1056       |
|                    | Formula 3 minggu 4       | ,04667                | ,03532     | ,878  | -,0756                  | ,1689       |
|                    | Kontrol negatif minggu 1 | -,07667               | ,03532     | ,416  | -,1989                  | ,0456       |
|                    | Kontrol negatif minggu 4 | -,00667               | ,03532     | 1,000 | -,1289                  | ,1156       |
| Formula 2 minggu 4 | Formula 1 minggu 1       | ,69333*               | ,03532     | ,000  | ,5711                   | ,8156       |
|                    | Formula 1 minggu 4       | ,76333*               | ,03532     | ,000  | ,6411                   | ,8856       |
|                    | Formula 2 minggu 1       | -,05333               | ,03532     | ,792  | -,1756                  | ,0689       |
|                    | Formula 3 minggu 1       | -,07000               | ,03532     | ,521  | -,1923                  | ,0523       |
|                    | Formula 3 minggu 4       | -,00667               | ,03532     | 1,000 | -,1289                  | ,1156       |
|                    | Kontrol negatif minggu 1 | -,13000*              | ,03532     | ,033  | -,2523                  | -,0077      |
|                    | Kontrol negatif minggu 4 | -,06000               | ,03532     | ,688  | -,1823                  | ,0623       |
| Formula 3 minggu 1 | Formula 1 minggu 1       | ,76333*               | ,03532     | ,000  | ,6411                   | ,8856       |
|                    | Formula 1 minggu 4       | ,83333*               | ,03532     | ,000  | ,7111                   | ,9556       |
|                    | Formula 2 minggu 1       | ,01667                | ,03532     | 1,000 | -,1056                  | ,1389       |
|                    | Formula 2 minggu 4       | ,07000                | ,03532     | ,521  | -,0523                  | ,1923       |

|                          |                          |          |        |       |        |        |
|--------------------------|--------------------------|----------|--------|-------|--------|--------|
|                          | Formula 3 minggu 4       | ,06333   | ,03532 | ,633  | -,0589 | ,1856  |
|                          | Kontrol negatif minggu 1 | -,06000  | ,03532 | ,688  | -,1823 | ,0623  |
|                          | Kontrol negatif minggu 4 | ,01000   | ,03532 | 1,000 | -,1123 | ,1323  |
| Formula 3 minggu 4       | Formula 1 minggu 1       | ,70000*  | ,03532 | ,000  | ,5777  | ,8223  |
|                          | Formula 1 minggu 4       | ,77000*  | ,03532 | ,000  | ,6477  | ,8923  |
|                          | Formula 2 minggu 1       | -,04667  | ,03532 | ,878  | -,1689 | ,0756  |
|                          | Formula 2 minggu 4       | ,00667   | ,03532 | 1,000 | -,1156 | ,1289  |
|                          | Formula 3 minggu 1       | -,06333  | ,03532 | ,633  | -,1856 | ,0589  |
|                          | Kontrol negatif minggu 1 | -,12333* | ,03532 | ,047  | -,2456 | -,0011 |
|                          | Kontrol negatif minggu 4 | -,05333  | ,03532 | ,792  | -,1756 | ,0689  |
| Kontrol negatif minggu 1 | Formula 1 minggu 1       | ,82333*  | ,03532 | ,000  | ,7011  | ,9456  |
|                          | Formula 1 minggu 4       | ,89333*  | ,03532 | ,000  | ,7711  | 1,0156 |
|                          | Formula 2 minggu 1       | ,07667   | ,03532 | ,416  | -,0456 | ,1989  |
|                          | Formula 2 minggu 4       | ,13000*  | ,03532 | ,033  | ,0077  | ,2523  |
|                          | Formula 3 minggu 1       | ,06000   | ,03532 | ,688  | -,0623 | ,1823  |
|                          | Formula 3 minggu 4       | ,12333*  | ,03532 | ,047  | ,0011  | ,2456  |
|                          | Kontrol negatif minggu 4 | ,07000   | ,03532 | ,521  | -,0523 | ,1923  |
| Kontrol negatif minggu 4 | Formula 1 minggu 1       | ,75333*  | ,03532 | ,000  | ,6311  | ,8756  |
|                          | Formula 1 minggu 4       | ,82333*  | ,03532 | ,000  | ,7011  | ,9456  |
|                          | Formula 2 minggu 1       | ,00667   | ,03532 | 1,000 | -,1156 | ,1289  |
|                          | Formula 2 minggu 4       | ,06000   | ,03532 | ,688  | -,0623 | ,1823  |
|                          | Formula 3 minggu 1       | -,01000  | ,03532 | 1,000 | -,1323 | ,1123  |
|                          | Formula 3 minggu 4       | ,05333   | ,03532 | ,792  | -,0689 | ,1756  |
|                          | Kontrol negatif minggu 1 | -,07000  | ,03532 | ,521  | -,1923 | ,0523  |

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

### pH

Tukey HSD<sup>a</sup>

| Kelompok                 | N | Subset for alpha = 0.05 |        |        |
|--------------------------|---|-------------------------|--------|--------|
|                          |   | 1                       | 2      | 3      |
| Formula 1 minggu 4       | 3 | 5,0900                  |        |        |
| Formula 1 minggu 1       | 3 | 5,1600                  |        |        |
| Formula 2 minggu 4       | 3 |                         | 5,8533 |        |
| Formula 3 minggu 4       | 3 |                         | 5,8600 |        |
| Formula 2 minggu 1       | 3 |                         | 5,9067 | 5,9067 |
| Kontrol negatif minggu 4 | 3 |                         | 5,9133 | 5,9133 |
| Formula 3 minggu 1       | 3 |                         | 5,9233 | 5,9233 |
| Kontrol negatif minggu 1 | 3 |                         |        | 5,9833 |
| Sig.                     |   | ,521                    | ,521   | ,416   |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

**Lampiran 13. Hasil data uji viskositas**

| Minggu 1  |      |      |      |      |      |
|-----------|------|------|------|------|------|
|           | R1   | R2   | R3   | Mean | SD   |
| Formula 1 | 3,21 | 3,15 | 3,18 | 3,18 | 0,03 |
| Formula 2 | 3,99 | 3,8  | 3,75 | 3,85 | 0,13 |
| Formula 3 | 4,1  | 3,85 | 3,98 | 3,98 | 0,13 |
| Kontrol - | 4,15 | 3,99 | 4,33 | 4,16 | 0,17 |
| Minggu 4  |      |      |      |      |      |
|           | R1   | R2   | R3   | mean | SD   |
| Formula 1 | 2,96 | 3,15 | 3,18 | 3,10 | 0,12 |
| Formula 2 | 3,55 | 3,38 | 3,29 | 3,41 | 0,13 |
| Formula 3 | 4    | 3,7  | 3,89 | 3,86 | 0,15 |
| Kontrol - | 4,12 | 3,95 | 4,3  | 4,12 | 0,18 |

**Case Processing Summary**

|            |                          | Valid |         | Cases Missing |         | Total |         |
|------------|--------------------------|-------|---------|---------------|---------|-------|---------|
| Kelompok   |                          | N     | Percent | N             | Percent | N     | Percent |
| Viskositas | Formula 1 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 1 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 2 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 2 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 3 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 3 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Kontrol negatif minggu 1 | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Kontrol negatif minggu 4 | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |

## Descriptives

|            | Kelompok              |                                     | Statistic   | Std. Error |
|------------|-----------------------|-------------------------------------|-------------|------------|
| Viskositas | Formula 1<br>minggu 1 | Mean                                | 3,1800      | ,01732     |
|            |                       | 95% Confidence Interval for<br>Mean | Lower Bound | 3,1055     |
|            |                       |                                     | Upper Bound | 3,2545     |
|            |                       | 5% Trimmed Mean                     | .           | .          |
|            |                       | Median                              | 3,1800      | .          |
|            |                       | Variance                            | ,001        | .          |
|            |                       | Std. Deviation                      | ,03000      | .          |
|            |                       | Minimum                             | 3,15        | .          |
|            |                       | Maximum                             | 3,21        | .          |
|            |                       | Range                               | ,06         | .          |
|            |                       | Interquartile Range                 | .           | .          |
|            |                       | Skewness                            | ,000        | 1,225      |
|            |                       | Kurtosis                            | .           | .          |
|            | Formula 1<br>minggu 4 | Mean                                | 3,0967      | ,06888     |
|            |                       | 95% Confidence Interval for<br>Mean | Lower Bound | 2,8003     |
|            |                       |                                     | Upper Bound | 3,3930     |
|            |                       | 5% Trimmed Mean                     | .           | .          |
|            |                       | Median                              | 3,1500      | .          |
|            |                       | Variance                            | ,014        | .          |
|            |                       | Std. Deviation                      | ,11930      | .          |
|            |                       | Minimum                             | 2,96        | .          |
|            |                       | Maximum                             | 3,18        | .          |
|            |                       | Range                               | ,22         | .          |
|            |                       | Interquartile Range                 | .           | .          |
|            |                       | Skewness                            | -1,610      | 1,225      |
|            |                       | Kurtosis                            | .           | .          |
|            | Formula 2<br>minggu 1 | Mean                                | 3,8467      | ,07311     |
|            |                       | 95% Confidence Interval for<br>Mean | Lower Bound | 3,5321     |
|            |                       |                                     | Upper Bound | 4,1612     |
|            |                       | 5% Trimmed Mean                     | .           | .          |
|            |                       | Median                              | 3,8000      | .          |
|            |                       | Variance                            | ,016        | .          |
|            |                       | Std. Deviation                      | ,12662      | .          |
|            |                       | Minimum                             | 3,75        | .          |
|            |                       | Maximum                             | 3,99        | .          |
|            |                       | Range                               | ,24         | .          |
|            |                       | Interquartile Range                 | .           | .          |
|            |                       | Skewness                            | 1,433       | 1,225      |
|            |                       | Kurtosis                            | .           | .          |
|            | Formula 2<br>minggu 4 | Mean                                | 3,4067      | ,07623     |
|            |                       | 95% Confidence Interval for<br>Mean | Lower Bound | 3,0787     |
|            |                       |                                     | Upper Bound | 3,7347     |
|            |                       | 5% Trimmed Mean                     | .           | .          |
|            |                       | Median                              | 3,3800      | .          |
|            |                       | Variance                            | ,017        | .          |

|  |                                |                                     |             |        |        |
|--|--------------------------------|-------------------------------------|-------------|--------|--------|
|  |                                | Std. Deviation                      |             | ,13204 |        |
|  |                                | Minimum                             |             | 3,29   |        |
|  |                                | Maximum                             |             | 3,55   |        |
|  |                                | Range                               |             | ,26    |        |
|  |                                | Interquartile Range                 |             | .      |        |
|  |                                | Skewness                            |             | ,872   | 1,225  |
|  |                                | Kurtosis                            |             | .      | .      |
|  | Formula 3<br>minggu 1          | Mean                                |             | 3,9767 | ,07219 |
|  |                                | 95% Confidence Interval for<br>Mean | Lower Bound | 3,6661 |        |
|  |                                |                                     | Upper Bound | 4,2873 |        |
|  |                                | 5% Trimmed Mean                     |             | .      |        |
|  |                                | Median                              |             | 3,9800 |        |
|  |                                | Variance                            |             | ,016   |        |
|  |                                | Std. Deviation                      |             | ,12503 |        |
|  |                                | Minimum                             |             | 3,85   |        |
|  |                                | Maximum                             |             | 4,10   |        |
|  |                                | Range                               |             | ,25    |        |
|  |                                | Interquartile Range                 |             | .      |        |
|  |                                | Skewness                            |             | -,120  | 1,225  |
|  |                                | Kurtosis                            |             | .      | .      |
|  | Formula 3<br>minggu 4          | Mean                                |             | 3,8633 | ,08762 |
|  |                                | 95% Confidence Interval for<br>Mean | Lower Bound | 3,4863 |        |
|  |                                |                                     | Upper Bound | 4,2403 |        |
|  |                                | 5% Trimmed Mean                     |             | .      |        |
|  |                                | Median                              |             | 3,8900 |        |
|  |                                | Variance                            |             | ,023   |        |
|  |                                | Std. Deviation                      |             | ,15177 |        |
|  |                                | Minimum                             |             | 3,70   |        |
|  |                                | Maximum                             |             | 4,00   |        |
|  |                                | Range                               |             | ,30    |        |
|  |                                | Interquartile Range                 |             | .      |        |
|  |                                | Skewness                            |             | -,766  | 1,225  |
|  |                                | Kurtosis                            |             | .      | .      |
|  | Kontrol<br>negatif<br>minggu 1 | Mean                                |             | 4,1567 | ,09821 |
|  |                                | 95% Confidence Interval for<br>Mean | Lower Bound | 3,7341 |        |
|  |                                |                                     | Upper Bound | 4,5792 |        |
|  |                                | 5% Trimmed Mean                     |             | .      |        |
|  |                                | Median                              |             | 4,1500 |        |
|  |                                | Variance                            |             | ,029   |        |
|  |                                | Std. Deviation                      |             | ,17010 |        |
|  |                                | Minimum                             |             | 3,99   |        |
|  |                                | Maximum                             |             | 4,33   |        |
|  |                                | Range                               |             | ,34    |        |
|  |                                | Interquartile Range                 |             | .      |        |
|  |                                | Skewness                            |             | ,176   | 1,225  |
|  |                                | Kurtosis                            |             | .      | .      |
|  | Kontrol                        | Mean                                |             | 4,1233 | ,10105 |

|                     |                                  |             |        |       |
|---------------------|----------------------------------|-------------|--------|-------|
| negatif<br>minggu 4 | 95% Confidence Interval for Mean | Lower Bound | 3,6886 |       |
|                     |                                  | Upper Bound | 4,5581 |       |
|                     | 5% Trimmed Mean                  |             | .      |       |
|                     | Median                           |             | 4,1200 |       |
|                     | Variance                         |             | ,031   |       |
|                     | Std. Deviation                   |             | ,17502 |       |
|                     | Minimum                          |             | 3,95   |       |
|                     | Maximum                          |             | 4,30   |       |
|                     | Range                            |             | ,35    |       |
|                     | Interquartile Range              |             | .      |       |
|                     | Skewness                         |             | ,086   | 1,225 |
|                     | Kurtosis                         |             | .      | .     |

### Tests of Normality

|            |                          | Kolmogorov-Smirnov <sup>a</sup> |    |      | Shapiro-Wilk |    |       |
|------------|--------------------------|---------------------------------|----|------|--------------|----|-------|
|            | Kelompok                 | Statistic                       | df | Sig. | Statistic    | df | Sig.  |
| Viskositas | Formula 1 minggu 1       | ,175                            | 3  | .    | 1,000        | 3  | 1,000 |
|            | Formula 1 minggu 4       | ,339                            | 3  | .    | ,850         | 3  | ,241  |
|            | Formula 2 minggu 1       | ,310                            | 3  | .    | ,898         | 3  | ,380  |
|            | Formula 2 minggu 4       | ,247                            | 3  | .    | ,969         | 3  | ,664  |
|            | Formula 3 minggu 1       | ,178                            | 3  | .    | ,999         | 3  | ,956  |
|            | Formula 3 minggu 4       | ,236                            | 3  | .    | ,977         | 3  | ,708  |
|            | Kontrol negatif minggu 1 | ,182                            | 3  | .    | ,999         | 3  | ,935  |
|            | Kontrol negatif minggu 4 | ,177                            | 3  | .    | 1,000        | 3  | ,968  |

a. Lilliefors Significance Correction

### Descriptives

Viskositas

|                    | N | Mean   | Std. Deviation | Std. Error | 95% Confidence Interval for Mean |             | Minimum | Maximum |
|--------------------|---|--------|----------------|------------|----------------------------------|-------------|---------|---------|
|                    |   |        |                |            | Lower Bound                      | Upper Bound |         |         |
| Formula 1 minggu 1 | 3 | 3,1800 | ,03000         | ,01732     | 3,1055                           | 3,2545      | 3,15    | 3,21    |
| Formula 1 minggu 4 | 3 | 3,0967 | ,11930         | ,06888     | 2,8003                           | 3,3930      | 2,96    | 3,18    |
| Formula 2 minggu 1 | 3 | 3,8467 | ,12662         | ,07311     | 3,5321                           | 4,1612      | 3,75    | 3,99    |
| Formula 2 minggu 4 | 3 | 3,4067 | ,13204         | ,07623     | 3,0787                           | 3,7347      | 3,29    | 3,55    |
| Formula 3 minggu 1 | 3 | 3,9767 | ,12503         | ,07219     | 3,6661                           | 4,2873      | 3,85    | 4,10    |
| Formula 3 minggu 4 | 3 | 3,8633 | ,15177         | ,08762     | 3,4863                           | 4,2403      | 3,70    | 4,00    |

|                          |    |        |        |        |        |        |      |      |
|--------------------------|----|--------|--------|--------|--------|--------|------|------|
| Kontrol negatif minggu 1 | 3  | 4,1567 | ,17010 | ,09821 | 3,7341 | 4,5792 | 3,99 | 4,33 |
| Kontrol negatif minggu 4 | 3  | 4,1233 | ,17502 | ,10105 | 3,6886 | 4,5581 | 3,95 | 4,30 |
| Total                    | 24 | 3,7063 | ,41659 | ,08504 | 3,5303 | 3,8822 | 2,96 | 4,33 |

### Test of Homogeneity of Variances

|            |                                      | Levene Statistic | df1 | df2    | Sig. |
|------------|--------------------------------------|------------------|-----|--------|------|
| Viskositas | Based on Mean                        | ,626             | 7   | 16     | ,728 |
|            | Based on Median                      | ,355             | 7   | 16     | ,915 |
|            | Based on Median and with adjusted df | ,355             | 7   | 13,592 | ,913 |
|            | Based on trimmed mean                | ,607             | 7   | 16     | ,742 |

### ANOVA

Viskositas

|                | Sum of Squares | df | Mean Square | F      | Sig. |
|----------------|----------------|----|-------------|--------|------|
| Between Groups | 3,698          | 7  | ,528        | 28,782 | ,000 |
| Within Groups  | ,294           | 16 | ,018        |        |      |
| Total          | 3,992          | 23 |             |        |      |

### Multiple Comparisons

Dependent Variable: Viskositas

Tukey HSD

| (I) Kelompok          | (J) Kelompok                | Mean<br>Difference<br>(I-J) | Std.<br>Error | Sig.  | 95% Confidence<br>Interval |                |
|-----------------------|-----------------------------|-----------------------------|---------------|-------|----------------------------|----------------|
|                       |                             |                             |               |       | Lower<br>Bound             | Upper<br>Bound |
| Formula 1<br>minggu 1 | Formula 1 minggu 4          | ,08333                      | ,11062        | ,993  | -,2996                     | ,4663          |
|                       | Formula 2 minggu 1          | -,66667*                    | ,11062        | ,000  | -1,0496                    | -,2837         |
|                       | Formula 2 minggu 4          | -,22667                     | ,11062        | ,483  | -,6096                     | ,1563          |
|                       | Formula 3 minggu 1          | -,79667*                    | ,11062        | ,000  | -1,1796                    | -,4137         |
|                       | Formula 3 minggu 4          | -,68333*                    | ,11062        | ,000  | -1,0663                    | -,3004         |
|                       | Kontrol negatif<br>minggu 1 | -,97667*                    | ,11062        | ,000  | -1,3596                    | -,5937         |
|                       | Kontrol negatif<br>minggu 4 | -,94333*                    | ,11062        | ,000  | -1,3263                    | -,5604         |
| Formula 1<br>minggu 4 | Formula 1 minggu 1          | -,08333                     | ,11062        | ,993  | -,4663                     | ,2996          |
|                       | Formula 2 minggu 1          | -,75000*                    | ,11062        | ,000  | -1,1330                    | -,3670         |
|                       | Formula 2 minggu 4          | -,31000                     | ,11062        | ,162  | -,6930                     | ,0730          |
|                       | Formula 3 minggu 1          | -,88000*                    | ,11062        | ,000  | -1,2630                    | -,4970         |
|                       | Formula 3 minggu 4          | -,76667*                    | ,11062        | ,000  | -1,1496                    | -,3837         |
|                       | Kontrol negatif<br>minggu 1 | -1,06000*                   | ,11062        | ,000  | -1,4430                    | -,6770         |
|                       | Kontrol negatif<br>minggu 4 | -1,02667*                   | ,11062        | ,000  | -1,4096                    | -,6437         |
| Formula 2<br>minggu 1 | Formula 1 minggu 1          | ,66667*                     | ,11062        | ,000  | ,2837                      | 1,0496         |
|                       | Formula 1 minggu 4          | ,75000*                     | ,11062        | ,000  | ,3670                      | 1,1330         |
|                       | Formula 2 minggu 4          | ,44000*                     | ,11062        | ,019  | ,0570                      | ,8230          |
|                       | Formula 3 minggu 1          | -,13000                     | ,11062        | ,928  | -,5130                     | ,2530          |
|                       | Formula 3 minggu 4          | -,01667                     | ,11062        | 1,000 | -,3996                     | ,3663          |
|                       | Kontrol negatif<br>minggu 1 | -,31000                     | ,11062        | ,162  | -,6930                     | ,0730          |
|                       | Kontrol negatif<br>minggu 4 | -,27667                     | ,11062        | ,262  | -,6596                     | ,1063          |
| Formula 2<br>minggu 4 | Formula 1 minggu 1          | ,22667                      | ,11062        | ,483  | -,1563                     | ,6096          |
|                       | Formula 1 minggu 4          | ,31000                      | ,11062        | ,162  | -,0730                     | ,6930          |
|                       | Formula 2 minggu 1          | -,44000*                    | ,11062        | ,019  | -,8230                     | -,0570         |
|                       | Formula 3 minggu 1          | -,57000*                    | ,11062        | ,002  | -,9530                     | -,1870         |
|                       | Formula 3 minggu 4          | -,45667*                    | ,11062        | ,014  | -,8396                     | -,0737         |
|                       | Kontrol negatif<br>minggu 1 | -,75000*                    | ,11062        | ,000  | -1,1330                    | -,3670         |
|                       | Kontrol negatif<br>minggu 4 | -,71667*                    | ,11062        | ,000  | -1,0996                    | -,3337         |
| Formula 3<br>minggu 1 | Formula 1 minggu 1          | ,79667*                     | ,11062        | ,000  | ,4137                      | 1,1796         |
|                       | Formula 1 minggu 4          | ,88000*                     | ,11062        | ,000  | ,4970                      | 1,2630         |
|                       | Formula 2 minggu 1          | ,13000                      | ,11062        | ,928  | -,2530                     | ,5130          |
|                       | Formula 2 minggu 4          | ,57000*                     | ,11062        | ,002  | ,1870                      | ,9530          |
|                       | Formula 3 minggu 4          | ,11333                      | ,11062        | ,963  | -,2696                     | ,4963          |

|                          |                          |          |        |       |        |        |
|--------------------------|--------------------------|----------|--------|-------|--------|--------|
|                          | Kontrol negatif minggu 1 | -,18000  | ,11062 | ,729  | -,5630 | ,2030  |
|                          | Kontrol negatif minggu 4 | -,14667  | ,11062 | ,876  | -,5296 | ,2363  |
| Formula 3 minggu 4       | Formula 1 minggu 1       | ,68333*  | ,11062 | ,000  | ,3004  | 1,0663 |
|                          | Formula 1 minggu 4       | ,76667*  | ,11062 | ,000  | ,3837  | 1,1496 |
|                          | Formula 2 minggu 1       | ,01667   | ,11062 | 1,000 | -,3663 | ,3996  |
|                          | Formula 2 minggu 4       | ,45667*  | ,11062 | ,014  | ,0737  | ,8396  |
|                          | Formula 3 minggu 1       | -,11333  | ,11062 | ,963  | -,4963 | ,2696  |
|                          | Kontrol negatif minggu 1 | -,29333  | ,11062 | ,207  | -,6763 | ,0896  |
|                          | Kontrol negatif minggu 4 | -,26000  | ,11062 | ,326  | -,6430 | ,1230  |
| Kontrol negatif minggu 1 | Formula 1 minggu 1       | ,97667*  | ,11062 | ,000  | ,5937  | 1,3596 |
|                          | Formula 1 minggu 4       | 1,06000* | ,11062 | ,000  | ,6770  | 1,4430 |
|                          | Formula 2 minggu 1       | ,31000   | ,11062 | ,162  | -,0730 | ,6930  |
|                          | Formula 2 minggu 4       | ,75000*  | ,11062 | ,000  | ,3670  | 1,1330 |
|                          | Formula 3 minggu 1       | ,18000   | ,11062 | ,729  | -,2030 | ,5630  |
|                          | Formula 3 minggu 4       | ,29333   | ,11062 | ,207  | -,0896 | ,6763  |
|                          | Kontrol negatif minggu 4 | ,03333   | ,11062 | 1,000 | -,3496 | ,4163  |
| Kontrol negatif minggu 4 | Formula 1 minggu 1       | ,94333*  | ,11062 | ,000  | ,5604  | 1,3263 |
|                          | Formula 1 minggu 4       | 1,02667* | ,11062 | ,000  | ,6437  | 1,4096 |
|                          | Formula 2 minggu 1       | ,27667   | ,11062 | ,262  | -,1063 | ,6596  |
|                          | Formula 2 minggu 4       | ,71667*  | ,11062 | ,000  | ,3337  | 1,0996 |
|                          | Formula 3 minggu 1       | ,14667   | ,11062 | ,876  | -,2363 | ,5296  |
|                          | Formula 3 minggu 4       | ,26000   | ,11062 | ,326  | -,1230 | ,6430  |
|                          | Kontrol negatif minggu 1 | -,03333  | ,11062 | 1,000 | -,4163 | ,3496  |

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

### Viskositas

Tukey HSD<sup>a</sup>

| Kelompok                 | N | Subset for alpha = 0.05 |        |
|--------------------------|---|-------------------------|--------|
|                          |   | 1                       | 2      |
| Formula 1 minggu 4       | 3 | 3,0967                  |        |
| Formula 1 minggu 1       | 3 | 3,1800                  |        |
| Formula 2 minggu 4       | 3 | 3,4067                  |        |
| Formula 2 minggu 1       | 3 |                         | 3,8467 |
| Formula 3 minggu 4       | 3 |                         | 3,8633 |
| Formula 3 minggu 1       | 3 |                         | 3,9767 |
| Kontrol negatif minggu 4 | 3 |                         | 4,1233 |
| Kontrol negatif minggu 1 | 3 |                         | 4,1567 |
| Sig.                     |   | ,162                    | ,162   |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

**Lampiran 14. Hasil data uji bobot jenis**

| Minggu 1  |       |       |       |        |       |
|-----------|-------|-------|-------|--------|-------|
|           | R1    | R2    | R3    | Mean   | SD    |
| Formula 1 | 0,984 | 0,985 | 0,986 | 0,9850 | 0,001 |
| Formula 2 | 0,985 | 0,987 | 0,986 | 0,9860 | 0,001 |
| Formula 3 | 0,987 | 0,985 | 0,986 | 0,9860 | 0,001 |
| Kontrol - | 0,989 | 0,988 | 0,989 | 0,9887 | 0,001 |
| Minggu 4  |       |       |       |        |       |
|           | R1    | R2    | R3    | mean   | SD    |
| Formula 1 | 0,982 | 0,984 | 0,979 | 0,9817 | 0,003 |
| Formula 2 | 0,983 | 0,982 | 0,983 | 0,9827 | 0,001 |
| Formula 3 | 0,985 | 0,983 | 0,985 | 0,9843 | 0,001 |
| Kontrol - | 0,986 | 0,985 | 0,985 | 0,9853 | 0,001 |

Minggu 1

## 1. Formula 1

$$\begin{aligned}
 \text{Replikasi 1} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,728-32,610}{50 \text{ ml}} \\
 &= 0,984
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 2} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,515-31,238}{50 \text{ ml}} \\
 &= 0,985
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 3} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,599-31,339}{50 \text{ ml}} \\
 &= 0,986
 \end{aligned}$$

## 2. Formula 2

$$\begin{aligned}
 \text{Replikasi 1} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,515-31,238}{50 \text{ ml}} \\
 &= 0,985
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 2} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}
 \end{aligned}$$

$$\begin{aligned}
 &= \frac{80,591-31,220}{50 \text{ ml}} \\
 &= 0,987 \\
 \text{Replikasi 3} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,599-31,339}{50 \text{ ml}} \\
 &= 0,986
 \end{aligned}$$

### 3. Formula 3

$$\begin{aligned}
 \text{Replikasi 1} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,720-31,350}{50 \text{ ml}} \\
 &= 0,987 \\
 \text{Replikasi 2} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,515-31,420}{50 \text{ ml}} \\
 &= 0,985 \\
 \text{Replikasi 3} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,600-31,339}{50 \text{ ml}} \\
 &= 0,986
 \end{aligned}$$

### 4. Kontrol negative

$$\begin{aligned}
 \text{Replikasi 1} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,600-31,339}{50 \text{ ml}} \\
 &= 0,986 \\
 \text{Replikasi 2} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,600-31,339}{50 \text{ ml}} \\
 &= 0,986
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 3} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,600-31,339}{50 \text{ ml}} \\
 &= 0,986
 \end{aligned}$$

#### Minggu 4

##### 1. Formula 1

$$\begin{aligned}
 \text{Replikasi 1} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,720-31,610}{50 \text{ ml}} \\
 &= 0,982
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 2} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,728-31,510}{50 \text{ ml}} \\
 &= 0,984
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 3} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,600-31,618}{50 \text{ ml}} \\
 &= 0,979
 \end{aligned}$$

##### 2. Formula 2

$$\begin{aligned}
 \text{Replikasi 1} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,518-31,351}{50 \text{ ml}} \\
 &= 0,983
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 2} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}} \\
 &= \frac{80,720-31,610}{50 \text{ ml}} \\
 &= 0,982
 \end{aligned}$$

$$\begin{aligned}
 \text{Replikasi 3} &= \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}
 \end{aligned}$$

$$= \frac{80,518-31,351}{50 \text{ ml}}$$

$$= 0,983$$

## 3. Formula 3

$$\text{Replikasi 1} = \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}$$

$$= \frac{80,720-31,350}{50 \text{ ml}}$$

$$= 0,987$$

$$\text{Replikasi 2} = \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}$$

$$= \frac{80,518-31,351}{50 \text{ ml}}$$

$$= 0,983$$

$$\text{Replikasi 3} = \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}$$

$$= \frac{80,630-31,350}{50 \text{ ml}}$$

$$= 0,985$$

## 4. Kontrol negatif

$$\text{Replikasi 1} = \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}$$

$$= \frac{80,600-31,335}{50 \text{ ml}}$$

$$= 0,986$$

$$\text{Replikasi 2} = \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}$$

$$= \frac{80,600-31,339}{50 \text{ ml}}$$

$$= 0,985$$

$$\text{Replikasi 3} = \frac{\text{pikno+sampel-pikno kosong}}{\text{volume pikmo}}$$

$$= \frac{80,630-31,350}{50 \text{ ml}}$$

$$= 0,985$$

### Case Processing Summary

|            |                          | Valid |         | Cases Missing |         | Total |         |
|------------|--------------------------|-------|---------|---------------|---------|-------|---------|
|            |                          | N     | Percent | N             | Percent | N     | Percent |
| BobotJenis | Formula 1 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 1 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 2 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 2 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 3 minggu 1       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Formula 3 minggu 4       | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Kontrol negatif minggu 1 | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |
|            | Kontrol negatif minggu 4 | 3     | 100,0%  | 0             | 0,0%    | 3     | 100,0%  |

### Descriptives

|            |                    | Statistic                        |             | Std. Error |        |
|------------|--------------------|----------------------------------|-------------|------------|--------|
| BobotJenis | Formula 1 minggu 1 | Mean                             |             | ,9850      | ,00058 |
|            |                    | 95% Confidence Interval for Mean | Lower Bound | ,9825      |        |
|            |                    |                                  | Upper Bound | ,9875      |        |
|            |                    | 5% Trimmed Mean                  |             | .          |        |
|            |                    | Median                           |             | ,9850      |        |
|            |                    | Variance                         |             | ,000       |        |
|            |                    | Std. Deviation                   |             | ,00100     |        |
|            |                    | Minimum                          |             | ,98        |        |
|            |                    | Maximum                          |             | ,99        |        |
|            |                    | Range                            |             | ,00        |        |
|            |                    | Interquartile Range              |             | .          |        |
|            |                    | Skewness                         |             | ,000       | 1,225  |
|            |                    | Kurtosis                         |             | .          | .      |
|            | Formula 1 minggu 4 | Mean                             |             | ,9817      | ,00145 |
|            |                    | 95% Confidence Interval for Mean | Lower Bound | ,9754      |        |
|            |                    |                                  | Upper Bound | ,9879      |        |
|            |                    | 5% Trimmed Mean                  |             | .          |        |
|            |                    | Median                           |             | ,9820      |        |
|            |                    | Variance                         |             | ,000       |        |
|            |                    | Std. Deviation                   |             | ,00252     |        |
|            |                    | Minimum                          |             | ,98        |        |
|            |                    | Maximum                          |             | ,98        |        |
|            |                    | Range                            |             | ,01        |        |
|            |                    | Interquartile Range              |             | .          |        |
|            |                    | Skewness                         |             | -,586      | 1,225  |
|            |                    | Kurtosis                         |             | .          | .      |
|            | Formula 2 minggu 1 | Mean                             |             | ,9860      | ,00058 |
|            |                    | 95% Confidence Interval for Mean | Lower Bound | ,9835      |        |
|            |                    |                                  | Upper Bound | ,9885      |        |
|            |                    | 5% Trimmed Mean                  |             | .          |        |
|            |                    | Median                           |             | ,9860      |        |
|            |                    | Variance                         |             | ,000       |        |
|            |                    | Std. Deviation                   |             | ,00100     |        |
|            |                    | Minimum                          |             | ,99        |        |
|            |                    | Maximum                          |             | ,99        |        |
|            |                    | Range                            |             | ,00        |        |

|  |                                |                                  |                            |                |
|--|--------------------------------|----------------------------------|----------------------------|----------------|
|  | Formula 2<br>minggu 4          | Interquartile Range              | .                          | .              |
|  |                                | Skewness                         | ,000                       | 1,225          |
|  |                                | Kurtosis                         | .                          | .              |
|  |                                | Mean                             | ,9827                      | ,00033         |
|  |                                | 95% Confidence Interval for Mean | Lower Bound<br>Upper Bound | ,9812<br>,9841 |
|  |                                | 5% Trimmed Mean                  | .                          | .              |
|  |                                | Median                           | ,9830                      | .              |
|  |                                | Variance                         | ,000                       | .              |
|  |                                | Std. Deviation                   | ,00058                     | .              |
|  |                                | Minimum                          | ,98                        | .              |
|  |                                | Maximum                          | ,98                        | .              |
|  |                                | Range                            | ,00                        | .              |
|  |                                | Interquartile Range              | .                          | .              |
|  |                                | Skewness                         | -1,732                     | 1,225          |
|  |                                | Kurtosis                         | .                          | .              |
|  | Formula 3<br>minggu 1          | Mean                             | ,9860                      | ,00058         |
|  |                                | 95% Confidence Interval for Mean | Lower Bound<br>Upper Bound | ,9835<br>,9885 |
|  |                                | 5% Trimmed Mean                  | .                          | .              |
|  |                                | Median                           | ,9860                      | .              |
|  |                                | Variance                         | ,000                       | .              |
|  |                                | Std. Deviation                   | ,00100                     | .              |
|  |                                | Minimum                          | ,99                        | .              |
|  |                                | Maximum                          | ,99                        | .              |
|  |                                | Range                            | ,00                        | .              |
|  |                                | Interquartile Range              | .                          | .              |
|  |                                | Skewness                         | ,000                       | 1,225          |
|  |                                | Kurtosis                         | .                          | .              |
|  | Formula 3<br>minggu 4          | Mean                             | ,9843                      | ,00067         |
|  |                                | 95% Confidence Interval for Mean | Lower Bound<br>Upper Bound | ,9815<br>,9872 |
|  |                                | 5% Trimmed Mean                  | .                          | .              |
|  |                                | Median                           | ,9850                      | .              |
|  |                                | Variance                         | ,000                       | .              |
|  |                                | Std. Deviation                   | ,00115                     | .              |
|  |                                | Minimum                          | ,98                        | .              |
|  |                                | Maximum                          | ,99                        | .              |
|  |                                | Range                            | ,00                        | .              |
|  |                                | Interquartile Range              | .                          | .              |
|  |                                | Skewness                         | -1,732                     | 1,225          |
|  |                                | Kurtosis                         | .                          | .              |
|  | Kontrol<br>negatif<br>minggu 1 | Mean                             | ,9887                      | ,00033         |
|  |                                | 95% Confidence Interval for Mean | Lower Bound<br>Upper Bound | ,9872<br>,9901 |
|  |                                | 5% Trimmed Mean                  | .                          | .              |
|  |                                | Median                           | ,9890                      | .              |
|  |                                | Variance                         | ,000                       | .              |
|  |                                | Std. Deviation                   | ,00058                     | .              |
|  |                                | Minimum                          | ,99                        | .              |
|  |                                | Maximum                          | ,99                        | .              |
|  |                                | Range                            | ,00                        | .              |
|  |                                | Interquartile Range              | .                          | .              |
|  |                                | Skewness                         | -1,732                     | 1,225          |

|                          |                                  |             |        |        |
|--------------------------|----------------------------------|-------------|--------|--------|
| Kontrol negatif minggu 4 | Kurtosis                         |             | .      | .      |
|                          | Mean                             |             | ,9853  | ,00033 |
|                          | 95% Confidence Interval for Mean | Lower Bound | ,9839  |        |
|                          |                                  | Upper Bound | ,9868  |        |
|                          | 5% Trimmed Mean                  |             | .      |        |
|                          | Median                           |             | ,9850  |        |
|                          | Variance                         |             | ,000   |        |
|                          | Std. Deviation                   |             | ,00058 |        |
|                          | Minimum                          |             | ,99    |        |
|                          | Maximum                          |             | ,99    |        |
|                          | Range                            |             | ,00    |        |
|                          | Interquartile Range              |             | .      |        |
|                          | Skewness                         |             | 1,732  | 1,225  |
|                          | Kurtosis                         |             | .      | .      |

### Tests of Normality

|            |                          | Kolmogorov-Smirnov <sup>a</sup> |    |      | Shapiro-Wilk |    |       |
|------------|--------------------------|---------------------------------|----|------|--------------|----|-------|
| Kelompok   |                          | Statistic                       | df | Sig. | Statistic    | df | Sig.  |
| BobotJenis | Formula 1 minggu 1       | ,175                            | 3  | .    | 1,000        | 3  | 1,000 |
|            | Formula 1 minggu 4       | ,219                            | 3  | .    | ,987         | 3  | ,780  |
|            | Formula 2 minggu 1       | ,175                            | 3  | .    | 1,000        | 3  | 1,000 |
|            | Formula 2 minggu 4       | ,385                            | 3  | .    | ,750         | 3  | ,000  |
|            | Formula 3 minggu 1       | ,175                            | 3  | .    | 1,000        | 3  | 1,000 |
|            | Formula 3 minggu 4       | ,385                            | 3  | .    | ,750         | 3  | ,000  |
|            | Kontrol negatif minggu 1 | ,385                            | 3  | .    | ,750         | 3  | ,000  |
|            | Kontrol negatif minggu 4 | ,385                            | 3  | .    | ,750         | 3  | ,000  |

a. Lilliefors Significance Correction

### Ranks

| Kelompok   |                          | N  | Mean Rank |
|------------|--------------------------|----|-----------|
| BobotJenis | Formula 1 minggu 1       | 3  | 12,33     |
|            | Formula 1 minggu 4       | 3  | 3,67      |
|            | Formula 2 minggu 1       | 3  | 16,67     |
|            | Formula 2 minggu 4       | 3  | 4,17      |
|            | Formula 3 minggu 1       | 3  | 16,67     |
|            | Formula 3 minggu 4       | 3  | 9,67      |
|            | Kontrol negatif minggu 1 | 3  | 23,00     |
|            | Kontrol negatif minggu 4 | 3  | 13,83     |
| Total      |                          | 24 |           |

### Test Statistics<sup>a,b</sup>

| BobotJenis       |        |
|------------------|--------|
| Kruskal-Wallis H | 18,740 |
| df               | 7      |
| Asymp. Sig.      | ,009   |

a. Kruskal Wallis Test

b. Grouping Variable: Kelompok

## ANOVA

BobotJenis

|                | Sum of Squares | df | Mean Square | F     | Sig. |
|----------------|----------------|----|-------------|-------|------|
| Between Groups | ,000           | 7  | ,000        | 9,563 | ,000 |
| Within Groups  | ,000           | 16 | ,000        |       |      |
| Total          | ,000           | 23 |             |       |      |

## Multiple Comparisons

Dependent Variable: BobotJenis

Tukey HSD

| (I) Kelompok       | (J) Kelompok             | Mean Difference (I-J) | Std. Error | Sig.  | 95% Confidence Interval |             |
|--------------------|--------------------------|-----------------------|------------|-------|-------------------------|-------------|
|                    |                          |                       |            |       | Lower Bound             | Upper Bound |
| Formula 1 minggu 1 | Formula 1 minggu 4       | ,00333                | ,00099     | ,058  | -,0001                  | ,0067       |
|                    | Formula 2 minggu 1       | -,00100               | ,00099     | ,965  | -,0044                  | ,0024       |
|                    | Formula 2 minggu 4       | ,00233                | ,00099     | ,319  | -,0011                  | ,0057       |
|                    | Formula 3 minggu 1       | -,00100               | ,00099     | ,965  | -,0044                  | ,0024       |
|                    | Formula 3 minggu 4       | ,00067                | ,00099     | ,997  | -,0027                  | ,0041       |
|                    | Kontrol negatif minggu 1 | -,00367*              | ,00099     | ,031  | -,0071                  | -,0003      |
|                    | Kontrol negatif minggu 4 | -,00033               | ,00099     | 1,000 | -,0037                  | ,0031       |
| Formula 1 minggu 4 | Formula 1 minggu 1       | -,00333               | ,00099     | ,058  | -,0067                  | ,0001       |
|                    | Formula 2 minggu 1       | -,00433*              | ,00099     | ,008  | -,0077                  | -,0009      |
|                    | Formula 2 minggu 4       | -,00100               | ,00099     | ,965  | -,0044                  | ,0024       |
|                    | Formula 3 minggu 1       | -,00433*              | ,00099     | ,008  | -,0077                  | -,0009      |
|                    | Formula 3 minggu 4       | -,00267               | ,00099     | ,190  | -,0061                  | ,0007       |
|                    | Kontrol negatif minggu 1 | -,00700*              | ,00099     | ,000  | -,0104                  | -,0036      |
|                    | Kontrol negatif minggu 4 | -,00367*              | ,00099     | ,031  | -,0071                  | -,0003      |
| Formula 2 minggu 1 | Formula 1 minggu 1       | ,00100                | ,00099     | ,965  | -,0024                  | ,0044       |
|                    | Formula 1 minggu 4       | ,00433*               | ,00099     | ,008  | ,0009                   | ,0077       |
|                    | Formula 2 minggu 4       | ,00333                | ,00099     | ,058  | -,0001                  | ,0067       |
|                    | Formula 3 minggu 1       | ,00000                | ,00099     | 1,000 | -,0034                  | ,0034       |
|                    | Formula 3 minggu 4       | ,00167                | ,00099     | ,693  | -,0017                  | ,0051       |
|                    | Kontrol negatif minggu 1 | -,00267               | ,00099     | ,190  | -,0061                  | ,0007       |
|                    | Kontrol negatif minggu 4 | ,00067                | ,00099     | ,997  | -,0027                  | ,0041       |
| Formula 2 minggu 4 | Formula 1 minggu 1       | -,00233               | ,00099     | ,319  | -,0057                  | ,0011       |
|                    | Formula 1 minggu 4       | ,00100                | ,00099     | ,965  | -,0024                  | ,0044       |
|                    | Formula 2 minggu 1       | -,00333               | ,00099     | ,058  | -,0067                  | ,0001       |
|                    | Formula 3 minggu 1       | -,00333               | ,00099     | ,058  | -,0067                  | ,0001       |
|                    | Formula 3 minggu 4       | -,00167               | ,00099     | ,693  | -,0051                  | ,0017       |
|                    | Kontrol negatif minggu 1 | -,00600*              | ,00099     | ,000  | -,0094                  | -,0026      |
|                    | Kontrol negatif minggu 4 | -,00267               | ,00099     | ,190  | -,0061                  | ,0007       |
| Formula 3 minggu 1 | Formula 1 minggu 1       | ,00100                | ,00099     | ,965  | -,0024                  | ,0044       |
|                    | Formula 1 minggu 4       | ,00433*               | ,00099     | ,008  | ,0009                   | ,0077       |
|                    | Formula 2 minggu 1       | ,00000                | ,00099     | 1,000 | -,0034                  | ,0034       |
|                    | Formula 2 minggu 4       | ,00333                | ,00099     | ,058  | -,0001                  | ,0067       |
|                    | Formula 3 minggu 4       | ,00167                | ,00099     | ,693  | -,0017                  | ,0051       |

|                          |                          |          |        |       |        |        |
|--------------------------|--------------------------|----------|--------|-------|--------|--------|
|                          | Kontrol negatif minggu 1 | -,00267  | ,00099 | ,190  | -,0061 | ,0007  |
|                          | Kontrol negatif minggu 4 | ,00067   | ,00099 | ,997  | -,0027 | ,0041  |
| Formula 3 minggu 4       | Formula 1 minggu 1       | -,00067  | ,00099 | ,997  | -,0041 | ,0027  |
|                          | Formula 1 minggu 4       | ,00267   | ,00099 | ,190  | -,0007 | ,0061  |
|                          | Formula 2 minggu 1       | -,00167  | ,00099 | ,693  | -,0051 | ,0017  |
|                          | Formula 2 minggu 4       | ,00167   | ,00099 | ,693  | -,0017 | ,0051  |
|                          | Formula 3 minggu 1       | -,00167  | ,00099 | ,693  | -,0051 | ,0017  |
|                          | Kontrol negatif minggu 1 | -,00433* | ,00099 | ,008  | -,0077 | -,0009 |
|                          | Kontrol negatif minggu 4 | -,00100  | ,00099 | ,965  | -,0044 | ,0024  |
| Kontrol negatif minggu 1 | Formula 1 minggu 1       | ,00367*  | ,00099 | ,031  | ,0003  | ,0071  |
|                          | Formula 1 minggu 4       | ,00700*  | ,00099 | ,000  | ,0036  | ,0104  |
|                          | Formula 2 minggu 1       | ,00267   | ,00099 | ,190  | -,0007 | ,0061  |
|                          | Formula 2 minggu 4       | ,00600*  | ,00099 | ,000  | ,0026  | ,0094  |
|                          | Formula 3 minggu 1       | ,00267   | ,00099 | ,190  | -,0007 | ,0061  |
|                          | Formula 3 minggu 4       | ,00433*  | ,00099 | ,008  | ,0009  | ,0077  |
|                          | Kontrol negatif minggu 4 | ,00333   | ,00099 | ,058  | -,0001 | ,0067  |
| Kontrol negatif minggu 4 | Formula 1 minggu 1       | ,00033   | ,00099 | 1,000 | -,0031 | ,0037  |
|                          | Formula 1 minggu 4       | ,00367*  | ,00099 | ,031  | ,0003  | ,0071  |
|                          | Formula 2 minggu 1       | -,00067  | ,00099 | ,997  | -,0041 | ,0027  |
|                          | Formula 2 minggu 4       | ,00267   | ,00099 | ,190  | -,0007 | ,0061  |
|                          | Formula 3 minggu 1       | -,00067  | ,00099 | ,997  | -,0041 | ,0027  |
|                          | Formula 3 minggu 4       | ,00100   | ,00099 | ,965  | -,0024 | ,0044  |
|                          | Kontrol negatif minggu 1 | -,00333  | ,00099 | ,058  | -,0067 | ,0001  |

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

### BobotJenis

Tukey HSD<sup>a</sup>

| Kelompok                 | N | Subset for alpha = 0.05 |       |       |
|--------------------------|---|-------------------------|-------|-------|
|                          |   | 1                       | 2     | 3     |
| Formula 1 minggu 4       | 3 | ,9817                   |       |       |
| Formula 2 minggu 4       | 3 | ,9827                   | ,9827 |       |
| Formula 3 minggu 4       | 3 | ,9843                   | ,9843 |       |
| Formula 1 minggu 1       | 3 | ,9850                   | ,9850 |       |
| Kontrol negatif minggu 4 | 3 |                         | ,9853 | ,9853 |
| Formula 2 minggu 1       | 3 |                         | ,9860 | ,9860 |
| Formula 3 minggu 1       | 3 |                         | ,9860 | ,9860 |
| Kontrol negatif minggu 1 | 3 |                         |       | ,9887 |
| Sig.                     |   | ,058                    | ,058  | ,058  |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3,000.

**Lampiran 15. Gambar punggung kelinci**

| Hari ke 11                                                                                                                                   | Hari ke 21                                                                                                                                     |
|----------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|  <p data-bbox="344 782 632 817">Kontrol positif (natur)</p> |  <p data-bbox="813 782 1101 817">Kontrol positif (natur)</p> |
|  <p data-bbox="422 1315 555 1350">Formula 1</p>            |  <p data-bbox="889 1315 1022 1350">Formula 1</p>            |
|                                                           |                                                            |

|                                                                                                                            |                                                                                                                             |
|----------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------|
| <p>Formula 2</p>  <p>Formula 3</p>        | <p>Formula 2</p>  <p>Formula 3</p>        |
|  <p>Kontrol normal (tanpa perlakuan)</p> |  <p>Kontrol normal (tanpa perlakuan)</p> |
|  <p>Kontrol negatif</p>                 |  <p>Kontrol negatif</p>                 |

**Lampiran 16. Uji statistik Panjang dan bobot rambut**  
**Panjang rambut**

| <b>Kontrol normal</b> | <b>Panjang rambut</b> |           |           |           |           |
|-----------------------|-----------------------|-----------|-----------|-----------|-----------|
|                       | <b>K1</b>             | <b>K2</b> | <b>K3</b> | <b>K4</b> | <b>K5</b> |
| Sebelum perlakuan     | 20,5                  | 9,12      | 17,04     | 25,85     | 30,04     |
|                       | 23,66                 | 10,14     | 12,03     | 20,03     | 21,09     |
|                       | 8,91                  | 25,81     | 30,02     | 9         | 26,12     |
|                       | 9,15                  | 20,06     | 8,99      | 9,87      | 18,21     |
|                       | 10,03                 | 27,19     | 8,03      | 14,06     | 21,02     |
|                       | 19,81                 | 13,11     | 9,29      | 12,02     | 28,16     |
|                       | 31,02                 | 8,15      | 12,03     | 9,31      | 24,98     |
|                       | 14,09                 | 9,23      | 13,99     | 7,32      | 14,51     |
|                       | 24,95                 | 14,21     | 15,42     | 26,01     | 19,22     |
|                       | 26,71                 | 18,09     | 16,02     | 28,1      | 26,06     |
| Mean                  | 18,883                | 15,511    | 14,286    | 16,157    | 22,941    |
| SD                    | 7,93873               | 6,99681   | 6,34077   | 8,0685    | 4,89957   |
| Hari ke-11            | 3,35                  | 4,12      | 2,35      | 2,01      | 4         |
|                       | 4,03                  | 4         | 3         | 2         | 4,03      |
|                       | 3,12                  | 3,35      | 2,17      | 3,03      | 2,12      |
|                       | 2,28                  | 2,18      | 1,98      | 3         | 2,01      |
|                       | 4                     | 2         | 4,01      | 3,97      | 2         |
|                       | 4,1                   | 1,99      | 2,08      | 3,17      | 1,99      |
|                       | 3,21                  | 3,06      | 1,18      | 2,1       | 1,83      |
|                       | 3,06                  | 3,95      | 2,08      | 4,18      | 2,04      |
|                       | 4,12                  | 4,04      | 3,01      | 4,03      | 2,35      |
|                       | 3,98                  | 2,96      | 3,12      | 2,06      | 3,03      |
| Mean                  | 3,525                 | 3,165     | 2,498     | 2,955     | 2,54      |
| SD                    | 0,61756               | 0,86836   | 0,79383   | 0,88678   | 0,84547   |
| Hari ke-21            | 3                     | 5,55      | 6,03      | 7,21      | 8,11      |
|                       | 2,04                  | 4,31      | 5,71      | 7,09      | 7,02      |
|                       | 3,12                  | 3,7       | 7,12      | 6,08      | 7         |
|                       | 2,55                  | 3,98      | 3,99      | 6         | 5,13      |
|                       | 3,09                  | 4         | 3,99      | 5,11      | 6,19      |
|                       | 4,11                  | 4,91      | 5         | 2,98      | 6,02      |
|                       | 5                     | 5,81      | 4,96      | 2,91      | 3,21      |
|                       | 3,09                  | 4,09      | 4         | 3         | 3,98      |
|                       | 3,01                  | 5,16      | 3,98      | 4,15      | 4,02      |
|                       | 2,09                  | 7,19      | 4,05      | 3,12      | 5,99      |
| Mean                  | 3,11                  | 4,87      | 4,883     | 4,765     | 5,667     |
| SD                    | 0,88782               | 1,08802   | 1,10087   | 1,75068   | 1,56212   |

| Kontrol negatif   | Panjang rambut (mm) |         |         |         |         |
|-------------------|---------------------|---------|---------|---------|---------|
|                   | K1                  | K2      | K3      | K4      | K5      |
| Sebelum perlakuan | 21,2                | 20,04   | 19,03   | 26      | 29,08   |
|                   | 23,16               | 21,06   | 14,21   | 21,03   | 21,04   |
|                   | 10,01               | 18      | 28,04   | 9,07    | 26,18   |
|                   | 18,01               | 19,08   | 10,15   | 9,97    | 19,21   |
|                   | 15,31               | 20,09   | 10,01   | 13,06   | 21,08   |
|                   | 18,01               | 21      | 9,09    | 13,02   | 28,09   |
|                   | 25,06               | 20,08   | 13,04   | 9,41    | 24,12   |
|                   | 26,01               | 15,08   | 14,99   | 8,12    | 15,51   |
|                   | 26                  | 19,99   | 15      | 15,01   | 19,21   |
|                   | 25,08               | 19,03   | 16,09   | 27,05   | 25,9    |
| Mean              | 20,785              | 19,345  | 14,965  | 15,174  | 22,942  |
| SD                | 5,35941             | 1,75889 | 5,53047 | 7,06315 | 4,40926 |
| Hari ke-11        | 2,03                | 1       | 1,05    | 1,03    | 2       |
|                   | 3,09                | 1,04    | 2,03    | 2       | 1,03    |
|                   | 1,15                | 1,13    | 1,85    | 1       | 1,86    |
|                   | 2,06                | 1,94    | 1       | 1,15    | 2,08    |
|                   | 1,95                | 2,01    | 2,04    | 2,95    | 1,31    |
|                   | 1,03                | 1,5     | 1,18    | 3,06    | 2,09    |
|                   | 2,09                | 2,1     | 3       | 2,15    | 1,5     |
|                   | 3                   | 1,95    | 2,09    | 3,01    | 2,05    |
|                   | 3,01                | 2,89    | 2,07    | 2,01    | 2,52    |
|                   | 2                   | 2,03    | 1,99    | 2       | 3,02    |
| Mean              | 2,141               | 1,759   | 1,83    | 2,036   | 1,946   |
| SD                | 0,72172             | 0,59225 | 0,60773 | 0,79716 | 0,57593 |
| Hari ke-21        | 5,08                | 4,21    | 4       | 4,15    | 4,14    |
|                   | 4,31                | 3,34    | 3,71    | 3,35    | 4,25    |
|                   | 4                   | 4,05    | 3,54    | 4,09    | 3,16    |
|                   | 3,95                | 4,16    | 3,81    | 4,17    | 4,68    |
|                   | 5                   | 4,95    | 4,9     | 3,91    | 4,6     |
|                   | 4,12                | 3,08    | 4,15    | 3       | 3,35    |
|                   | 4,03                | 3,95    | 3,91    | 3,29    | 3,22    |
|                   | 4                   | 3,88    | 3,55    | 4,01    | 2,95    |
|                   | 3,95                | 4,01    | 4,25    | 4,99    | 3,02    |
|                   | 4,19                | 4       | 5,91    | 5       | 3,18    |
| Mean              | 4,263               | 3,963   | 4,173   | 3,996   | 3,655   |
| SD                | 0,42521             | 0,50111 | 0,72925 | 0,66452 | 0,68199 |

| Kontrol positif   | Panjang rambut (mm) |         |         |         |         |
|-------------------|---------------------|---------|---------|---------|---------|
|                   | K1                  | K2      | K3      | K4      | K5      |
| Sebelum perlakuan | 30,15               | 25,9    | 15,21   | 23,12   | 31,03   |
|                   | 25,12               | 21,2    | 16,5    | 21,1    | 16,87   |
|                   | 20,11               | 21,26   | 23,05   | 19,95   | 7,8     |
|                   | 23,17               | 11,3    | 20,04   | 19,35   | 12,34   |
|                   | 31,15               | 20,32   | 7,1     | 17,28   | 20,13   |
|                   | 28,45               | 30,1    | 31,22   | 24,31   | 28,16   |
|                   | 32,45               | 32,12   | 24,16   | 9,3     | 23,41   |
|                   | 19,55               | 18,57   | 21,18   | 10,96   | 12,13   |
|                   | 20,1                | 12,62   | 9,18    | 23,54   | 16,31   |
|                   | 21,03               | 19,2    | 11,08   | 21,03   | 25,87   |
| Mean              | 25,128              | 21,3633 | 17,872  | 18,7678 | 19,405  |
| SD                | 5,03692             | 7,09624 | 7,50444 | 5,39006 | 7,62797 |
| Hari ke-11        | 5,1                 | 6,12    | 8       | 4,85    | 6,15    |
|                   | 6,73                | 5,21    | 9,13    | 3,95    | 3,12    |
|                   | 8,1                 | 6,29    | 7,55    | 6,81    | 4,8     |
|                   | 9,81                | 4,89    | 4,55    | 7,54    | 7,19    |
|                   | 7,32                | 5,03    | 8,14    | 4,51    | 5,58    |
|                   | 6,03                | 6,05    | 9,19    | 3,98    | 8,3     |
|                   | 5,51                | 4,91    | 6,12    | 5,06    | 8,12    |
|                   | 4,95                | 3,98    | 8,14    | 6,01    | 4,09    |
|                   | 6,99                | 5,18    | 4,95    | 3,15    | 9,03    |
|                   | 7                   | 3,95    | 5       | 9,16    | 8,18    |
| Mean              | 6,754               | 5,161   | 7,077   | 5,502   | 6,456   |
| SD                | 1,4776              | 0,81665 | 1,7687  | 1,86681 | 2,01758 |
| Hari ke-21        | 15,45               | 12,62   | 14,26   | 11,25   | 11,71   |
|                   | 14,1                | 15,03   | 12,04   | 14,08   | 10,91   |
|                   | 19,01               | 12,09   | 15,98   | 9,12    | 12,87   |
|                   | 14,53               | 15,06   | 10,91   | 11,98   | 7,65    |
|                   | 12,03               | 17,06   | 9,65    | 12,32   | 10,31   |
|                   | 13,04               | 11,3    | 8,99    | 10,03   | 9,92    |
|                   | 16,91               | 14,52   | 10,33   | 8,03    | 8,96    |
|                   | 13,54               | 13,31   | 16,81   | 12,51   | 6,5     |
|                   | 12,11               | 9,89    | 10      | 12,03   | 14,08   |
|                   | 10,01               | 11,98   | 9,08    | 9,5     | 9,14    |
| Mean              | 14,073              | 13,286  | 11,805  | 11,085  | 10,205  |
| SD                | 2,59089             | 2,13468 | 2,88274 | 1,85792 | 2,30727 |

| Formula 1         | Panjang rambut (mm) |         |         |         |         |
|-------------------|---------------------|---------|---------|---------|---------|
|                   | K1                  | K2      | K3      | K4      | K5      |
| Sebelum perlakuan | 24,1                | 14,53   | 30,11   | 8,41    | 9,15    |
|                   | 30,15               | 18,25   | 22,14   | 21,06   | 8,4     |
|                   | 18,2                | 21,5    | 9,47    | 9,15    | 7,1     |
|                   | 23,56               | 26,98   | 6,81    | 16,24   | 10,25   |
|                   | 21,01               | 23,45   | 21,1    | 8,5     | 18,35   |
|                   | 28,45               | 30,1    | 30,17   | 23,05   | 21,15   |
|                   | 26,55               | 25,16   | 22,14   | 24,16   | 20,1    |
|                   | 19,45               | 27,19   | 16,18   | 15,27   | 19,23   |
|                   | 15,02               | 31,2    | 23,15   | 19,15   | 15,21   |
|                   | 12,1                | 24,61   | 10,01   | 20,01   | 17,95   |
| Mean              | 21,859              | 24,297  | 19,128  | 16,5    | 14,689  |
| SD                | 5,81211             | 5,14499 | 8,28371 | 6,02555 | 5,41071 |
| Hari ke-11        | 3,2                 | 2,11    | 3,45    | 3,75    | 2,18    |
|                   | 3,15                | 3,4     | 4       | 2,5     | 3,12    |
|                   | 3,85                | 3,6     | 2,15    | 2,89    | 3,16    |
|                   | 4,1                 | 3,45    | 4,8     | 3       | 2,5     |
|                   | 2,3                 | 1,98    | 1,8     | 2,15    | 2,86    |
|                   | 4,15                | 2,35    | 2,41    | 2,1     | 2,11    |
|                   | 3,22                | 4,11    | 4,11    | 3,87    | 2,9     |
|                   | 3                   | 3,68    | 3,18    | 4,03    | 3,02    |
|                   | 2,45                | 2,85    | 3,99    | 3,13    | 4       |
|                   | 3,1                 | 2,99    | 3,86    | 4,02    | 3,86    |
| Mean              | 3,252               | 3,052   | 3,375   | 3,144   | 2,971   |
| SD                | 0,62657             | 0,72015 | 0,9736  | 0,74721 | 0,62501 |
| Hari ke-21        | 8,5                 | 9,5     | 8,75    | 9,15    | 5,79    |
|                   | 9,53                | 8,1     | 9       | 9,8     | 4,57    |
|                   | 8,11                | 7,35    | 7,45    | 8,1     | 4,86    |
|                   | 6,17                | 8       | 7,15    | 8,99    | 5,16    |
|                   | 5,98                | 10,15   | 8,64    | 6,95    | 5,43    |
|                   | 6,2                 | 7,1     | 10,85   | 7,43    | 6,06    |
|                   | 8,25                | 10,45   | 9,15    | 8       | 5,87    |
|                   | 8,16                | 10,85   | 9,86    | 8,19    | 4,98    |
|                   | 8,48                | 9,81    | 8       | 8,32    | 5,68    |
|                   | 9                   | 10,98   | 9,15    | 5,9     | 5,16    |
| Mean              | 7,838               | 9,229   | 8,8     | 8,083   | 5,356   |
| SD                | 1,26176             | 1,46409 | 1,09667 | 1,1284  | 0,4877  |

| Formula 2         | Panjang rambut (mm) |         |         |         |         |
|-------------------|---------------------|---------|---------|---------|---------|
|                   | K1                  | K2      | K3      | K4      | K5      |
| Sebelum perlakuan | 34,55               | 26,15   | 24,12   | 11,75   | 7,55    |
|                   | 23,45               | 18,25   | 22,36   | 22      | 9,45    |
|                   | 23,56               | 21,55   | 22,4    | 8,8     | 9,45    |
|                   | 14,1                | 23,56   | 14,53   | 8,95    | 8,4     |
|                   | 19,01               | 21,45   | 22,1    | 9,15    | 3,1     |
|                   | 23,45               | 30,19   | 21,12   | 9,45    | 7,5     |
|                   | 23,59               | 25,17   | 23,21   | 21,16   | 6,55    |
|                   | 15,45               | 28,95   | 18,12   | 12,5    | 7,95    |
|                   | 21,02               | 31,2    | 20,4    | 8,99    | 8,36    |
|                   | 25,1                | 24,35   | 20,14   | 15,25   | 6,8     |
| Mean              | 22,328              | 25,082  | 20,85   | 12,8    | 7,511   |
| SD                | 5,68054             | 4,14764 | 2,80243 | 5,07289 | 1,82911 |
| Hari ke-11        | 4,5                 | 3,25    | 2,15    | 2,13    | 3,1     |
|                   | 5,1                 | 3,11    | 3,1     | 2,17    | 3,05    |
|                   | 3,25                | 3,55    | 3,25    | 2,05    | 2,18    |
|                   | 3,3                 | 3,19    | 3,15    | 2,01    | 3,92    |
|                   | 2,98                | 3,06    | 2,55    | 1,6     | 2,74    |
|                   | 3,1                 | 3,15    | 3,45    | 1,8     | 2,17    |
| rata rata         | 3,15                | 3,02    | 4,8     | 1,75    | 2,89    |
| 2,9802            | 3,25                | 3,37    | 4,53    | 1,7     | 2,76    |
| sd                | 3,4                 | 3,32    | 4,6     | 1,15    | 2,65    |
| 0,30              | 3,11                | 3,18    | 4,12    | 1,98    | 2,17    |
| Mean              | 3,514               | 3,22    | 3,57    | 1,834   | 2,763   |
| SD                | 0,70222             | 0,15895 | 0,90485 | 0,307   | 0,53823 |
| Hari ke-21        | 8,25                | 7,1     | 6,15    | 7,5     | 5,43    |
|                   | 8,57                | 7,5     | 7,55    | 6,85    | 5,05    |
|                   | 8,9                 | 5,32    | 7,15    | 8,77    | 5,12    |
|                   | 6,15                | 5,78    | 6,1     | 5,45    | 4,1     |
|                   | 5,45                | 6,6     | 8,15    | 7,15    | 5,1     |
|                   | 8,28                | 7,47    | 8,12    | 5,25    | 5,4     |
| rat -rata         | 5,41                | 6,39    | 5,21    | 6,12    | 5,11    |
| 6,3876            | 8,11                | 5,42    | 6,03    | 6,14    | 4,25    |
| Sd                | 8,8                 | 7,85    | 5,1     | 7,25    | 5,1     |
| 0,39              | 6,11                | 5,95    | 4,21    | 5,9     | 5,16    |
| Mean              | 7,403               | 6,538   | 6,377   | 6,638   | 4,982   |
| SD                | 1,43639             | 0,91353 | 1,33717 | 1,07336 | 0,44582 |

| Formula 3         | Panjang rambut (mm) |         |            |         |         |
|-------------------|---------------------|---------|------------|---------|---------|
|                   | K1                  | K2      | K3         | K4      | K5      |
| Sebelum perlakuan | 29,1                | 26,95   | 18,91      | 25,12   | 30,02   |
|                   | 25,12               | 22,5    | 20,1921,20 | 21,16   | 18,12   |
|                   | 24,11               | 24,11   | 23,08      | 20,54   | 10,12   |
|                   | 22,03               | 10,3    | 20,18      | 20,5    | 13,9    |
|                   | 29,15               | 21,35   | 22,32      | 18,43   | 20,01   |
|                   | 27,16               | 29,1    | 24,19      | 17,08   | 21,09   |
|                   | 30,45               | 30,12   | 21,89      | 20,6    | 20,04   |
|                   | 18,55               | 19,57   | 10,99      | 26      | 23,1    |
|                   | 19,15               | 13,68   | 10,51      | 24,1    | 24,16   |
|                   | 20,95               | 20,02   | 27,91      | 20      | 28,18   |
| Mean              | 24,577              | 21,77   | 19,9978    | 21,353  | 20,874  |
| SD                | 4,32648             | 6,33667 | 5,8205     | 2,8666  | 6,01977 |
| Hari ke-11        | 4,95                | 6,05    | 7,51       | 4,4     | 6,1     |
|                   | 6                   | 5       | 9,1        | 3,32    | 3,1     |
|                   | 7,55                | 6,22    | 7,5        | 6,21    | 5,1     |
|                   | 9,03                | 4,6     | 4          | 7,43    | 6,01    |
|                   | 7,01                | 5,01    | 8,1        | 4,15    | 5,4     |
|                   | 6                   | 6,04    | 9          | 4       | 8,25    |
|                   | 5,5                 | 4,61    | 6,11       | 5,01    | 8,12    |
|                   | 4,4                 | 3,9     | 8,1        | 5,95    | 4,1     |
|                   | 6,55                | 5,11    | 4,9        | 4       | 8,65    |
|                   | 7,1                 | 5       | 4,81       | 9,1     | 8       |
| Mean              | 6,409               | 5,154   | 6,913      | 5,357   | 6,283   |
| SD                | 1,34807             | 0,74309 | 1,83372    | 1,81696 | 1,91423 |
| Hari ke-21        | 8,45                | 12,5    | 8,5        | 7       | 8,45    |
|                   | 8,02                | 7,95    | 6,01       | 9,01    | 10,55   |
|                   | 10,13               | 9,01    | 6,54       | 8,01    | 8,61    |
|                   | 7,32                | 9,01    | 8,99       | 7,2     | 8,45    |
|                   | 11,03               | 7,02    | 7,1        | 8,1     | 10,29   |
|                   | 12,01               | 10,59   | 7,1        | 8,01    | 11,21   |
|                   | 8,51                | 14,3    | 9,3        | 12,98   | 10,54   |
|                   | 7,95                | 9,23    | 6          | 7,91    | 12,41   |
|                   | 12,21               | 9,98    | 6,91       | 7,01    | 11,2    |
|                   | 9,95                | 11,99   | 7,01       | 10,45   | 8,01    |
| Mean              | 9,558               | 10,158  | 7,346      | 8,568   | 9,972   |
| SD                | 1,76317             | 2,22199 | 1,17959    | 1,86295 | 1,49368 |

**Keterangan :**

- K1 : Kotak pertama pada punggung kelinci  
 K2 : Kotak kedua pada punggung kelinci  
 K3 : Kotak ketiga pada punggung kelinci  
 K4 : Kotak keempat pada punggung kelinci  
 K5 : Kotak kelima pada punggung kelinci

## Case Processing Summary

|               | Kelompok        | Cases |         |         |         |       |         |
|---------------|-----------------|-------|---------|---------|---------|-------|---------|
|               |                 | Valid |         | Missing |         | Total |         |
|               |                 | N     | Percent | N       | Percent | N     | Percent |
| PanjangRambut | kontrol normal  | 5     | 100.0%  | 0       | 0.0%    | 5     | 100.0%  |
|               | kontrol negatif | 5     | 100.0%  | 0       | 0.0%    | 5     | 100.0%  |
|               | kontrol positif | 5     | 100.0%  | 0       | 0.0%    | 5     | 100.0%  |
|               | formula 1       | 5     | 100.0%  | 0       | 0.0%    | 5     | 100.0%  |
|               | formula 2       | 5     | 100.0%  | 0       | 0.0%    | 5     | 100.0%  |
|               | formula 3       | 5     | 100.0%  | 0       | 0.0%    | 5     | 100.0%  |
|               |                 |       |         |         |         |       |         |

## Descriptives

| Kelompok        |                                  | Statistic | Std. Error |
|-----------------|----------------------------------|-----------|------------|
| Panjang Rambut  | Mean                             | 76.2620   | 2.59919    |
|                 | 95% Confidence Interval for Mean | 69.0455   |            |
|                 | Lower Bound                      | 83.4785   |            |
|                 | Upper Bound                      | 76.2839   |            |
|                 | 5% Trimmed Mean                  | 76.7000   |            |
|                 | Median                           | 33.779    |            |
|                 | Variance                         | 5.81196   |            |
|                 | Std. Deviation                   | 68.60     |            |
|                 | Minimum                          | 83.53     |            |
|                 | Maximum                          | 14.93     |            |
|                 | Range                            | 10.89     |            |
|                 | Interquartile Range              | -.143     | .913       |
|                 | Skewness                         | -.868     | 2.000      |
|                 | Kurtosis                         | 77.7700   | 2.17395    |
|                 | Mean                             | 71.7341   |            |
|                 | 95% Confidence Interval for Mean | 83.8059   |            |
|                 | Lower Bound                      | 77.7344   |            |
|                 | Upper Bound                      | 79.4900   |            |
|                 | 5% Trimmed Mean                  | 23.630    |            |
|                 | Median                           | 4.86111   |            |
| kontrol negatif | Variance                         | 72.11     |            |
|                 | Std. Deviation                   | 84.07     |            |
|                 | Minimum                          | 11.96     |            |
|                 | Maximum                          | 8.90      |            |
|                 | Range                            | .037      | .913       |
|                 | Interquartile Range              | -1.504    | 2.000      |
|                 | Skewness                         | 40.8200   | 2.34252    |
|                 | Kurtosis                         | 34.3161   |            |
|                 | Mean                             | 47.3239   |            |
|                 | 95% Confidence Interval for Mean | 40.8356   |            |
| kontrol positif | Lower Bound                      | 40.9400   |            |
|                 | Upper Bound                      | 27.437    |            |
|                 | 5% Trimmed Mean                  | 5.23804   |            |
|                 | Median                           |           |            |

|           |                                  |             |          |         |
|-----------|----------------------------------|-------------|----------|---------|
| formula 1 | Minimum                          |             | 33.95    |         |
|           | Maximum                          |             | 47.41    |         |
|           | Range                            |             | 13.46    |         |
|           | Interquartile Range              |             | 9.82     |         |
|           | Skewness                         |             | -.097    | .913    |
|           | Kurtosis                         |             | -.866    | 2.000   |
|           | Mean                             |             | 58.9400  | 2.69327 |
|           | 95% Confidence Interval for Mean | Lower Bound | 51.4623  |         |
|           |                                  | Upper Bound | 66.4177  |         |
|           | 5% Trimmed Mean                  |             | 59.0917  |         |
|           | Median                           |             | 62.0200  |         |
|           | Variance                         |             | 36.268   |         |
|           | Std. Deviation                   |             | 6.02233  |         |
|           | Minimum                          |             | 51.01    |         |
|           | Maximum                          |             | 64.14    |         |
| formula 2 | Range                            |             | 13.13    |         |
|           | Interquartile Range              |             | 11.34    |         |
|           | Skewness                         |             | -.673    | .913    |
|           | Kurtosis                         |             | -2.466   | 2.000   |
|           | Mean                             |             | 58.3980  | 7.58444 |
|           | 95% Confidence Interval for Mean | Lower Bound | 37.3402  |         |
|           |                                  | Upper Bound | 79.4558  |         |
|           | 5% Trimmed Mean                  |             | 58.9089  |         |
|           | Median                           |             | 66.8400  |         |
|           | Variance                         |             | 287.619  |         |
|           | Std. Deviation                   |             | 16.95933 |         |
|           | Minimum                          |             | 33.67    |         |
|           | Maximum                          |             | 73.93    |         |
|           | Range                            |             | 40.26    |         |
|           | Interquartile Range              |             | 30.77    |         |
| formula 3 | Skewness                         |             | -.898    | .913    |
|           | Kurtosis                         |             | -1.005   | 2.000   |
|           | Mean                             |             | 57.9640  | 2.19025 |
|           | 95% Confidence Interval for Mean | Lower Bound | 51.8829  |         |
|           |                                  | Upper Bound | 64.0451  |         |
|           | 5% Trimmed Mean                  |             | 57.9878  |         |
|           | Median                           |             | 59.8700  |         |
|           | Variance                         |             | 23.986   |         |
|           | Std. Deviation                   |             | 4.89755  |         |
|           | Minimum                          |             | 52.23    |         |
|           | Maximum                          |             | 63.27    |         |
|           | Range                            |             | 11.04    |         |
|           | Interquartile Range              |             | 9.41     |         |
|           | Skewness                         |             | -.355    | .913    |
|           | Kurtosis                         |             | -2.694   | 2.000   |

**Tests of Normality**

|               | kelompok        | Kolmogorov-Smirnov <sup>a</sup> |    |       | Shapiro-Wilk |    |      |
|---------------|-----------------|---------------------------------|----|-------|--------------|----|------|
|               |                 | Statistic                       | df | Sig.  | Statistic    | df | Sig. |
| PanjangRambut | kontrol normal  | .130                            | 5  | .200* | .991         | 5  | .984 |
|               | kontrol negatif | .238                            | 5  | .200* | .927         | 5  | .573 |
|               | kontrol positif | .127                            | 5  | .200* | .993         | 5  | .988 |
|               | formula 1       | .295                            | 5  | .177  | .839         | 5  | .162 |
|               | formula 2       | .291                            | 5  | .194  | .884         | 5  | .328 |
|               | formula 3       | .251                            | 5  | .200* | .885         | 5  | .331 |

\*. This is a lower bound of the true significance.

a. Lilliefors Significance Correction

**ONE WAY ANOVA****Descriptives**

PanjangRambut

|                 | N  | Mean    | Std. Deviation | Std. Error | 95% Confidence Interval for Mean |             | Min   | Max   |
|-----------------|----|---------|----------------|------------|----------------------------------|-------------|-------|-------|
|                 |    |         |                |            | Lower Bound                      | Upper Bound |       |       |
| kontrol normal  | 5  | 76.2620 | 5.81196        | 2.59919    | 69.0455                          | 83.4785     | 68.60 | 83.53 |
| kontrol negatif | 5  | 77.7700 | 4.86111        | 2.17395    | 71.7341                          | 83.8059     | 72.11 | 84.07 |
| kontrol positif | 5  | 40.8200 | 5.23804        | 2.34252    | 34.3161                          | 47.3239     | 33.95 | 47.41 |
| formula 1       | 5  | 58.9400 | 6.02233        | 2.69327    | 51.4623                          | 66.4177     | 51.01 | 64.14 |
| formula 2       | 5  | 58.3980 | 16.95933       | 7.58444    | 37.3402                          | 79.4558     | 33.67 | 73.93 |
| formula 3       | 5  | 57.9640 | 4.89755        | 2.19025    | 51.8829                          | 64.0451     | 52.23 | 63.27 |
| Total           | 30 | 61.6923 | 14.88418       | 2.71747    | 56.1345                          | 67.2502     | 33.67 | 84.07 |

**Test of Homogeneity of Variances**

PanjangRambut

| Levene Statistic | df1 | df2 | Sig. |
|------------------|-----|-----|------|
| 6.773            | 5   | 24  | .000 |

**ANOVA**

PanjangRambut

|                | Sum of Squares | df | Mean Square | F      | Sig. |
|----------------|----------------|----|-------------|--------|------|
| Between Groups | 4693.746       | 5  | 938.749     | 13.017 | .000 |
| Within Groups  | 1730.878       | 24 | 72.120      |        |      |
| Total          | 6424.625       | 29 |             |        |      |

## POST HOC TUCKEY

## Multiple Comparisons

Dependent Variable: PanjangRambut  
Tukey HSD

| (I) kelompok    | (J) kelompok    | Mean Difference (I-J) | Std. Error | Sig.  | 95% Confidence Interval |             |
|-----------------|-----------------|-----------------------|------------|-------|-------------------------|-------------|
|                 |                 |                       |            |       | Lower Bound             | Upper Bound |
| kontrol normal  | kontrol negatif | -1.50800              | 5.37103    | 1.000 | -18.1149                | 15.0989     |
|                 | kontrol positif | 35.44200*             | 5.37103    | .000  | 18.8351                 | 52.0489     |
|                 | formula 1       | 17.32200*             | 5.37103    | .037  | .7151                   | 33.9289     |
|                 | formula 2       | 17.86400*             | 5.37103    | .030  | 1.2571                  | 34.4709     |
| kontrol negatif | formula 3       | 18.29800*             | 5.37103    | .025  | 1.6911                  | 34.9049     |
|                 | kontrol normal  | 1.50800               | 5.37103    | 1.000 | -15.0989                | 18.1149     |
|                 | kontrol positif | 36.95000*             | 5.37103    | .000  | 20.3431                 | 53.5569     |
|                 | formula 1       | 18.83000*             | 5.37103    | .020  | 2.2231                  | 35.4369     |
| kontrol positif | formula 2       | 19.37200*             | 5.37103    | .016  | 2.7651                  | 35.9789     |
|                 | formula 3       | 19.80600*             | 5.37103    | .013  | 3.1991                  | 36.4129     |
|                 | kontrol normal  | -35.44200*            | 5.37103    | .000  | -52.0489                | -18.8351    |
|                 | kontrol negatif | -36.95000*            | 5.37103    | .000  | -53.5569                | -20.3431    |
| formula 1       | formula 1       | -18.12000*            | 5.37103    | .027  | -34.7269                | -1.5131     |
|                 | formula 2       | -17.57800*            | 5.37103    | .034  | -34.1849                | -.9711      |
|                 | formula 3       | -17.14400*            | 5.37103    | .040  | -33.7509                | -.5371      |
|                 | kontrol normal  | -17.32200*            | 5.37103    | .037  | -33.9289                | -.7151      |
| formula 2       | kontrol negatif | -18.83000*            | 5.37103    | .020  | -35.4369                | -2.2231     |
|                 | kontrol positif | 18.12000*             | 5.37103    | .027  | 1.5131                  | 34.7269     |
|                 | formula 2       | .54200                | 5.37103    | 1.000 | -16.0649                | 17.1489     |
|                 | formula 3       | .97600                | 5.37103    | 1.000 | -15.6309                | 17.5829     |
| formula 3       | kontrol normal  | -17.86400*            | 5.37103    | .030  | -34.4709                | -1.2571     |
|                 | kontrol negatif | -19.37200*            | 5.37103    | .016  | -35.9789                | -2.7651     |
|                 | kontrol positif | 17.57800*             | 5.37103    | .034  | .9711                   | 34.1849     |
|                 | formula 1       | -.54200               | 5.37103    | 1.000 | -17.1489                | 16.0649     |
| kontrol normal  | formula 3       | .43400                | 5.37103    | 1.000 | -16.1729                | 17.0409     |
|                 | kontrol normal  | -18.29800*            | 5.37103    | .025  | -34.9049                | -1.6911     |
|                 | kontrol negatif | -19.80600*            | 5.37103    | .013  | -36.4129                | -3.1991     |
|                 | kontrol positif | 17.14400*             | 5.37103    | .040  | .5371                   | 33.7509     |
| kontrol negatif | formula 1       | -.97600               | 5.37103    | 1.000 | -17.5829                | 15.6309     |
|                 | formula 2       | -.43400               | 5.37103    | 1.000 | -17.0409                | 16.1729     |

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

## Panjang Rambut

Tukey HSD<sup>a</sup>

| Kelompok        | N | Subset for alpha = 0.05 |         |         |
|-----------------|---|-------------------------|---------|---------|
|                 |   | 1                       | 2       | 3       |
| kontrol positif | 5 | 40.8200                 |         |         |
| formula 3       | 5 |                         | 57.9640 |         |
| formula 2       | 5 |                         | 58.3980 |         |
| formula 1       | 5 |                         | 58.9400 |         |
| kontrol normal  | 5 |                         |         | 76.2620 |
| kontrol negatif | 5 |                         |         | 77.7700 |
| Sig.            |   | 1.000                   | 1.000   | 1.000   |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 5.000.

**Lampiran 17. Gambar alat uji**