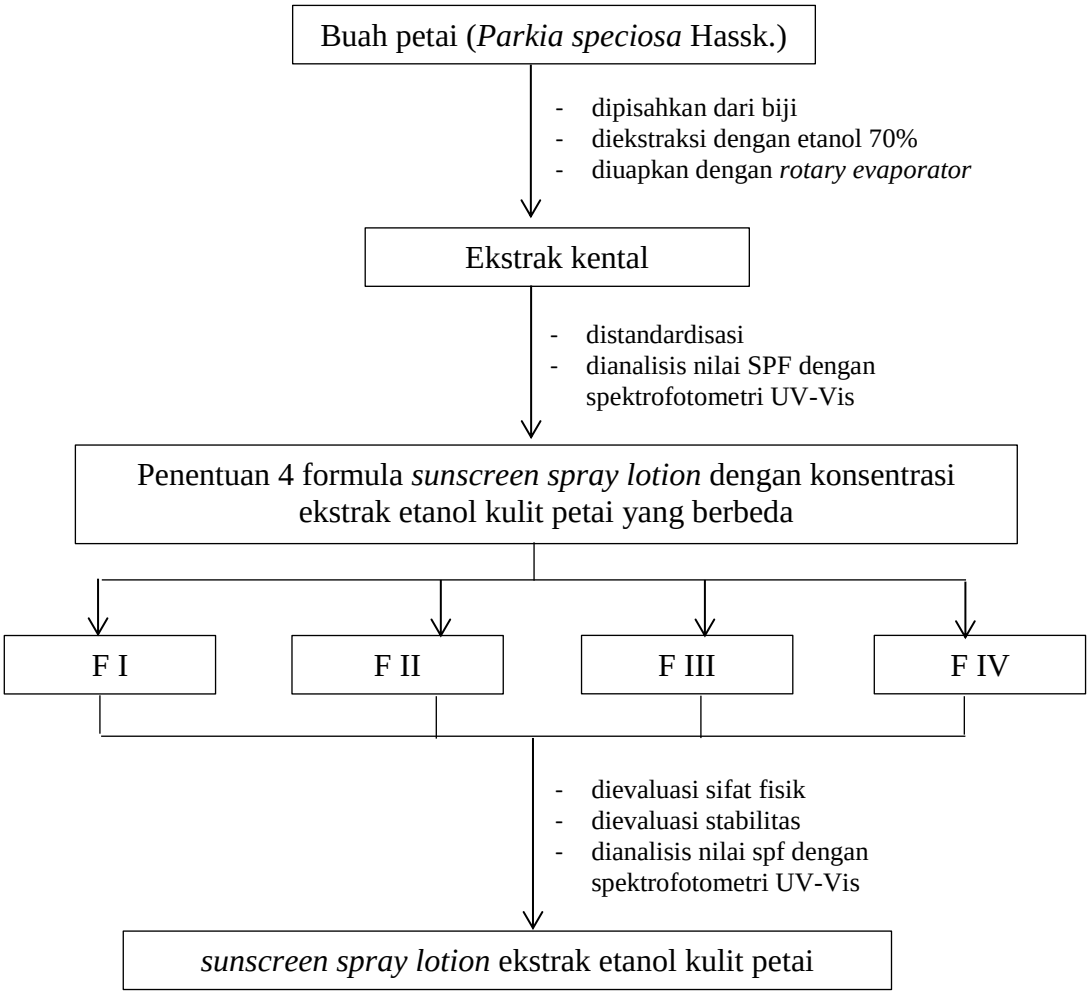
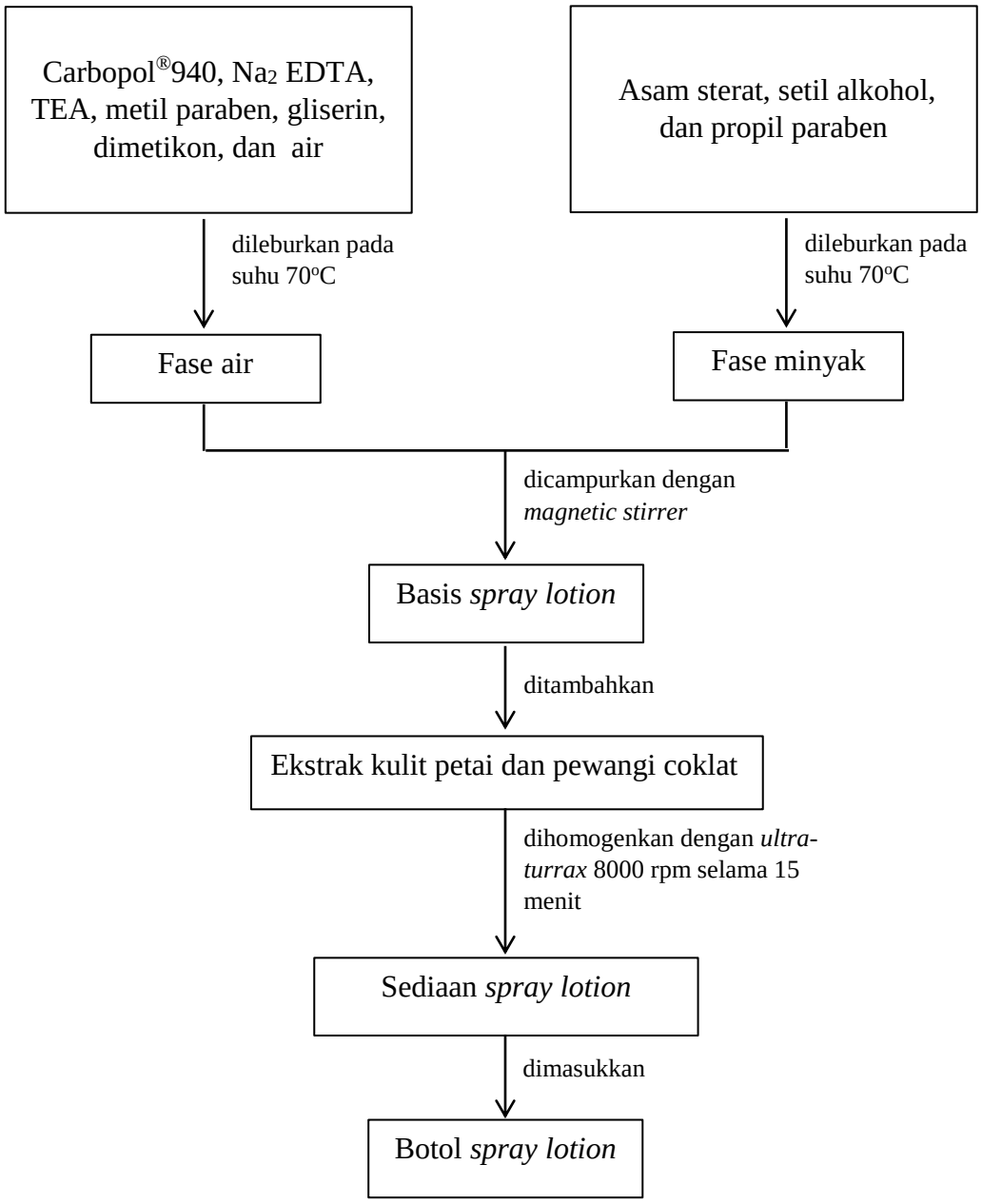
# LAMPIRAN

## Lampiran 1. Skema Kerja Umum



**Lampiran 2. Skema Pembuatan Sediaan *Sunscreen Spray Lotion***



**Lampiran 3. Hasil Determinasi Tanaman Petai (*Parkia speciosa* Hassk.)**

LEMBAGA ILMU PENGETAHUAN INDONESIA
*(INDONESIAN INSTITUTE OF SCIENCES)*
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## SURAT KETERANGAN IDENTIFIKASI TUMBUHAN
**No: 208 /IPH.06/HM/I/2018**

Kepala Balai Konservasi Tumbuhan Kebun Raya Purwodadi LIPI dengan ini menerangkan bahwa material tumbuhan yang dibawa oleh:

| | | |
|---|---|---|
| Nama | : | Mesri Winda |
| NIM | : | 08061381419079 |
| Instansi | : | Mahasiswa S-1 Program Studi Farmasi Universitas Sriwijaya |
| Tanggal material diterima | : | 29 Januari 2018 |

Telah diidentifikasi/determinasi berdasarkan koleksi herbarium dan koleksi kebun serta referensi ilmiah, dengan hasil sebagai berikut:

| | | |
|---|---|---|
| Kingdom | : | Plantae |
| Division | : | Magnoliophyta |
| Class | : | Magnoliopsida |
| Subclass | : | Rosidae |
| Ordo | : | Fabales |
| Family | : | Mimosaceae |
| Genus | : | Parkia |
| Species | : | *Parkia speciosa* Hassk. |

Referensi:

1. Backer CA & Bakhuizen van den Brink RC. 1963. Flora of Java Vol.I. NVP Noordhoff, Groningen, The Netherlands. Hal. 564, 565
2. Cronquist A. 1981. An Integrated System of Classification of Flowering Plants.Columbia University Press, New York, USA. Hal. XV
3. J.S. Siemonsma dan Kasem Piluek. 1994. PROSEA ( Plants Resources of South-East Asia ) No 8 ; Vegetables, Hal.222

Demikian surat keterangan ini dibuat untuk dapat dipergunakan sebagaimana mestinya.

Purwodadi, 6 Pebruari 2018
An. Kepala
Kepala Seksi Eksplorasi dan Koleksi Tumbuhan

LEMBAGA ILMU PENGETAHUAN INDONESIA
LIPI
BKT KEBUN RAYA PURWODADI

Sugeng Budiharta, M.Sc, P.hD

**Lampiran 4. Perhitungan Karakterisasi Ekstrak**

Bobot serbuk simplisia = 4.000 g

Bobot ekstrak kental = 1.029,01 g

$$\% \text{ Rendemen} = \frac{\text{Bobot ekstrak yang didapat}}{\text{Bobot serbuk simplisia kering}} \text{ x } 100\%$$

$$\% \text{ Rendemen} = \frac{1.029{,}01 \text{ (g)}}{4.000 \text{ (g)}} \text{ x } 100\%$$

$$\% \text{ Rendemen} = 25{,}72525\%$$

Kadar Sari Larut Air (terhadap bobot cawan penguap)

| Replikasi | I | II | III |
|---|---|---|---|
| Bobot awal | 28,31 | 31,04 | 38,35 |
| Bobot akhir | 28,39 | 31,12 | 38,42 |
| Kadar sari larut air (%) | 40 | 40 | 40 |
| Rata-rata (%) ± SD | 38,33 ± 2,88 | | |
| CV (%) | 0,03 | | |

a. Kadar Sari Larut Etanol (terhadap bobot cawan penguap)

| Replikasi | I | II | III |
|---|---|---|---|
| Bobot awal | 30,02 | 37,49 | 32,98 |
| Bobot akhir | 30,16 | 37,64 | 33,13 |
| Kadar sari larut etanol (%) | 70 | 75 | 75 |
| Rata-rata (%) ± SD | 73,33 ± 2,88 | | |
| CV (%) | 0,07 | | |

b. Susut Pengeringan (terhadap bobot cawan penguap)

| Replikasi | I | II | III |
|---|---|---|---|
| $W_0$ (g) | 28,30 | 31,05 | 38,27 |
| $W_1$ (g) | 29,30 | 32,05 | 39,27 |
| $W_2$ (g) | 29,23 | 31,97 | 39,20 |
| Susut pengeringan (%) | 7 | 8 | 7 |
| Rata-rata (%) ± SD | 7,33 ± 0,57 | | |
| CV (%) | 7,77 | | |

c. Kadar Air (terhadap bobot cawan penguap)

| Replikasi | I | II | III |
|---|---|---|---|
| $W_0$ (g) | 28,30 | 31,05 | 38,27 |
| $W_1$ (g) | 29,30 | 32,05 | 39,27 |
| $W_2$ (g) | 29,23 | 31,97 | 39,20 |
| Susut pengeringan (%) | 7,52 | 8,69 | 7,52 |
| Rata-rata (%) ± SD | 7,91 ± 0,67 | | |
| CV (%) | 8,52 | | |

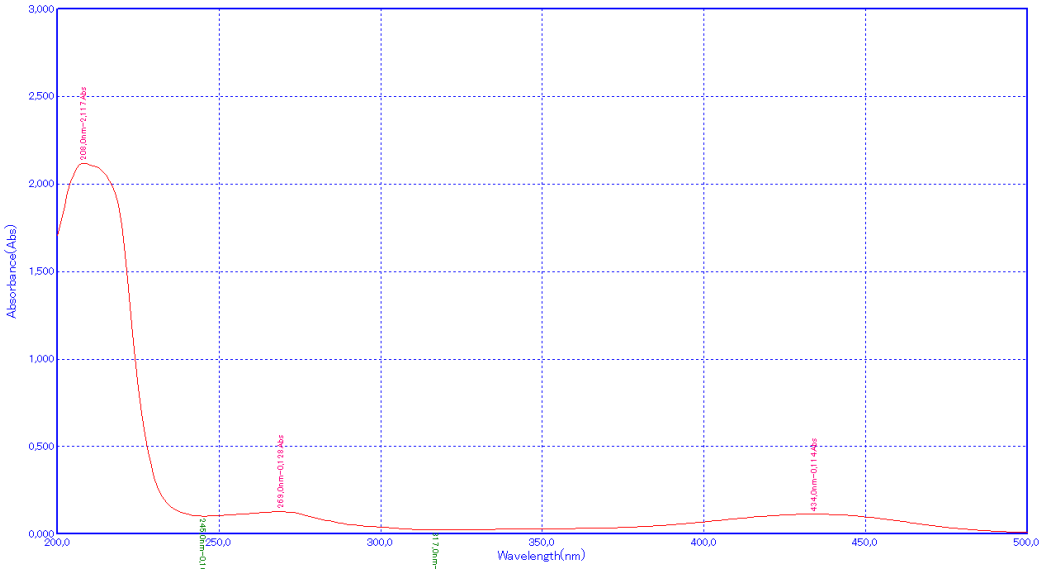
d. Nilai Rf ekstral dan sediaan

Rf ekstrak $= \frac{1{,}1\ cm}{3{,}5\ cm} = 0{,}314$

Rf sediaan $= \frac{0{,}8\ cm}{3{,}5\ cm} = 0{,}228$

**Lampiran 5. Penentuan flavonoid total**

Penentuan Panjang Gelombang Maksimum Kuersetin



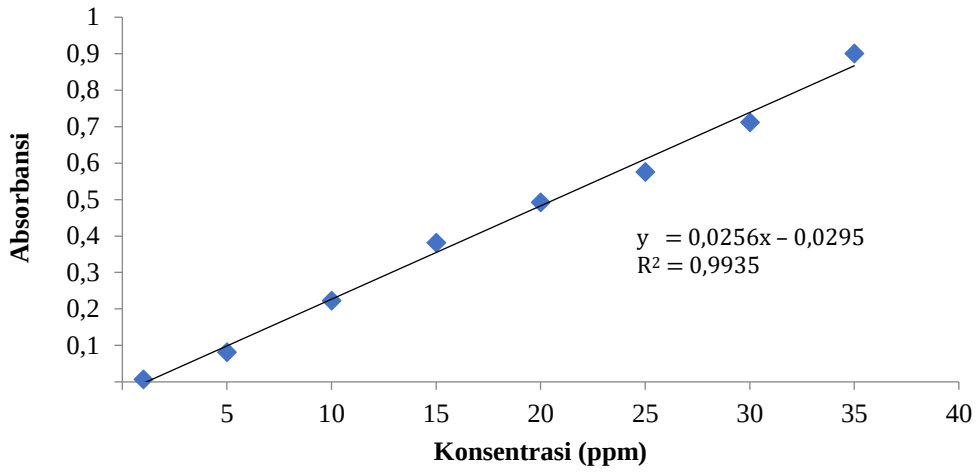

Hasil absorbansi dihasilkan pada panjang gelombang 434 nm

Perhitungan kurva baku standar (kuersetin)

Hasil absorbansi larutan standar

| Konsentrasi (ppm) | Absorbansi (1) | Absorbansi (2) | Absorbansi (3) | Absorbansi rata-rata ± SD | CV (%) |
|---|---|---|---|---|---|
| 1 | 0,008 | 0,008 | 0,006 | 0,0073 ± 0,0011 | 15,7459 |
| 5 | 0,082 | 0,082 | 0,08 | 0,0813 ± 0,0011 | 1,4197 |
| 10 | 0,23 | 0,23 | 0,21 | 0,2233 ± 0,0115 | 5,4197 |
| 15 | 0,383 | 0,383 | 0,381 | 0,3823 ± 0,0011 | 0,3020 |
| 20 | 0,493 | 0,492 | 0,493 | 0,4926 ± 0,0005 | 0,1171 |
| 25 | 0,576 | 0,576 | 0,575 | 0,5756 ± 0,0005 | 0,1002 |
| 30 | 0,712 | 0,711 | 0,713 | 0,7120 ± 0,0010 | 0,1404 |
| 35 | 0,901 | 0,9 | 0,901 | 0,9006 ± 0,0005 | 0,0641 |

**Lampiran 5. (Lanjutan)**




Penetapan kadar flavonoid total ekstrak etanol kulit buah petai

| Sampel | Absorbansi | Faktor pengenceran | Kadar dalam 1 g (mg) |
|---|---|---|---|
| Replikasi 1 | 0,066 | 10 | 37,3046 |
| Replikasi 2 | 0,065 | 10 | 36,9140 |
| Replikasi 3 | 0,067 | 10 | 37,6953 |
| Rata-rata ± SD | 0,066 ± 0,001 | | |
| CV (%) | 1,5151 | | |

Persamaan regresi pada kurva kalibrasi y = 0,256x – 0,295

$X = (y + 0{,}0295) / 0{,}0256$

$X = (0{,}066 + 0{,}0295) / 0{,}0256$

$X = 3{,}730\ \mu g/mL$

Total flavonoid ekstrak $= \frac{X\left(\frac{mg}{mL}\right) \text{ x Volume sampel (L)}}{\text{Berat sampel (g)}}$ x Faktor pengenceran

$= \frac{3{,}730\left(\frac{mg}{mL}\right) \text{ x } 0{,}005 \text{ (L)}}{0{,}005 \text{ (g)}}$ x 10

$= 37{,}30\ mg/g$

Persentase $= \frac{3{,}730 \text{ (ppm)}}{100 \text{ (ppm)}} \text{ x } 100\%$

$= 3{,}730\%$

Jadi, dalam 1 g ekstrak mengandung 37,30 mg flavonoid dengan presentase sebesar 3,730%

**Lampiran 5. (Lanjutan)**

**Hasil absorbansi sediaan**

| Replikasi | Absorbansi |
|---|---|
| 1 | 0,026 |
| 2 | 0,025 |
| 3 | 0,022 |
| Rata-rata | 0,024 |

Total flavonoid dalam sediaan

Persamaan regresi pada kurva kalibrasi y = 0,256x – 0,295

$X = (y + 0{,}0295) / 0{,}0256$

$X = (0{,}024 + 0{,}0295) / 0{,}0256$

$X = 2{,}1028$ µg/mL

Total flavonoid ekstrak $= \frac{X\left(\frac{mg}{mL}\right) \text{ x Volume sampel (L)}}{\text{Berat sampel (g)}}$ x Faktor pengenceran

$= \frac{2{,}1028\left(\frac{mg}{mL}\right) \text{ x } 0{,}005 \text{ (L)}}{0{,}05 \text{ (g)}} \text{ x } 10$

$= 2{,}1028$ mg/g

Persentase $= \frac{2{,}1028 \text{ (ppm)}}{100 \text{ (ppm)}} \text{ x } 100\%$

$= 2, 1028\ \%$

Dalam 100 mL sediaan *spray lotion* terdapat 7,5 g ekstrak, sehingga :

Total flavonoid dalam sediaan = 7,5 g x 37,30 mg/g

= 279,75 mg

Dalam 1 mL terdapat 2,797 mg flavonoid

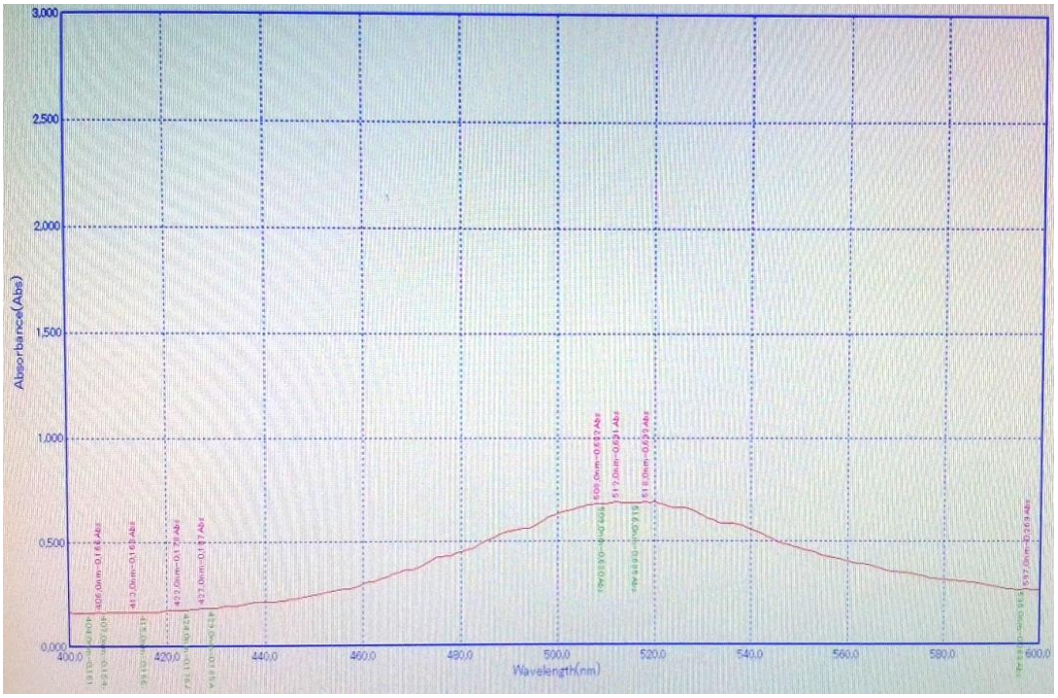
% Perolehan kembali (recovery) $= \frac{Kadar\ didapat}{Kadar\ sebenarnya}\ x\ 100\%$

$= \frac{2{,}1678\ mg}{2{,}797\ mg}\ x\ 100\%$

$= 77{,}5104\ \%$

**Lampiran 6. Penentuan Panjang Gelombang Maksimum DPPH**

Panjang gelombang maksimum DPPH: 518 nm

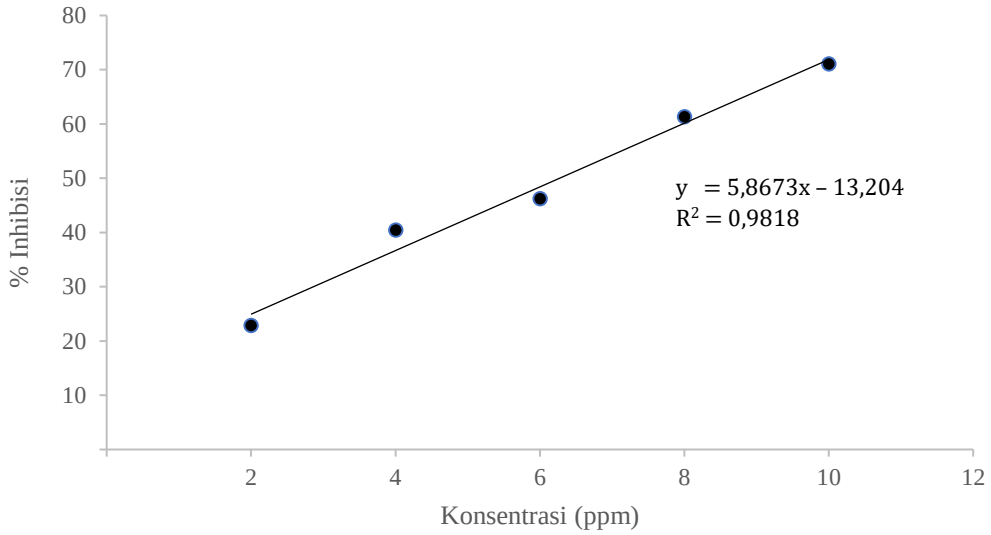


**Lampiran 7. Perhitungan $IC_{50}$ Ekstrak dan Sediaan *Spray Lotion***

Absorbansi larutan kontrol = 0,98

1. Larutan Pembanding Kuersetin

| Kons | I | | II | | III | | Rata-rata | |
|---|---|---|---|---|---|---|---|---|
| | Abs | %Inhibisi | Abs | %Inhibisi | Abs | %Inhibisi | Abs | %Inhibisi |
| 2 | 0,753 | 23,163 | 0,754 | 18,925 | 0,761 | 18,172 | 0,756 | 22,857 |
| 4 | 0,583 | 40,510 | 0,586 | 36,989 | 0,581 | 37,527 | 0,583 | 40,476 |
| 6 | 0,529 | 46,020 | 0,525 | 43,548 | 0,526 | 43,441 | 0,527 | 46,259 |
| 8 | 0,379 | 61,327 | 0,381 | 59,032 | 0,376 | 59,570 | 0,379 | 61,361 |
| 10 | 0,284 | 71,020 | 0,285 | 69,355 | 0,281 | 69,785 | 0,283 | 71,088 |




$IC_{50}$ kuersetin

y $= 5{,}8673x + 13{,}204$

50 $= 5{,}8673x + 13{,}204$

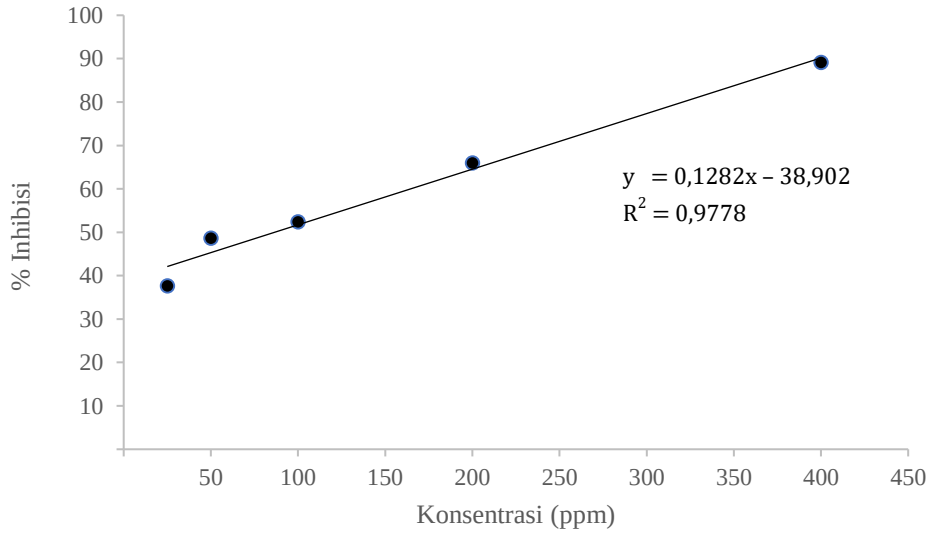
x $= \frac{50-13{,}204}{5{,}8673}$

x $= 6{,}271368$ ppm

2. Ekstrak etanol kulit buah petai

Absorbansi larutan kontrol = 0,98

| Kons | I | | II | | III | | Rata-rata | |
|---|---|---|---|---|---|---|---|---|
| | Abs | % Inhibisi | Abs | % Inhibisi | Abs | % Inhibisi | Abs | % Inhibisi |
| 25 | 0,612 | 37,551 | 0,610 | 34,409 | 0,611 | 34,301 | 0,611 | 37,653 |
| 50 | 0,505 | 48,469 | 0,502 | 46,022 | 0,503 | 45,914 | 0,503 | 48,639 |
| 100 | 0,465 | 52,551 | 0,463 | 50,215 | 0,471 | 49,355 | 0,466 | 52,415 |
| 200 | 0,334 | 65,918 | 0,333 | 64,161 | 0,332 | 64,301 | 0,333 | 66,010 |
| 400 | 0,109 | 88,878 | 0,105 | 88,710 | 0,106 | 88,602 | 0,107 | 89,116 |




$IC_{50}$ ekstrak etanol kulit buah petai

y $= 0{,}1282x + 38{,}902$

50 $= 0{,}1282x + 38{,}902$

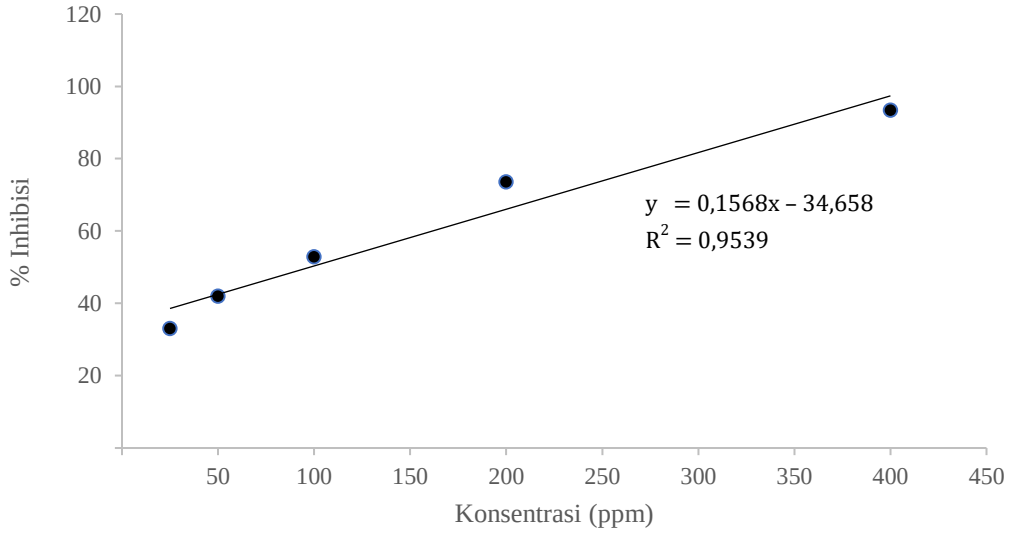
x $= \frac{50 - 38{,}902}{0{,}1282}$

x $= 86{,}56786$ ppm

3. Sediaan *spray lotion* ekstrak etanol kulit buah petai

Absorbansi larutan kontrol = 0,588

| Kons | I | | II | | III | | Rata-rata | |
|---|---|---|---|---|---|---|---|---|
| | Abs | % Inhibisi | Abs | % Inhibisi | Abs | % Inhibisi | Abs | % Inhibisi |
| 25 | 0,394 | 32,993 | 0,392 | 33,333 | 0,395 | 32,823 | 0,393 | 33,049 |
| 50 | 0,342 | 41,836 | 0,339 | 42,346 | 0,343 | 41,666 | 0,341 | 41,950 |
| 100 | 0,279 | 52,551 | 0,276 | 53,061 | 0,277 | 52,891 | 0,277 | 52,834 |
| 200 | 0,155 | 73,639 | 0,154 | 73,809 | 0,157 | 73,299 | 0,155 | 73,582 |
| 400 | 0,039 | 93,367 | 0,036 | 93,877 | 0,042 | 92,857 | 0,039 | 93,367 |




$IC_{50}$ *spray lotion* ekstrak etanol kulit buah petai

y $= 0{,}1568x + 34{,}658$

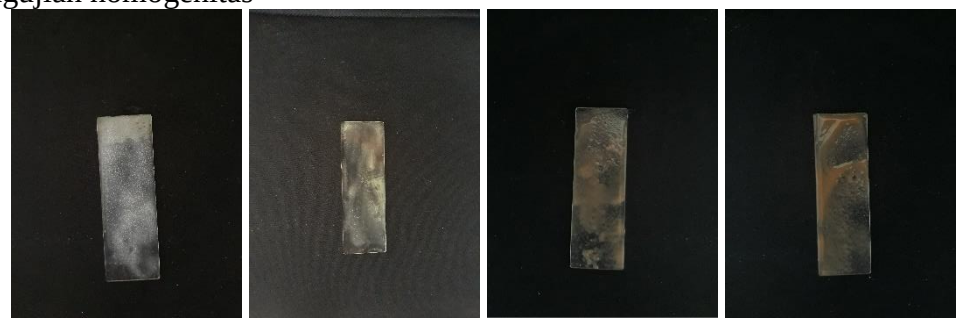
50 $= 0{,}1568x + 34{,}658$

x $= \frac{50-34{,}658}{0{,}1568}$

x $= 97{,}84438$ ppm

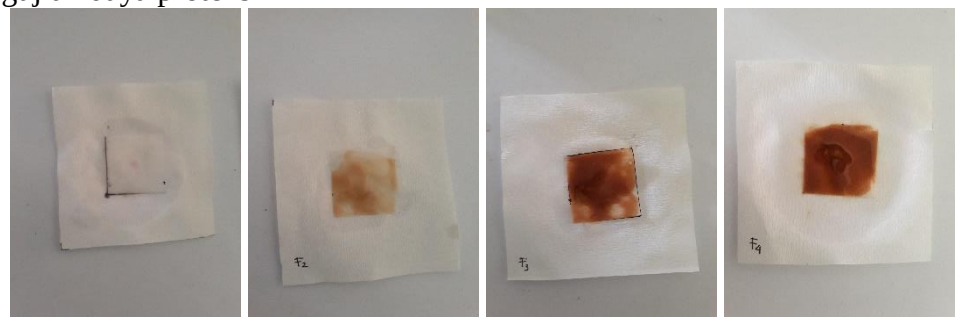
**Lampiran 8. Evaluasi Sediaan *Spray Lotion* Ekstrak Etanol Kulit Buah Petai**

Pengujian homogenitas



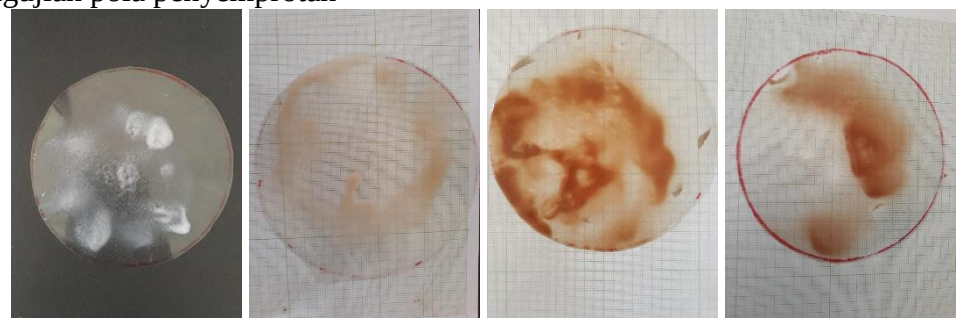
F I F II F III F IV

Pengujian daya proteksi



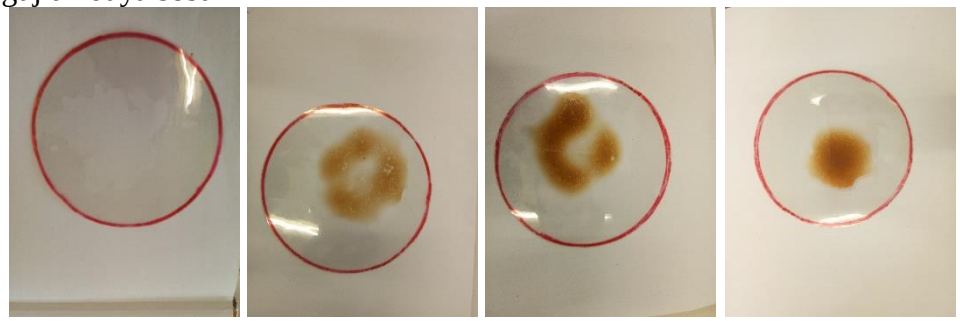
F I F II F III F IV

Pengujian pola penyemprotan



F I F II F III F IV

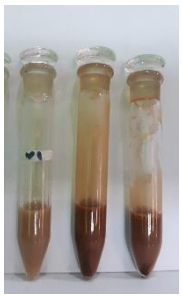
Pengujian daya sebar



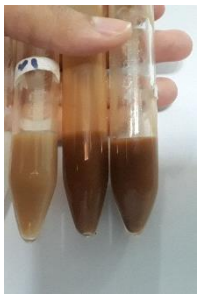
F I F II F III F IV

**Lampiran 8. (Lanjutan)**

Pengujian stabilitas *centrifugal test*



sebelum disentrifugasi



setelah disentrifugasi

Pengujian stabilitas *cycling test*

sebelum diuji

setelah diuji

## Lampiran 9. Perhitungan Nilai SPF

Nivea® *Sun Protect & Moisture Spray* SPF 30

**Nilai Absorbansi Nivea® *Sun Protect & Moisture Spray* SPF 30**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,165 | 1,167 | 1,167 |
| 300 | 1,351 | 1,358 | 1,354 |
| 310 | 1,347 | 1,351 | 1,355 |
| 320 | 1,874 | 1,878 | 1,878 |
| 330 | 1,038 | 1,037 | 1,038 |
| 340 | 0,507 | 0,506 | 0,507 |
| 350 | 0,374 | 0,373 | 0,374 |
| 360 | 0,352 | 0,352 | 0,352 |
| 370 | 0,276 | 0,276 | 0,276 |
| 380 | 0,195 | 0,195 | 0,195 |
| 390 | 0,062 | 0,062 | 0,062 |
| 400 | 0,019 | 0,019 | 0,019 |

**Nilai AUC dan SPF *Nivea® Sun Protect & Moisture Spray* SPF 30**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 12,580 | 12,625 | 12,605 |
| 300-310 | 13,490 | 13,545 | 13,545 |
| 310-320 | 16,105 | 16,145 | 16,165 |
| 320-330 | 14,560 | 14,575 | 14,580 |
| 330-340 | 7,725 | 7,715 | 7,725 |
| 340-350 | 4,405 | 4,395 | 4,405 |
| 350-360 | 3,630 | 3,625 | 3,630 |
| 360-370 | 3,140 | 3,140 | 3,140 |
| 370-380 | 2,355 | 2,355 | 2,355 |
| 380-390 | 1,285 | 1,285 | 1,285 |
| 390-400 | 0,405 | 0,405 | 0,405 |
| **Total AUC** | 79,680 | 79,810 | 79,840 |
| **Log SPF** | 1,449 | 1,451 | 1,452 |
| **SPF** | **28,101** | **28,255** | **28,290** |

**Lampiran 9. (Lanjutan)**

Ekstrak kulit buah petai 5000 ppm

**Nilai absorbansi ekstrak kulit buah petai 5000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,001 | 1,001 | 1,001 |
| 300 | 0,756 | 0,756 | 0,757 |
| 310 | 0,500 | 0,501 | 0,501 |
| 320 | 0,307 | 0,307 | 0,307 |
| 330 | 0,228 | 0,228 | 0,225 |
| 340 | 0,192 | 0,193 | 0,189 |
| 350 | 0,166 | 0,166 | 0,162 |
| 360 | 0,141 | 0,141 | 0,137 |
| 370 | 0,116 | 0,117 | 0,113 |
| 380 | 0,095 | 0,095 | 0,091 |
| 390 | 0,077 | 0,077 | 0,074 |
| 400 | 0,063 | 0,063 | 0,060 |

**Nilai AUC dan SPF ekstrak kulit buah petai 5000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 8,785 | 8,785 | 8,790 |
| 300-310 | 6,280 | 6,285 | 6,290 |
| 310-320 | 4,035 | 4,040 | 4,040 |
| 320-330 | 2,675 | 2,675 | 2,660 |
| 330-340 | 2,100 | 2,105 | 2,070 |
| 340-350 | 1,790 | 1,795 | 1,755 |
| 350-360 | 1,535 | 1,535 | 1,495 |
| 360-370 | 1,285 | 1,290 | 1,250 |
| 370-380 | 1,055 | 1,060 | 1,020 |
| 380-390 | 0,860 | 0,860 | 0,825 |
| 390-400 | 0,700 | 0,700 | 0,670 |
| **Total AUC** | 31,100 | 31,130 | 30,865 |
| **Log SPF** | 0,565 | 0,566 | 0,561 |
| **SPF** | **3,677** | **3,681** | **3,641** |

**Lampiran 9. (Lanjutan)**

Ekstrak kulit buah petai 10000 ppm

**Nilai Absorbansi Ekstrak kulit buah petai 10000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,497 | 1,496 | 1,496 |
| 300 | 1,133 | 1,133 | 1,133 |
| 310 | 0,751 | 0,751 | 0,751 |
| 320 | 0,462 | 0,462 | 0,463 |
| 330 | 0,344 | 0,345 | 0,344 |
| 340 | 0,291 | 0,291 | 0,292 |
| 350 | 0,252 | 0,252 | 0,252 |
| 360 | 0,216 | 0,215 | 0,216 |
| 370 | 0,180 | 0,180 | 0,180 |
| 380 | 0,147 | 0,147 | 0,147 |
| 390 | 0,119 | 0,119 | 0,119 |
| 400 | 0,097 | 0,097 | 0,097 |

**Nilai AUC dan SPF Ekstrak kulit buah petai 10000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 13,150 | 13,145 | 13,145 |
| 300-310 | 9,420 | 9,420 | 9,420 |
| 310-320 | 6,065 | 6,065 | 6,070 |
| 320-330 | 4,030 | 4,035 | 4,035 |
| 330-340 | 3,175 | 3,180 | 3,180 |
| 340-350 | 2,715 | 2,715 | 2,720 |
| 350-360 | 2,340 | 2,335 | 2,340 |
| 360-370 | 1,980 | 1,975 | 1,980 |
| 370-380 | 1,635 | 1,635 | 1,635 |
| 380-390 | 1,330 | 1,330 | 1,330 |
| 390-400 | 1,080 | 1,080 | 1,080 |
| **Total AUC** | 46,920 | 46,915 | 46,935 |
| **Log SPF** | 0,853 | 0,853 | 0,853 |
| **SPF** | **7,130** | **7,129** | **7,135** |

**Lampiran 9. (Lanjutan)**

Ekstrak kulit buah petai 15000 ppm

**Nilai Absorbansi Ekstrak kulit buah petai 10000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,684 | 1,685 | 1,687 |
| 300 | 1,307 | 1,309 | 1,307 |
| 310 | 0,986 | 0,985 | 0,987 |
| 320 | 0,658 | 0,659 | 0,659 |
| 330 | 0,485 | 0,486 | 0,486 |
| 340 | 0,410 | 0,410 | 0,410 |
| 350 | 0,351 | 0,352 | 0,351 |
| 360 | 0,298 | 0,298 | 0,297 |
| 370 | 0,246 | 0,246 | 0,245 |
| 380 | 0,200 | 0,200 | 0,199 |
| 390 | 0,161 | 0,162 | 0,161 |
| 400 | 0,133 | 0,133 | 0,133 |

**Nilai AUC dan SPF Ekstrak kulit buah petai 15000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 14,955 | 14,970 | 14,970 |
| 300-310 | 11,465 | 11,470 | 11,470 |
| 310-320 | 8,220 | 8,220 | 8,230 |
| 320-330 | 5,715 | 5,725 | 5,725 |
| 330-340 | 4,475 | 4,480 | 4,480 |
| 340-350 | 3,805 | 3,810 | 3,805 |
| 350-360 | 3,245 | 3,250 | 3,240 |
| 360-370 | 2,720 | 2,720 | 2,710 |
| 370-380 | 2,230 | 2,230 | 2,220 |
| 380-390 | 1,805 | 1,810 | 1,800 |
| 390-400 | 1,470 | 1,475 | 1,470 |
| **Total AUC** | 60,105 | 60,160 | 60,120 |
| **Log SPF** | 1,093 | 1,094 | 1,093 |
| **SPF** | **12,383** | **12,411** | **12,391** |

**Lampiran 9. (Lanjutan)**

Sediaan *spray lotion* ekstrak kulit buah petai (0%)

**Nilai Absorbansi Sediaan *spray lotion* ekstrak kulit buah petai (0%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 0,027 | 0,028 | 0,028 |
| 300 | 0,021 | 0,021 | 0,021 |
| 310 | 0,016 | 0,017 | 0,016 |
| 320 | 0,013 | 0,014 | 0,014 |
| 330 | 0,011 | 0,012 | 0,011 |
| 340 | 0,012 | 0,012 | 0,011 |
| 350 | 0,011 | 0,011 | 0,011 |
| 360 | 0,010 | 0,010 | 0,010 |
| 370 | 0,009 | 0,009 | 0,009 |
| 380 | 0,009 | 0,009 | 0,008 |
| 390 | 0,008 | 0,008 | 0,008 |
| 400 | 0,008 | 0,008 | 0,008 |

**Nilai AUC dan SPF Sediaan *spray lotion* ekstrak kulit buah petai (0%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 0,240 | 0,245 | 0,245 |
| 300-310 | 0,185 | 0,190 | 0,185 |
| 310-320 | 0,145 | 0,155 | 0,150 |
| 320-330 | 0,120 | 0,130 | 0,125 |
| 330-340 | 0,115 | 0,120 | 0,110 |
| 340-350 | 0,115 | 0,115 | 0,110 |
| 350-360 | 0,105 | 0,105 | 0,105 |
| 360-370 | 0,095 | 0,095 | 0,095 |
| 370-380 | 0,090 | 0,090 | 0,085 |
| 380-390 | 0,085 | 0,085 | 0,080 |
| 390-400 | 0,080 | 0,080 | 0,080 |
| **Total AUC** | 1,375 | 1,410 | 1,370 |
| **Log SPF** | 0,025 | 0,026 | 0,025 |
| **SPF** | **1,059** | **1,061** | **1,059** |

**Lampiran 9. (Lanjutan)**

Sediaan *spray lotion* ekstrak kulit buah petai (2,5%)

**Nilai Absorbansi Sediaan *spray lotion* ekstrak kulit buah petai (2,5%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 0,444 | 0,443 | 0,444 |
| 300 | 0,332 | 0,332 | 0,332 |
| 310 | 0,221 | 0,221 | 0,221 |
| 320 | 0,139 | 0,138 | 0,138 |
| 330 | 0,105 | 0,106 | 0,106 |
| 340 | 0,091 | 0,090 | 0,091 |
| 350 | 0,081 | 0,080 | 0,081 |
| 360 | 0,070 | 0,070 | 0,071 |
| 370 | 0,060 | 0,060 | 0,060 |
| 380 | 0,051 | 0,050 | 0,051 |
| 390 | 0,041 | 0,042 | 0,043 |
| 400 | 0,037 | 0,037 | 0,037 |

**Nilai AUC dan SPF Sediaan *spray lotion* ekstrak kulit buah petai (0%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 3,880 | 3,875 | 3,880 |
| 300-310 | 2,765 | 2,765 | 2,765 |
| 310-320 | 1,800 | 1,795 | 1,795 |
| 320-330 | 1,220 | 1,220 | 1,220 |
| 330-340 | 0,980 | 0,980 | 0,985 |
| 340-350 | 0,860 | 0,850 | 0,860 |
| 350-360 | 0,755 | 0,750 | 0,760 |
| 360-370 | 0,650 | 0,650 | 0,655 |
| 370-380 | 0,555 | 0,550 | 0,555 |
| 380-390 | 0,460 | 0,460 | 0,470 |
| 390-400 | 0,390 | 0,395 | 0,400 |
| **Total AUC** | 14,315 | 14,290 | 14,345 |
| **Log SPF** | 0,260 | 0,260 | 0,261 |
| **SPF** | **1,821** | **1,819** | **1,823** |

**Lampiran 9. (Lanjutan)**

Sediaan *spray lotion* ekstrak kulit buah petai (5%)

**Nilai Absorbansi Sediaan *spray lotion* ekstrak kulit buah petai (5%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 0,900 | 0,900 | 0,901 |
| 300 | 0,723 | 0,724 | 0,724 |
| 310 | 0,540 | 0,540 | 0,540 |
| 320 | 0,382 | 0,382 | 0,383 |
| 330 | 0,229 | 0,299 | 0,299 |
| 340 | 0,256 | 0,255 | 0,255 |
| 350 | 0,224 | 0,223 | 0,223 |
| 360 | 0,196 | 0,195 | 0,195 |
| 370 | 0,167 | 0,167 | 0,167 |
| 380 | 0,142 | 0,142 | 0,142 |
| 390 | 0,120 | 0,120 | 0,120 |
| 400 | 0,103 | 0,103 | 0,103 |

**Nilai AUC dan SPF Sediaan *spray lotion* ekstrak kulit buah petai (5%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 8,115 | 8,120 | 8,125 |
| 300-310 | 6,315 | 6,320 | 6,320 |
| 310-320 | 4,610 | 4,610 | 4,615 |
| 320-330 | 3,055 | 3,405 | 3,410 |
| 330-340 | 2,425 | 2,770 | 2,770 |
| 340-350 | 2,400 | 2,390 | 2,390 |
| 350-360 | 2,100 | 2,090 | 2,090 |
| 360-370 | 1,815 | 1,810 | 1,810 |
| 370-380 | 1,545 | 1,545 | 1,545 |
| 380-390 | 1,310 | 1,310 | 1,310 |
| 390-400 | 1,115 | 1,115 | 1,115 |
| **Total AUC** | 34,805 | 35,485 | 35,500 |
| **Log SPF** | 0,633 | 0,645 | 0,645 |
| **SPF** | **4,294** | **4,418** | **4,420** |

**Lampiran 9. (Lanjutan)**

Sediaan *spray lotion* ekstrak kulit buah petai (7,5%)

**Nilai Absorbansi Sediaan *spray lotion* ekstrak kulit buah petai (7,5%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,332 | 1,332 | 1,333 |
| 300 | 1,053 | 1,053 | 1,053 |
| 310 | 0,762 | 0,763 | 0,762 |
| 320 | 0,518 | 0,518 | 0,519 |
| 330 | 0,399 | 0,399 | 0,400 |
| 340 | 0,339 | 0,340 | 0,340 |
| 350 | 0,297 | 0,298 | 0,297 |
| 360 | 0,258 | 0,259 | 0,258 |
| 370 | 0,219 | 0,219 | 0,219 |
| 380 | 0,184 | 0,184 | 0,184 |
| 390 | 0,154 | 0,154 | 0,154 |
| 400 | 0,131 | 0,131 | 0,131 |

**Nilai AUC dan SPF Sediaan *spray lotion* ekstrak kulit buah petai (7,5%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 11,925 | 11,925 | 11,930 |
| 300-310 | 9,075 | 9,080 | 9,075 |
| 310-320 | 6,400 | 6,405 | 6,405 |
| 320-330 | 4,585 | 4,585 | 4,595 |
| 330-340 | 3,690 | 3,695 | 3,700 |
| 340-350 | 3,180 | 3,190 | 3,185 |
| 350-360 | 2,775 | 2,785 | 2,775 |
| 360-370 | 2,385 | 2,390 | 2,385 |
| 370-380 | 2,015 | 2,015 | 2,015 |
| 380-390 | 1,690 | 1,690 | 1,690 |
| 390-400 | 1,425 | 1,425 | 1,425 |
| **Total AUC** | 49,145 | 49,185 | 49,180 |
| **Log SPF** | 0,894 | 0,894 | 0,894 |
| **SPF** | **7,826** | **7,839** | **7,838** |

**Lampiran 10. Dokumentasi Pembuatan Ekstrak**

Penimbangan buah petai segar

Pemisahan biji dan kulit buah petai

Hasil pemisahan biji dan kulit petai

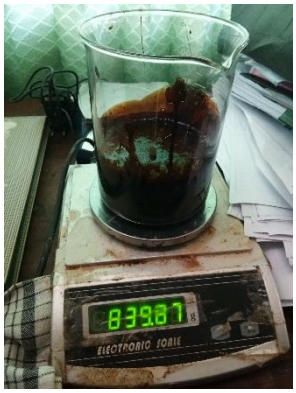
Pengeringan kulit buah petai dibawah sinar matahari

Simplisia kulit buah petai setengah kering


Proses maserasi simplisia kulit buah petai dengan etanol 70%

Proses filtrasi etanol 70% hasil maserasi

Hasil ekstrak setelah diuapkan dengan *rotary evaporator*




Penimbangan ekstrak untuk perhitungan rendemen

## Lampiran 11. Perhitungan Stabilitas terhadap paparan sinar matahari

*Nivea® Sun Protect & Moisture Spray* SPF 30

**Nilai Absorbansi Nivea® *Sun Protect & Moisture Spray* SPF 30**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,385 | 1,386 | 1,387 |
| 300 | 1,545 | 1,545 | 1,546 |
| 310 | 1,581 | 1,582 | 1,582 |
| 320 | 1,579 | 1,580 | 1,581 |
| 330 | 1,045 | 1,046 | 1,046 |
| 340 | 0,329 | 0,329 | 0,330 |
| 350 | 0,243 | 0,243 | 0,243 |
| 360 | 0,231 | 0,231 | 0,231 |
| 370 | 0,182 | 0,182 | 0,182 |
| 380 | 0,127 | 0,128 | 0,128 |
| 390 | 0,038 | 0,038 | 0,038 |
| 400 | 0,006 | 0,006 | 0,007 |

**Nilai AUC Nivea® *Sun Protect & Moisture Spray* SPF 30**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 14,650 | 14,655 | 14,665 |
| 300-310 | 15,630 | 15,635 | 15,640 |
| 310-320 | 15,800 | 15,810 | 15,815 |
| 320-330 | 13,120 | 13,130 | 13,135 |
| 330-340 | 6,870 | 6,875 | 6,880 |
| 340-350 | 2,860 | 2,860 | 2,865 |
| 350-360 | 2,370 | 2,370 | 2,370 |
| 360-370 | 2,065 | 2,065 | 2,065 |
| 370-380 | 1,545 | 1,550 | 1,550 |
| 380-390 | 0,825 | 0,830 | 0,830 |
| 390-400 | 0,220 | 0,220 | 0,225 |
| **Total AUC** | 75,955 | 76,000 | 76,040 |
| **Rata-rata** | | 75,998 | |
| **Rata-rata sebelum** | | 79,777 | |
| **Rasio AUC** | | **0,953** | |

**Lampiran 11. (Lanjutan)**

Ekstrak kulit buah petai 15000 ppm

**Nilai Absorbansi Ekstrak kulit buah petai 15000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,471 | 1,472 | 1,471 |
| 300 | 1,122 | 1,120 | 1,121 |
| 310 | 1,102 | 1,101 | 1,104 |
| 320 | 0,857 | 0,857 | 0,857 |
| 330 | 0,519 | 0,518 | 0,519 |
| 340 | 0,457 | 0,458 | 0,456 |
| 350 | 0,219 | 0,219 | 0,219 |
| 360 | 0,184 | 0,184 | 0,185 |
| 370 | 0,144 | 0,144 | 0,144 |
| 380 | 0,107 | 0,107 | 0,107 |
| 390 | 0,073 | 0,072 | 0,073 |
| 400 | 0,052 | 0,051 | 0,051 |

**Nilai AUC Ekstrak kulit buah petai 15000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 12,965 | 12,960 | 12,960 |
| 300-310 | 11,120 | 11,105 | 11,125 |
| 310-320 | 9,795 | 9,790 | 9,805 |
| 320-330 | 6,880 | 6,875 | 6,880 |
| 330-340 | 4,880 | 4,880 | 4,875 |
| 340-350 | 3,380 | 3,385 | 3,375 |
| 350-360 | 2,015 | 2,015 | 2,020 |
| 360-370 | 1,640 | 1,640 | 1,645 |
| 370-380 | 1,255 | 1,255 | 1,255 |
| 380-390 | 0,900 | 0,895 | 0,900 |
| 390-400 | 0,625 | 0,615 | 0,620 |
| **Total AUC** | 55,455 | 55,415 | 55,460 |
| **Rata-rata** | | 55,443 | |
| **Rata-rata sebelum** | | 60,128 | |
| **Rasio AUC** | | 0,922 | |

**Lampiran 11. (Lanjutan)**

Sediaan *spray lotion* ekstrak kulit buah petai (7,5%)

**Nilai Absorbansi Ekstrak kulit buah petai 15000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,383 | 1,383 | 1,382 |
| 300 | 1,044 | 1,044 | 1,045 |
| 310 | 0,783 | 0,782 | 0,783 |
| 320 | 0,503 | 0,502 | 0,503 |
| 330 | 0,374 | 0,374 | 0,273 |
| 340 | 0,219 | 0,219 | 0,218 |
| 350 | 0,184 | 0,184 | 0,185 |
| 360 | 0,153 | 0,154 | 0,153 |
| 370 | 0,117 | 0,117 | 0,118 |
| 380 | 0,085 | 0,085 | 0,084 |
| 390 | 0,055 | 0,056 | 0,055 |
| 400 | 0,038 | 0,038 | 0,037 |

**Nilai AUC Sediaan *spray lotion* ekstrak kulit buah petai (7,5%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 12,135 | 12,135 | 12,135 |
| 300-310 | 9,135 | 9,130 | 9,140 |
| 310-320 | 6,430 | 6,420 | 6,430 |
| 320-330 | 4,385 | 4,380 | 3,880 |
| 330-340 | 2,965 | 2,965 | 2,455 |
| 340-350 | 2,015 | 2,015 | 2,015 |
| 350-360 | 1,685 | 1,690 | 1,690 |
| 360-370 | 1,350 | 1,355 | 1,355 |
| 370-380 | 1,010 | 1,010 | 1,010 |
| 380-390 | 0,700 | 0,705 | 0,695 |
| 390-400 | 0,465 | 0,470 | 0,460 |
| **Total AUC** | 42,275 | 42,275 | 41,265 |
| **Rata-rata** | | 41,938 | |
| **Rata-rata sebelum** | | 49,170 | |
| **Rasio AUC** | | 0,853 | |

## Lampiran 12. Perhitungan Stabilitas terhadap paparan lampu LED

*Nivea® Sun Protect & Moisture Spray* SPF 30

**Nilai Absorbansi *Nivea® Sun Protect & Moisture Spray* SPF 30**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,069 | 1,07 | 1,07 |
| 300 | 1,198 | 1,199 | 1,198 |
| 310 | 1,229 | 1,23 | 1,229 |
| 320 | 1,959 | 1,959 | 1,959 |
| 330 | 1,702 | 1,703 | 1,703 |
| 340 | 0,337 | 0,338 | 0,337 |
| 350 | 0,252 | 0,252 | 0,252 |
| 360 | 0,245 | 0,245 | 0,245 |
| 370 | 0,198 | 0,198 | 0,197 |
| 380 | 0,143 | 0,143 | 0,142 |
| 390 | 0,046 | 0,046 | 0,046 |
| 400 | 0,008 | 0,009 | 0,009 |

**Nilai AUC *Nivea® Sun Protect & Moisture Spray* SPF 30**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 11,335 | 11,345 | 11,340 |
| 300-310 | 12,135 | 12,145 | 12,135 |
| 310-320 | 15,940 | 15,945 | 15,940 |
| 320-330 | 18,305 | 18,310 | 18,310 |
| 330-340 | 10,195 | 10,205 | 10,200 |
| 340-350 | 2,945 | 2,950 | 2,945 |
| 350-360 | 2,485 | 2,485 | 2,485 |
| 360-370 | 2,215 | 2,215 | 2,210 |
| 370-380 | 1,705 | 1,705 | 1,695 |
| 380-390 | 0,945 | 0,945 | 0,940 |
| 390-400 | 0,270 | 0,275 | 0,275 |
| **Total AUC** | 78,475 | 78,525 | 78,475 |
| **Rata-rata** | | 78,492 | |
| **Rata-rata sebelum** | | 79,777 | |
| **Rasio AUC** | | **0,983** | |

**Lampiran 12. (Lanjutan)**

Ekstrak kulit buah petai 15000 ppm

**Nilai Absorbansi Ekstrak kulit buah petai 15000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,07 | 1,071 | 1,069 |
| 300 | 1,198 | 1,199 | 1,198 |
| 310 | 1,229 | 1,23 | 1,229 |
| 320 | 0,959 | 0,958 | 0,959 |
| 330 | 0,702 | 0,703 | 0,702 |
| 340 | 0,337 | 0,338 | 0,337 |
| 350 | 0,252 | 0,253 | 0,254 |
| 360 | 0,245 | 0,245 | 0,243 |
| 370 | 0,198 | 0,199 | 0,197 |
| 380 | 0,143 | 0,142 | 0,142 |
| 390 | 0,046 | 0,046 | 0,045 |
| 400 | 0,008 | 0,009 | 0,009 |

**Nilai AUC Ekstrak kulit buah petai 15000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 11,340 | 11,350 | 11,335 |
| 300-310 | 12,135 | 12,145 | 12,135 |
| 310-320 | 10,940 | 10,940 | 10,940 |
| 320-330 | 8,305 | 8,305 | 8,305 |
| 330-340 | 5,195 | 5,205 | 5,195 |
| 340-350 | 2,945 | 2,955 | 2,955 |
| 350-360 | 2,485 | 2,490 | 2,485 |
| 360-370 | 2,215 | 2,220 | 2,200 |
| 370-380 | 1,705 | 1,705 | 1,695 |
| 380-390 | 0,945 | 0,940 | 0,935 |
| 390-400 | 0,270 | 0,275 | 0,270 |
| **Total AUC** | 58,480 | 58,530 | 58,450 |
| **Rata-rata** | | 58,487 | |
| **Rata-rata sebelum** | | 60,128 | |
| **Rasio AUC** | | **0,973** | |

**Lampiran 12. (Lanjutan)**

Sediaan *spray lotion* ekstrak kulit buah petai (7,5%)

**Nilai Absorbansi Ekstrak kulit buah petai 15000 ppm**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290 | 1,213 | 1,213 | 1,213 |
| 300 | 0,968 | 0,968 | 0,969 |
| 310 | 0,715 | 0,714 | 0,715 |
| 320 | 0,497 | 0,496 | 0,497 |
| 330 | 0,383 | 0,383 | 0,383 |
| 340 | 0,327 | 0,327 | 0,327 |
| 350 | 0,290 | 0,289 | 0,289 |
| 360 | 0,256 | 0,256 | 0,256 |
| 370 | 0,222 | 0,221 | 0,221 |
| 380 | 0,189 | 0,189 | 0,189 |
| 390 | 0,159 | 0,159 | 0,158 |
| 400 | 0,135 | 0,134 | 0,134 |

**Nilai AUC Sediaan *spray lotion* ekstrak kulit buah petai (7,5%)**

| Panjang gelombang | Replikasi 1 | Replikasi 2 | Replikasi 3 |
|---|---|---|---|
| 290-300 | 10,905 | 10,905 | 10,910 |
| 300-310 | 8,415 | 8,410 | 8,420 |
| 310-320 | 6,060 | 6,050 | 6,060 |
| 320-330 | 4,400 | 4,395 | 4,400 |
| 330-340 | 3,550 | 3,550 | 3,550 |
| 340-350 | 3,085 | 3,080 | 3,080 |
| 350-360 | 2,730 | 2,725 | 2,725 |
| 360-370 | 2,390 | 2,385 | 2,385 |
| 370-380 | 2,055 | 2,050 | 2,050 |
| 380-390 | 1,740 | 1,740 | 1,735 |
| 390-400 | 1,470 | 1,465 | 1,460 |
| **Total AUC** | 46,800 | 46,755 | 46,775 |
| **Rata-rata** | | 46,777 | |
| **Rata-rata sebelum** | | 49,170 | |
| **Rasio AUC** | | **0,951** | |

**Lampiran 12. (Lanjutan)**

% Penurunan SPF paparan matahari

Ekstrak 1500 ppm

$$\%\text{penurunan} = \frac{SPF\ sebelum - SPF\ setelah}{SPF\ sebelum}\ x\ 100\%$$

$$= \frac{12{,}395 - 10{,}187}{12{,}395}\ x\ 100\%$$

$$= 17{,}813\ \%$$

Formula IV

$$\%\text{penurunan} = \frac{SPF\ sebelum - SPF\ setelah}{SPF\ sebelum}\ x\ 100\%$$

$$= \frac{7{,}834 - 5{,}789}{7{,}834}\ x\ 100\%$$

$$= 26,737\%$$

Nivea

$$\%\text{penurunan} = \frac{SPF\ sebelum - SPF\ setelah}{SPF\ sebelum}\ x\ 100\%$$

$$= \frac{28{,}215 - 24{,}087}{28{,}215}\ x\ 100\%$$

$$= 14{,}629\ \%$$

% Penurunan SPF paparan lampu

Ekstrak 1500 ppm

$$\%\text{penurunan} = \frac{SPF\ sebelum - SPF\ setelah}{SPF\ sebelum}\ x\ 100\%$$

$$= \frac{12{,}395 - 11{,}572}{12{,}395}\ x\ 100\%$$

$$= 6{,}639\ \%$$

Formula IV

$$\%\text{penurunan} = \frac{SPF\ sebelum - SPF\ setelah}{SPF\ sebelum}\ x\ 100\%$$

$$= \frac{7{,}834 - 7{,}087}{7{,}834}\ x\ 100\%$$

$$= 9,5357\%$$

Nivea

$$\%\text{penurunan} = \frac{SPF\ sebelum - SPF\ setelah}{SPF\ sebelum}\ x\ 100\%$$

$$= \frac{28{,}215 - 26{,}104}{28{,}215}\ x\ 100\%$$

$$= 5{,}238\ \%$$

## Lampiran 13. Hasil Analisis Statistika dengan SPSS®17

Evaluasi pH

***Tests of Normality***

| | | *Kolmogorov-Smirnov*[a] | | | *Shapiro-Wilk* | | |
|---|---|---|---|---|---|---|---|
| | Formula | *Statistic* | *df* | *Sig.* | *Statistic* | *df* | *Sig.* |
| pH | Formula 1 | ,253 | 3 | , | ,964 | 3 | ,637 |
| | Formula 2 | ,219 | 3 | , | ,987 | 3 | ,780 |
| | Formula 3 | ,292 | 3 | , | ,923 | 3 | ,463 |
| | Formula 4 | ,175 | 3 | , | 1,000 | 3 | 1,000 |

**ANOVA**

| | *Sum of Squares* | df | *Mean Square* | F | *Sig.* |
|---|---|---|---|---|---|
| *Between Groups* | ,605 | 3 | ,202 | 576,444 | ,000 |
| *Within Groups* | ,003 | 8 | ,000 | | |
| Total | ,608 | 11 | | | |

***Multiple Comparisons***

| | | | | | | *95% Confidence Interval* | |
|---|---|---|---|---|---|---|---|
| | (I) formula | (J) formula | *Mean Difference (I-J)* | *Std. Error* | *Sig.* | *Lower Bound* | *Upper Bound* |
| Tukey HSD | Formula 1 | Formula 2 | ,47667* | ,01528 | ,000 | ,4277 | ,5256 |
| | | Formula 3 | ,52667* | ,01528 | ,000 | ,4777 | ,5756 |
| | | Formula 4 | ,54333* | ,01528 | ,000 | ,4944 | ,5923 |
| | Formula 2 | Formula 1 | -,47667* | ,01528 | ,000 | -,5256 | -,4277 |
| | | Formula 3 | ,05000* | ,01528 | ,045 | ,0011 | ,0989 |
| | | Formula 4 | ,06667* | ,01528 | ,010 | ,0177 | ,1156 |
| | Formula 3 | Formula 1 | -,52667* | ,01528 | ,000 | -,5756 | -,4777 |
| | | Formula 2 | -,05000* | ,01528 | ,045 | -,0989 | -,0011 |
| | | Formula 4 | ,01667 | ,01528 | ,704 | -,0323 | ,0656 |
| | Formula 4 | Formula 1 | -,54333* | ,01528 | ,000 | -,5923 | -,4944 |
| | | Formula 2 | -,06667* | ,01528 | ,010 | -,1156 | -,0177 |
| | | Formula 3 | -,01667 | ,01528 | ,704 | -,0656 | ,0323 |
| LSD | Formula 1 | Formula 2 | ,47667* | ,01528 | ,000 | ,4414 | ,5119 |
| | | Formula 3 | ,52667* | ,01528 | ,000 | ,4914 | ,5619 |
| | | Formula 4 | ,54333* | ,01528 | ,000 | ,5081 | ,5786 |
| | Formula 2 | Formula 1 | -,47667* | ,01528 | ,000 | -,5119 | -,4414 |
| | | Formula 3 | ,05000* | ,01528 | ,011 | ,0148 | ,0852 |
| | | Formula 4 | ,06667* | ,01528 | ,002 | ,0314 | ,1019 |
| | Formula 3 | Formula 1 | -,52667* | ,01528 | ,000 | -,5619 | -,4914 |
| | | Formula 2 | -,05000* | ,01528 | ,011 | -,0852 | -,0148 |
| | | Formula 4 | ,01667 | ,01528 | ,307 | -,0186 | ,0519 |
| | Formula 4 | Formula 1 | -,54333* | ,01528 | ,000 | -,5786 | -,5081 |
| | | Formula 2 | -,06667* | ,01528 | ,002 | -,1019 | -,0314 |
| | | Formula 3 | -,01667 | ,01528 | ,307 | -,0519 | ,0186 |

**Lampiran 13. (Lanjutan)**

Evaluasi Viskositas

***Tests of Normality***

| | ▪ formula | *Kolmogorov-Smirnov*[a] | | | *Shapiro-Wilk* | | |
|---|---|---|---|---|---|---|---|
| | | *Statistic* | *df* | *Sig.* | *Statistic* | *df* | *Sig.* |
| Viskositas | Formula 1 | 0,175 | 3 | , | 1 | 3 | 1 |
| | Formula 2 | 0,219 | 3 | , | 0,987 | 3 | 0,78 |
| | Formula 3 | 0,292 | 3 | , | 0,923 | 3 | 0,463 |
| | Formula 4 | 0,219 | 3 | , | 0,987 | 3 | 0,78 |

**ANOVA**

| | *Sum of Squares* | df | *Mean Square* | F | *Sig.* |
|---|---|---|---|---|---|
| *Between Groups* | 35,766 | 3 | 11,922 | 42,389 | ,000 |
| *Within Groups* | 2,25 | 8 | 0,281 | | |
| Total | 38,016 | 11 | | | |

***Multiple Comparisons***

| | | | | | | 95% *Confidence Interval* | |
|---|---|---|---|---|---|---|---|
| | (I) formula | (J) formula | *Mean Difference* (I-J) | *Std. Error* | Sig. | *Lower Bound* | *Upper Bound* |
| Tukey HSD | Formula 1 | Formula 2 | -1,83333* | ,43301 | ,012 | -3,2200 | -,4467 |
| | | Formula 3 | -2,08333* | ,43301 | ,006 | -3,4700 | -,6967 |
| | | Formula 4 | -4,83333* | ,43301 | ,000 | -6,2200 | -3,4467 |
| | Formula 2 | Formula 1 | 1,83333* | ,43301 | ,012 | ,4467 | 3,2200 |
| | | Formula 3 | -,25000 | ,43301 | ,936 | -1,6367 | 1,1367 |
| | | Formula 4 | -3,00000* | ,43301 | ,001 | -4,3867 | -1,6133 |
| | Formula 3 | Formula 1 | 2,08333* | ,43301 | ,006 | ,6967 | 3,4700 |
| | | Formula 2 | ,25000 | ,43301 | ,936 | -1,1367 | 1,6367 |
| | | Formula 4 | -2,75000* | ,43301 | ,001 | -4,1367 | -1,3633 |
| | Formula 4 | Formula 1 | 4,83333* | ,43301 | ,000 | 3,4467 | 6,2200 |
| | | Formula 2 | 3,00000* | ,43301 | ,001 | 1,6133 | 4,3867 |
| | | Formula 3 | 2,75000* | ,43301 | ,001 | 1,3633 | 4,1367 |
| LSD | Formula 1 | Formula 2 | -1,83333* | ,43301 | ,003 | -2,8319 | -,8348 |
| | | Formula 3 | -2,08333* | ,43301 | ,001 | -3,0819 | -1,0848 |
| | | Formula 4 | -4,83333* | ,43301 | ,000 | -5,8319 | -3,8348 |
| | Formula 2 | Formula 1 | 1,83333* | ,43301 | ,003 | ,8348 | 2,8319 |
| | | Formula 3 | -,25000 | ,43301 | ,580 | -1,2485 | ,7485 |
| | | Formula 4 | -3,00000* | ,43301 | ,000 | -3,9985 | -2,0015 |
| | Formula 3 | Formula 1 | 2,08333* | ,43301 | ,001 | 1,0848 | 3,0819 |
| | | Formula 2 | ,25000 | ,43301 | ,580 | -,7485 | 1,2485 |
| | | Formula 4 | -2,75000* | ,43301 | ,000 | -3,7485 | -1,7515 |
| | Formula 4 | Formula 1 | 4,83333* | ,43301 | ,000 | 3,8348 | 5,8319 |
| | | Formula 2 | 3,00000* | ,43301 | ,000 | 2,0015 | 3,9985 |
| | | Formula 3 | 2,75000* | ,43301 | ,000 | 1,7515 | 3,7485 |

**Lampiran 13. (Lanjutan)**

Evaluasi Daya Sebar

***Tests of Normality***

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Formula | *Statistic* | *df* | *Sig.* | *Statistic* | *df* | *Sig.* |
| Luas0g | Formula 1 | ,367 | 3 | , | ,792 | 3 | ,096 |
| | Formula 2 | ,222 | 3 | , | ,985 | 3 | ,768 |
| | Formula 3 | ,318 | 3 | , | ,887 | 3 | ,346 |
| | Formula 4 | ,227 | 3 | , | ,983 | 3 | ,750 |
| Luas50g | Formula 1 | ,216 | 3 | , | ,988 | 3 | ,795 |
| | Formula 2 | ,251 | 3 | , | ,966 | 3 | ,646 |
| | Formula 3 | ,177 | 3 | , | 1,000 | 3 | ,975 |
| | Formula 4 | ,358 | 3 | , | ,812 | 3 | ,145 |
| Luas100g | Formula 1 | ,331 | 3 | , | ,865 | 3 | ,283 |
| | Formula 2 | ,316 | 3 | , | ,889 | 3 | ,353 |
| | Formula 3 | ,339 | 3 | , | ,850 | 3 | ,242 |
| | Formula 4 | ,188 | 3 | , | ,998 | 3 | ,913 |
| Luas150g | Formula 1 | ,338 | 3 | , | ,852 | 3 | ,245 |
| | Formula 2 | ,227 | 3 | , | ,982 | 3 | ,747 |
| | Formula 3 | ,228 | 3 | , | ,982 | 3 | ,746 |
| | Formula 4 | ,200 | 3 | , | ,995 | 3 | ,860 |

**ANOVA**

| | | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|---|
| Luas0g | Between Groups | 1864,359 | 3 | 621,453 | 18,078 | ,001 |
| | Within Groups | 275,012 | 8 | 34,377 | | |
| | Total | 2139,371 | 11 | | | |
| Luas50g | Between Groups | 2477,793 | 3 | 825,931 | 51,558 | ,000 |
| | Within Groups | 128,157 | 8 | 16,020 | | |
| | Total | 2605,949 | 11 | | | |
| Luas100g | Between Groups | 4974,480 | 3 | 1658,160 | 13,606 | ,002 |
| | Within Groups | 974,969 | 8 | 121,871 | | |
| | Total | 5949,449 | 11 | | | |
| Luas150g | Between Groups | 4989,365 | 3 | 1663,122 | 14,107 | ,001 |
| | Within Groups | 943,146 | 8 | 117,893 | | |
| | Total | 5932,511 | 11 | | | |

## Lampiran 13. (Lanjutan)

***Multiple Comparisons***

| Dependent Variable | | (I) Formula | (J) Formula | *Mean Difference (I-J)* | *Std. Error* | *Sig.* | 95% *Confidence Interval* | |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | *Lower Bound* | *Upper Bound* |
| Luas0g | Tukey HSD | Formula 1 | Formula 2 | 26,174733* | 4,787242 | ,003 | 10,84430 | 41,50517 |
| | | | Formula 3 | 27,988067* | 4,787242 | ,002 | 12,65763 | 43,31850 |
| | | | Formula 4 | 31,264067* | 4,787242 | ,001 | 15,93363 | 46,59450 |
| | | Formula 2 | Formula 1 | -26,174733* | 4,787242 | ,003 | -41,50517 | -10,84430 |
| | | | Formula 3 | 1,813333 | 4,787242 | ,980 | -13,51710 | 17,14377 |
| | | | Formula 4 | 5,089333 | 4,787242 | ,720 | -10,24110 | 20,41977 |
| | | Formula 3 | Formula 1 | -27,988067* | 4,787242 | ,002 | -43,31850 | -12,65763 |
| | | | Formula 2 | -1,813333 | 4,787242 | ,980 | -17,14377 | 13,51710 |
| | | | Formula 4 | 3,276000 | 4,787242 | ,900 | -12,05443 | 18,60643 |
| | | Formula 4 | Formula 1 | -31,264067* | 4,787242 | ,001 | -46,59450 | -15,93363 |
| | | | Formula 2 | -5,089333 | 4,787242 | ,720 | -20,41977 | 10,24110 |
| | | | Formula 3 | -3,276000 | 4,787242 | ,900 | -18,60643 | 12,05443 |
| | LSD | Formula 1 | Formula 2 | 26,174733* | 4,787242 | ,001 | 15,13533 | 37,21413 |
| | | | Formula 3 | 27,988067* | 4,787242 | ,000 | 16,94867 | 39,02747 |
| | | | Formula 4 | 31,264067* | 4,787242 | ,000 | 20,22467 | 42,30347 |
| | | Formula 2 | Formula 1 | -26,174733* | 4,787242 | ,001 | -37,21413 | -15,13533 |
| | | | Formula 3 | 1,813333 | 4,787242 | ,715 | -9,22607 | 12,85273 |
| | | | Formula 4 | 5,089333 | 4,787242 | ,319 | -5,95007 | 16,12873 |
| | | Formula 3 | Formula 1 | -27,988067* | 4,787242 | ,000 | -39,02747 | -16,94867 |
| | | | Formula 2 | -1,813333 | 4,787242 | ,715 | -12,85273 | 9,22607 |
| | | | Formula 4 | 3,276000 | 4,787242 | ,513 | -7,76340 | 14,31540 |
| | | Formula 4 | Formula 1 | -31,264067* | 4,787242 | ,000 | -42,30347 | -20,22467 |
| | | | Formula 2 | -5,089333 | 4,787242 | ,319 | -16,12873 | 5,95007 |
| | | | Formula 3 | -3,276000 | 4,787242 | ,513 | -14,31540 | 7,76340 |
| Luas50g | Tukey HSD | Formula 1 | Formula 2 | 23,665133* | 3,267983 | ,000 | 13,19990 | 34,13037 |
| | | | Formula 3 | 34,228617* | 3,267983 | ,000 | 23,76338 | 44,69385 |
| | | | Formula 4 | 36,091683* | 3,267983 | ,000 | 25,62645 | 46,55692 |
| | | Formula 2 | Formula 1 | -23,665133* | 3,267983 | ,000 | -34,13037 | -13,19990 |
| | | | Formula 3 | 10,563483* | 3,267983 | ,048 | ,09825 | 21,02872 |
| | | | Formula 4 | 12,426550* | 3,267983 | ,022 | 1,96132 | 22,89178 |
| | | Formula 3 | Formula 1 | -34,228617* | 3,267983 | ,000 | -44,69385 | -23,76338 |
| | | | Formula 2 | -10,563483* | 3,267983 | ,048 | -21,02872 | -,09825 |
| | | | Formula 4 | 1,863067 | 3,267983 | ,938 | -8,60217 | 12,32830 |
| | | Formula 4 | Formula 1 | -36,091683* | 3,267983 | ,000 | -46,55692 | -25,62645 |
| | | | Formula 2 | -12,426550* | 3,267983 | ,022 | -22,89178 | -1,96132 |
| | | | Formula 3 | -1,863067 | 3,267983 | ,938 | -12,32830 | 8,60217 |
| | LSD | Formula 1 | Formula 2 | 23,665133* | 3,267983 | ,000 | 16,12915 | 31,20112 |
| | | | Formula 3 | 34,228617* | 3,267983 | ,000 | 26,69263 | 41,76460 |

**--- Lanjutan ----------**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | Formula 4 | 36,091683* | 3,267983 | ,000 | 28,55570 | 43,62767 |
| | | Formula 2 | Formula 1 | -23,665133* | 3,267983 | ,000 | -31,20112 | -16,12915 |
| | | | Formula 3 | 10,563483* | 3,267983 | ,012 | 3,02750 | 18,09947 |
| | | | Formula 4 | 12,426550* | 3,267983 | ,005 | 4,89057 | 19,96253 |
| | | Formula 3 | Formula 1 | -34,228617* | 3,267983 | ,000 | -41,76460 | -26,69263 |
| | | | Formula 2 | -10,563483* | 3,267983 | ,012 | -18,09947 | -3,02750 |
| | | | Formula 4 | 1,863067 | 3,267983 | ,584 | -5,67292 | 9,39905 |
| | | Formula 4 | Formula 1 | -36,091683* | 3,267983 | ,000 | -43,62767 | -28,55570 |
| | | | Formula 2 | -12,426550* | 3,267983 | ,005 | -19,96253 | -4,89057 |
| | | | Formula 3 | -1,863067 | 3,267983 | ,584 | -9,39905 | 5,67292 |
| Luas100g | Tukey HSD | Formula 1 | Formula 2 | 40,757400* | 9,013733 | ,008 | 11,89226 | 69,62254 |
| | | | Formula 3 | 49,162133* | 9,013733 | ,003 | 20,29699 | 78,02728 |
| | | | Formula 4 | 49,130533* | 9,013733 | ,003 | 20,26539 | 77,99568 |
| | | Formula 2 | Formula 1 | -40,757400* | 9,013733 | ,008 | -69,62254 | -11,89226 |
| | | | Formula 3 | 8,404733 | 9,013733 | ,789 | -20,46041 | 37,26988 |
| | | | Formula 4 | 8,373133 | 9,013733 | ,791 | -20,49201 | 37,23828 |
| | | Formula 3 | Formula 1 | -49,162133* | 9,013733 | ,003 | -78,02728 | -20,29699 |
| | | | Formula 2 | -8,404733 | 9,013733 | ,789 | -37,26988 | 20,46041 |
| | | | Formula 4 | -,031600 | 9,013733 | 1,000 | -28,89674 | 28,83354 |
| | | Formula 4 | Formula 1 | -49,130533* | 9,013733 | ,003 | -77,99568 | -20,26539 |
| | | | Formula 2 | -8,373133 | 9,013733 | ,791 | -37,23828 | 20,49201 |
| | | | Formula 3 | ,031600 | 9,013733 | 1,000 | -28,83354 | 28,89674 |
| | LSD | Formula 1 | Formula 2 | 40,757400* | 9,013733 | ,002 | 19,97170 | 61,54310 |
| | | | Formula 3 | 49,162133* | 9,013733 | ,001 | 28,37643 | 69,94784 |
| | | | Formula 4 | 49,130533* | 9,013733 | ,001 | 28,34483 | 69,91624 |
| | | Formula 2 | Formula 1 | -40,757400* | 9,013733 | ,002 | -61,54310 | -19,97170 |
| | | | Formula 3 | 8,404733 | 9,013733 | ,378 | -12,38097 | 29,19044 |
| | | | Formula 4 | 8,373133 | 9,013733 | ,380 | -12,41257 | 29,15884 |
| | | Formula 3 | Formula 1 | -49,162133* | 9,013733 | ,001 | -69,94784 | -28,37643 |
| | | | Formula 2 | -8,404733 | 9,013733 | ,378 | -29,19044 | 12,38097 |
| | | | Formula 4 | -,031600 | 9,013733 | ,997 | -20,81730 | 20,75410 |
| | | Formula 4 | Formula 1 | -49,130533* | 9,013733 | ,001 | -69,91624 | -28,34483 |
| | | | Formula 2 | -8,373133 | 9,013733 | ,380 | -29,15884 | 12,41257 |
| | | | Formula 3 | ,031600 | 9,013733 | ,997 | -20,75410 | 20,81730 |
| Luas150g | Tukey HSD | Formula 1 | Formula 2 | 45,333750* | 8,865412 | ,004 | 16,94358 | 73,72392 |
| | | | Formula 3 | 47,709683* | 8,865412 | ,003 | 19,31951 | 76,09985 |
| | | | Formula 4 | 48,042000* | 8,865412 | ,003 | 19,65183 | 76,43217 |
| | | Formula 2 | Formula 1 | -45,333750* | 8,865412 | ,004 | -73,72392 | -16,94358 |
| | | | Formula 3 | 2,375933 | 8,865412 | ,993 | -26,01424 | 30,76610 |
| | | | Formula 4 | 2,708250 | 8,865412 | ,989 | -25,68192 | 31,09842 |
| | | Formula 3 | Formula 1 | -47,709683* | 8,865412 | ,003 | -76,09985 | -19,31951 |
| | | | Formula 2 | -2,375933 | 8,865412 | ,993 | -30,76610 | 26,01424 |
| | | | Formula 4 | ,332317 | 8,865412 | 1,000 | -28,05785 | 28,72249 |
| | | Formula 4 | Formula 1 | -48,042000* | 8,865412 | ,003 | -76,43217 | -19,65183 |
| | | | Formula 2 | -2,708250 | 8,865412 | ,989 | -31,09842 | 25,68192 |
| | | | Formula 3 | -,332317 | 8,865412 | 1,000 | -28,72249 | 28,05785 |

**---Lanjutan----------**

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| LSD | Formula 1 | Formula 2 | 45,333750* | 8,865412 | ,001 | 24,89007 | 65,77743 |
| | | Formula 3 | 47,709683* | 8,865412 | ,001 | 27,26601 | 68,15336 |
| | | Formula 4 | 48,042000* | 8,865412 | ,001 | 27,59832 | 68,48568 |
| | Formula 2 | Formula 1 | -45,333750* | 8,865412 | ,001 | -65,77743 | -24,89007 |
| | | Formula 3 | 2,375933 | 8,865412 | ,795 | -18,06774 | 22,81961 |
| | | Formula 4 | 2,708250 | 8,865412 | ,768 | -17,73543 | 23,15193 |
| | Formula 3 | Formula 1 | -47,709683* | 8,865412 | ,001 | -68,15336 | -27,26601 |
| | | Formula 2 | -2,375933 | 8,865412 | ,795 | -22,81961 | 18,06774 |
| | | Formula 4 | ,332317 | 8,865412 | ,971 | -20,11136 | 20,77599 |
| | Formula 4 | Formula 1 | -48,042000* | 8,865412 | ,001 | -68,48568 | -27,59832 |
| | | Formula 2 | -2,708250 | 8,865412 | ,768 | -23,15193 | 17,73543 |
| | | Formula 3 | -,332317 | 8,865412 | ,971 | -20,77599 | 20,11136 |

**Lampiran 13. (Lanjutan)**

Evaluasi Daya Lekat

***Tests of Normality***

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Formula | *Statistic* | df | *Sig.* | *Statistic* | df | *Sig.* |
| Waktu_lekat | Formula 1 | ,201 | 3 | , | ,995 | 3 | ,859 |
| | Formula 2 | ,342 | 3 | , | ,845 | 3 | ,227 |
| | Formula 3 | ,221 | 3 | , | ,986 | 3 | ,772 |
| | Formula 4 | ,175 | 3 | , | 1,000 | 3 | 1,000 |

**ANOVA**

| Waktu_lekat | *Sum of Squares* | df | *Mean Square* | F | *Sig,* |
|---|---|---|---|---|---|
| Between Groups | ,161 | 3 | ,054 | 147,326 | ,000 |
| Within Groups | ,003 | 8 | ,000 | | |
| Total | ,164 | 11 | | | |

***Multiple Comparisons***

| | | | | | | 95% *Confidence Interval* | |
|---|---|---|---|---|---|---|---|
| | (I) Formula | (J) Formula | *Mean Difference (I-J)* | *Std. Error* | *Sig.* | *Lower Bound* | *Upper Bound* |
| Tukey HSD | Formula 1 | Formula 2 | -,104000* | ,015599 | ,001 | -,15395 | -,05405 |
| | | Formula 3 | -,304000* | ,015599 | ,000 | -,35395 | -,25405 |
| | | Formula 4 | -,225667* | ,015599 | ,000 | -,27562 | -,17571 |
| | Formula 2 | Formula 1 | ,104000* | ,015599 | ,001 | ,05405 | ,15395 |
| | | Formula 3 | -,200000* | ,015599 | ,000 | -,24995 | -,15005 |
| | | Formula 4 | -,121667* | ,015599 | ,000 | -,17162 | -,07171 |
| | Formula 3 | Formula 1 | ,304000* | ,015599 | ,000 | ,25405 | ,35395 |
| | | Formula 2 | ,200000* | ,015599 | ,000 | ,15005 | ,24995 |
| | | Formula 4 | ,078333* | ,015599 | ,005 | ,02838 | ,12829 |
| | Formula 4 | Formula 1 | ,225667* | ,015599 | ,000 | ,17571 | ,27562 |
| | | Formula 2 | ,121667* | ,015599 | ,000 | ,07171 | ,17162 |
| | | Formula 3 | -,078333* | ,015599 | ,005 | -,12829 | -,02838 |
| LSD | Formula 1 | Formula 2 | -,104000* | ,015599 | ,000 | -,13997 | -,06803 |
| | | Formula 3 | -,304000* | ,015599 | ,000 | -,33997 | -,26803 |
| | | Formula 4 | -,225667* | ,015599 | ,000 | -,26164 | -,18969 |
| | Formula 2 | Formula 1 | ,104000* | ,015599 | ,000 | ,06803 | ,13997 |
| | | Formula 3 | -,200000* | ,015599 | ,000 | -,23597 | -,16403 |
| | | Formula 4 | -,121667* | ,015599 | ,000 | -,15764 | -,08569 |
| | Formula 3 | Formula 1 | ,304000* | ,015599 | ,000 | ,26803 | ,33997 |
| | | Formula 2 | ,200000* | ,015599 | ,000 | ,16403 | ,23597 |
| | | Formula 4 | ,078333* | ,015599 | ,001 | ,04236 | ,11431 |
| | Formula 4 | Formula 1 | ,225667* | ,015599 | ,000 | ,18969 | ,26164 |
| | | Formula 2 | ,121667* | ,015599 | ,000 | ,08569 | ,15764 |
| | | Formula 3 | -,078333* | ,015599 | ,001 | -,11431 | -,04236 |

## Lampiran 13. (Lanjutan)

Evaluasi Daya Tercuci

***Tests of Normality***

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Formula | Statistic | df | Sig. | Statistic | df | Sig. |
| Volume | Formula 1 | ,328 | 3 | , | ,871 | 3 | ,298 |
| | Formula 2 | ,314 | 3 | , | ,893 | 3 | ,363 |
| | Formula 3 | ,282 | 3 | , | ,936 | 3 | ,510 |
| | Formula 4 | ,276 | 3 | , | ,942 | 3 | ,537 |

**ANOVA**

| Volume | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | ,097 | 3 | ,032 | ,154 | ,924 |
| Within Groups | 1,673 | 8 | ,209 | | |
| Total | 1,770 | 11 | | | |

***Multiple Comparisons***

| | | | *Mean Difference (I-J)* | *Std. Error* | *Sig.* | 95% *Confidence Interval* | |
|---|---|---|---|---|---|---|---|
| | (I) Formula | (J) Formula | | | | *Lower Bound* | *Upper Bound* |
| Tukey HSD | Formula 1 | Formula 2 | ,033333 | ,373423 | 1,000 | -1,16250 | 1,22916 |
| | | Formula 3 | ,066667 | ,373423 | ,998 | -1,12916 | 1,26250 |
| | | Formula 4 | -,166667 | ,373423 | ,969 | -1,36250 | 1,02916 |
| | Formula 2 | Formula 1 | -,033333 | ,373423 | 1,000 | -1,22916 | 1,16250 |
| | | Formula 3 | ,033333 | ,373423 | 1,000 | -1,16250 | 1,22916 |
| | | Formula 4 | -,200000 | ,373423 | ,948 | -1,39583 | ,99583 |
| | Formula 3 | Formula 1 | -,066667 | ,373423 | ,998 | -1,26250 | 1,12916 |
| | | Formula 2 | -,033333 | ,373423 | 1,000 | -1,22916 | 1,16250 |
| | | Formula 4 | -,233333 | ,373423 | ,921 | -1,42916 | ,96250 |
| | Formula 4 | Formula 1 | ,166667 | ,373423 | ,969 | -1,02916 | 1,36250 |
| | | Formula 2 | ,200000 | ,373423 | ,948 | -,99583 | 1,39583 |
| | | Formula 3 | ,233333 | ,373423 | ,921 | -,96250 | 1,42916 |
| LSD | Formula 1 | Formula 2 | ,033333 | ,373423 | ,931 | -,82778 | ,89445 |
| | | Formula 3 | ,066667 | ,373423 | ,863 | -,79445 | ,92778 |
| | | Formula 4 | -,166667 | ,373423 | ,667 | -1,02778 | ,69445 |
| | Formula 2 | Formula 1 | -,033333 | ,373423 | ,931 | -,89445 | ,82778 |
| | | Formula 3 | ,033333 | ,373423 | ,931 | -,82778 | ,89445 |
| | | Formula 4 | -,200000 | ,373423 | ,607 | -1,06111 | ,66111 |
| | Formula 3 | Formula 1 | -,066667 | ,373423 | ,863 | -,92778 | ,79445 |
| | | Formula 2 | -,033333 | ,373423 | ,931 | -,89445 | ,82778 |
| | | Formula 4 | -,233333 | ,373423 | ,549 | -1,09445 | ,62778 |
| | Formula 4 | Formula 1 | ,166667 | ,373423 | ,667 | -,69445 | 1,02778 |
| | | Formula 2 | ,200000 | ,373423 | ,607 | -,66111 | 1,06111 |
| | | Formula 3 | ,233333 | ,373423 | ,549 | -,62778 | 1,09445 |

**Lampiran 13. (Lanjutan)**

Evaluasi Pola Penyemprotan

***Tests of Normality***

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Formula | *Statistic* | df | Sig. | *Statistic* | df | *Sig.* |
| Diameter_semprot | Formula 1 | ,175 | 3 | , | 1,000 | 3 | 1,000 |
| | Formula 2 | ,276 | 3 | , | ,942 | 3 | ,537 |
| | Formula 3 | ,292 | 3 | , | ,923 | 3 | ,463 |
| | Formula 4 | ,314 | 3 | , | ,893 | 3 | ,363 |

**ANOVA**

| | *Sum of Squares* | df | *Mean Square* | F | *Sig.* |
|---|---|---|---|---|---|
| Between Groups | 9,923 | 3 | 3,308 | 46,694 | ,000 |
| Within Groups | ,567 | 8 | ,071 | | |
| Total | 10,489 | 11 | | | |

***Multiple Comparisons***

| | | | | | | 95% *Confidence Interval* | |
|---|---|---|---|---|---|---|---|
| | (I) Formula | (J) Formula | *Mean Difference (I-J)* | *Std. Error* | *Sig.* | *Lower Bound* | *Upper Bound* |
| Tukey HSD | Formula 1 | Formula 2 | -,100000 | ,217307 | ,966 | -,79589 | ,59589 |
| | | Formula 3 | 1,733333* | ,217307 | ,000 | 1,03744 | 2,42923 |
| | | Formula 4 | 1,800000* | ,217307 | ,000 | 1,10411 | 2,49589 |
| | Formula 2 | Formula 1 | ,100000 | ,217307 | ,966 | -,59589 | ,79589 |
| | | Formula 3 | 1,833333* | ,217307 | ,000 | 1,13744 | 2,52923 |
| | | Formula 4 | 1,900000* | ,217307 | ,000 | 1,20411 | 2,59589 |
| | Formula 3 | Formula 1 | -1,733333* | ,217307 | ,000 | -2,42923 | -1,03744 |
| | | Formula 2 | -1,833333* | ,217307 | ,000 | -2,52923 | -1,13744 |
| | | Formula 4 | ,066667 | ,217307 | ,989 | -,62923 | ,76256 |
| | Formula 4 | Formula 1 | -1,800000* | ,217307 | ,000 | -2,49589 | -1,10411 |
| | | Formula 2 | -1,900000* | ,217307 | ,000 | -2,59589 | -1,20411 |
| | | Formula 3 | -,066667 | ,217307 | ,989 | -,76256 | ,62923 |
| LSD | Formula 1 | Formula 2 | -,100000 | ,217307 | ,658 | -,60111 | ,40111 |
| | | Formula 3 | 1,733333* | ,217307 | ,000 | 1,23222 | 2,23444 |
| | | Formula 4 | 1,800000* | ,217307 | ,000 | 1,29889 | 2,30111 |
| | Formula 2 | Formula 1 | ,100000 | ,217307 | ,658 | -,40111 | ,60111 |
| | | Formula 3 | 1,833333* | ,217307 | ,000 | 1,33222 | 2,33444 |
| | | Formula 4 | 1,900000* | ,217307 | ,000 | 1,39889 | 2,40111 |
| | Formula 3 | Formula 1 | -1,733333* | ,217307 | ,000 | -2,23444 | -1,23222 |
| | | Formula 2 | -1,833333* | ,217307 | ,000 | -2,33444 | -1,33222 |
| | | Formula 4 | ,066667 | ,217307 | ,767 | -,43444 | ,56778 |
| | Formula 4 | Formula 1 | -1,800000* | ,217307 | ,000 | -2,30111 | -1,29889 |
| | | Formula 2 | -1,900000* | ,217307 | ,000 | -2,40111 | -1,39889 |
| | | Formula 3 | -,066667 | ,217307 | ,767 | -,56778 | ,43444 |

**Lampiran 13. (Lanjutan)**

Pump delivery

***Tests of Normality***

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | Formula | *Statistic* | df | *Sig.* | *Statistic* | df | *Sig.* |
| Bobot | formula 1 | ,286 | 10 | ,020 | ,885 | 10 | ,149 |
| | formula 2 | ,286 | 10 | ,020 | ,885 | 10 | ,149 |
| | formula 3 | ,233 | 10 | ,131 | ,904 | 10 | ,244 |
| | formula 4 | ,233 | 10 | ,133 | ,904 | 10 | ,245 |

**ANOVA**

| Bobot | *Sum of Squares* | df | *Mean Square* | F | *Sig.* |
|---|---|---|---|---|---|
| Between Groups | ,001 | 3 | ,000 | 19,317 | ,000 |
| Within Groups | ,000 | 36 | ,000 | | |
| Total | ,001 | 39 | | | |

***Multiple Comparisons***

| | | | | | | 95% *Confidence Interval* | |
|---|---|---|---|---|---|---|---|
| | (I) Formula | (J) Formula | *Mean Difference (I-J)* | *Std. Error* | *Sig.* | *Lower Bound* | *Upper Bound* |
| Tukey HSD | formula 1 | formula 2 | ,0080000* | ,0014060 | ,000 | ,004213 | ,011787 |
| | | formula 3 | ,0093433* | ,0014060 | ,000 | ,005557 | ,013130 |
| | | formula 4 | ,0086667* | ,0014060 | ,000 | ,004880 | ,012453 |
| | formula 2 | formula 1 | -,0080000* | ,0014060 | ,000 | -,011787 | -,004213 |
| | | formula 3 | ,0013433 | ,0014060 | ,775 | -,002443 | ,005130 |
| | | formula 4 | ,0006667 | ,0014060 | ,964 | -,003120 | ,004453 |
| | formula 3 | formula 1 | -,0093433* | ,0014060 | ,000 | -,013130 | -,005557 |
| | | formula 2 | -,0013433 | ,0014060 | ,775 | -,005130 | ,002443 |
| | | formula 4 | -,0006767 | ,0014060 | ,963 | -,004463 | ,003110 |
| | formula 4 | formula 1 | -,0086667* | ,0014060 | ,000 | -,012453 | -,004880 |
| | | formula 2 | -,0006667 | ,0014060 | ,964 | -,004453 | ,003120 |
| | | formula 3 | ,0006767 | ,0014060 | ,963 | -,003110 | ,004463 |
| LSD | formula 1 | formula 2 | ,0080000* | ,0014060 | ,000 | ,005149 | ,010851 |
| | | formula 3 | ,0093433* | ,0014060 | ,000 | ,006492 | ,012195 |
| | | formula 4 | ,0086667* | ,0014060 | ,000 | ,005815 | ,011518 |
| | formula 2 | formula 1 | -,0080000* | ,0014060 | ,000 | -,010851 | -,005149 |
| | | formula 3 | ,0013433 | ,0014060 | ,346 | -,001508 | ,004195 |
| | | formula 4 | ,0006667 | ,0014060 | ,638 | -,002185 | ,003518 |
| | formula 3 | formula 1 | -,0093433* | ,0014060 | ,000 | -,012195 | -,006492 |
| | | formula 2 | -,0013433 | ,0014060 | ,346 | -,004195 | ,001508 |
| | | formula 4 | -,0006767 | ,0014060 | ,633 | -,003528 | ,002175 |
| | formula 4 | formula 1 | -,0086667* | ,0014060 | ,000 | -,011518 | -,005815 |
| | | formula 2 | -,0006667 | ,0014060 | ,638 | -,003518 | ,002185 |
| | | formula 3 | ,0006767 | ,0014060 | ,633 | -,002175 | ,003528 |

**Lampiran 13. (Lanjutan)**

SPF

***Tests of Normality***

| | | Kolmogorov-Smirnov[a] | | | Shapiro-Wilk | | |
|---|---|---|---|---|---|---|---|
| | sampel | *Statistic* | df | *Sig.* | *Statistic* | df | *Sig.* |
| spf | formula 1 | ,253 | 3 | , | ,964 | 3 | ,637 |
| | formula 2 | ,175 | 3 | , | 1,000 | 3 | 1,000 |
| | formula 3 | ,175 | 3 | , | 1,000 | 3 | 1,000 |
| | formula 4 | ,361 | 3 | , | ,807 | 3 | ,132 |
| | ekstrak 5000ppm | ,353 | 3 | , | ,824 | 3 | ,174 |
| | ekstrak 10000ppm | ,328 | 3 | , | ,871 | 3 | ,298 |
| | ekstrak 15000ppm | ,276 | 3 | , | ,942 | 3 | ,537 |
| | nivea | ,320 | 3 | , | ,883 | 3 | ,334 |

**ANOVA**

| spf | *Sum of Squares* | df | *Mean Square* | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 1637,722 | 7 | 233,960 | 1,721E5 | ,000 |
| Within Groups | ,022 | 16 | ,001 | | |
| Total | 1637,744 | 23 | | | |

**Lampiran 13. (Lanjutan)**

***Multiple Comparisons***

| | (I) sampel | (J) sampel | *Mean Difference (I-J)* | *Std. Error* | *Sig.* | 95% *Confidence Interval* *Lower Bound* | *Upper Bound* |
|---|---|---|---|---|---|---|---|
| Tukey HSD | formula 1 | formula 2 | -,761667* | ,030102 | ,000 | -,86588 | -,65745 |
| | | formula 3 | -3,359667* | ,030102 | ,000 | -3,46388 | -3,25545 |
| | | formula 4 | -6,775000* | ,030102 | ,000 | -6,87922 | -6,67078 |
| | | ekstrak 5000ppm | -2,607000* | ,030102 | ,000 | -2,71122 | -2,50278 |
| | | ekstrak 10000ppm | -6,072000* | ,030102 | ,000 | -6,17622 | -5,96778 |
| | | ekstrak 15000ppm | -11,335667* | ,030102 | ,000 | -11,43988 | -11,23145 |
| | | nivea | -27,156000* | ,030102 | ,000 | -27,26022 | -27,05178 |
| | formula 2 | formula 1 | ,761667* | ,030102 | ,000 | ,65745 | ,86588 |
| | | formula 3 | -2,598000* | ,030102 | ,000 | -2,70222 | -2,49378 |
| | | formula 4 | -6,013333* | ,030102 | ,000 | -6,11755 | -5,90912 |
| | | ekstrak 5000ppm | -1,845333* | ,030102 | ,000 | -1,94955 | -1,74112 |
| | | ekstrak 10000ppm | -5,310333* | ,030102 | ,000 | -5,41455 | -5,20612 |
| | | ekstrak 15000ppm | -10,574000* | ,030102 | ,000 | -10,67822 | -10,46978 |
| | | nivea | -26,394333* | ,030102 | ,000 | -26,49855 | -26,29012 |
| | formula 3 | formula 1 | 3,359667* | ,030102 | ,000 | 3,25545 | 3,46388 |
| | | formula 2 | 2,598000* | ,030102 | ,000 | 2,49378 | 2,70222 |
| | | formula 4 | -3,415333* | ,030102 | ,000 | -3,51955 | -3,31112 |
| | | ekstrak 5000ppm | ,752667* | ,030102 | ,000 | ,64845 | ,85688 |
| | | ekstrak 10000ppm | -2,712333* | ,030102 | ,000 | -2,81655 | -2,60812 |
| | | ekstrak 15000ppm | -7,976000* | ,030102 | ,000 | -8,08022 | -7,87178 |
| | | nivea | -23,796333* | ,030102 | ,000 | -23,90055 | -23,69212 |
| | formula 4 | formula 1 | 6,775000* | ,030102 | ,000 | 6,67078 | 6,87922 |
| | | formula 2 | 6,013333* | ,030102 | ,000 | 5,90912 | 6,11755 |
| | | formula 3 | 3,415333* | ,030102 | ,000 | 3,31112 | 3,51955 |
| | | ekstrak 5000ppm | 4,168000* | ,030102 | ,000 | 4,06378 | 4,27222 |
| | | ekstrak 10000ppm | ,703000* | ,030102 | ,000 | ,59878 | ,80722 |
| | | ekstrak 15000ppm | -4,560667* | ,030102 | ,000 | -4,66488 | -4,45645 |
| | | nivea | -20,381000* | ,030102 | ,000 | -20,48522 | -20,27678 |
| | ekstrak 5000ppm | formula 1 | 2,607000* | ,030102 | ,000 | 2,50278 | 2,71122 |
| | | formula 2 | 1,845333* | ,030102 | ,000 | 1,74112 | 1,94955 |
| | | formula 3 | -,752667* | ,030102 | ,000 | -,85688 | -,64845 |
| | | formula 4 | -4,168000* | ,030102 | ,000 | -4,27222 | -4,06378 |
| | | ekstrak 10000ppm | -3,465000* | ,030102 | ,000 | -3,56922 | -3,36078 |
| | | ekstrak 15000ppm | -8,728667* | ,030102 | ,000 | -8,83288 | -8,62445 |
| | | nivea | -24,549000* | ,030102 | ,000 | -24,65322 | -24,44478 |
| | ekstrak 10000ppm | formula 1 | 6,072000* | ,030102 | ,000 | 5,96778 | 6,17622 |
| | | formula 2 | 5,310333* | ,030102 | ,000 | 5,20612 | 5,41455 |
| | | formula 3 | 2,712333* | ,030102 | ,000 | 2,60812 | 2,81655 |
| | | formula 4 | -,703000* | ,030102 | ,000 | -,80722 | -,59878 |
| | | ekstrak 5000ppm | 3,465000* | ,030102 | ,000 | 3,36078 | 3,56922 |

**---Lanjutan----------**

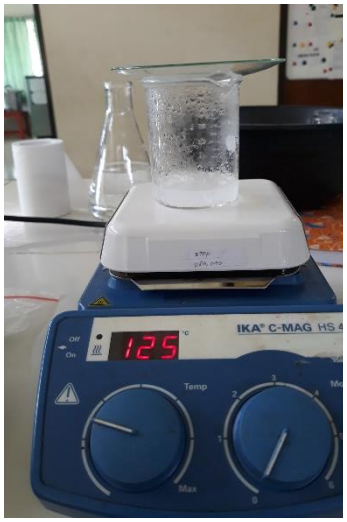
| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | ekstrak 15000ppm | -5,263667* | ,030102 | ,000 | -5,36788 | -5,15945 |
| | | nivea | -21,084000* | ,030102 | ,000 | -21,18822 | -20,97978 |
| | ekstrak 15000ppm | formula 1 | 11,335667* | ,030102 | ,000 | 11,23145 | 11,43988 |
| | | formula 2 | 10,574000* | ,030102 | ,000 | 10,46978 | 10,67822 |
| | | formula 3 | 7,976000* | ,030102 | ,000 | 7,87178 | 8,08022 |
| | | formula 4 | 4,560667* | ,030102 | ,000 | 4,45645 | 4,66488 |
| | | ekstrak 5000ppm | 8,728667* | ,030102 | ,000 | 8,62445 | 8,83288 |
| | | ekstrak 10000ppm | 5,263667* | ,030102 | ,000 | 5,15945 | 5,36788 |
| | | nivea | -15,820333* | ,030102 | ,000 | -15,92455 | -15,71612 |
| | nivea | formula 1 | 27,156000* | ,030102 | ,000 | 27,05178 | 27,26022 |
| | | formula 2 | 26,394333* | ,030102 | ,000 | 26,29012 | 26,49855 |
| | | formula 3 | 23,796333* | ,030102 | ,000 | 23,69212 | 23,90055 |
| | | formula 4 | 20,381000* | ,030102 | ,000 | 20,27678 | 20,48522 |
| | | ekstrak 5000ppm | 24,549000* | ,030102 | ,000 | 24,44478 | 24,65322 |
| | | ekstrak 10000ppm | 21,084000* | ,030102 | ,000 | 20,97978 | 21,18822 |
| | | ekstrak 15000ppm | 15,820333* | ,030102 | ,000 | 15,71612 | 15,92455 |
| LSD | formula 1 | formula 2 | -,761667* | ,030102 | ,000 | -,82548 | -,69785 |
| | | formula 3 | -3,359667* | ,030102 | ,000 | -3,42348 | -3,29585 |
| | | formula 4 | -6,775000* | ,030102 | ,000 | -6,83881 | -6,71119 |
| | | ekstrak 5000ppm | -2,607000* | ,030102 | ,000 | -2,67081 | -2,54319 |
| | | ekstrak 10000ppm | -6,072000* | ,030102 | ,000 | -6,13581 | -6,00819 |
| | | ekstrak 15000ppm | -11,335667* | ,030102 | ,000 | -11,39948 | -11,27185 |
| | | nivea | -27,156000* | ,030102 | ,000 | -27,21981 | -27,09219 |
| | formula 2 | formula 1 | ,761667* | ,030102 | ,000 | ,69785 | ,82548 |
| | | formula 3 | -2,598000* | ,030102 | ,000 | -2,66181 | -2,53419 |
| | | formula 4 | -6,013333* | ,030102 | ,000 | -6,07715 | -5,94952 |
| | | ekstrak 5000ppm | -1,845333* | ,030102 | ,000 | -1,90915 | -1,78152 |
| | | ekstrak 10000ppm | -5,310333* | ,030102 | ,000 | -5,37415 | -5,24652 |
| | | ekstrak 15000ppm | -10,574000* | ,030102 | ,000 | -10,63781 | -10,51019 |
| | | nivea | -26,394333* | ,030102 | ,000 | -26,45815 | -26,33052 |
| | formula 3 | formula 1 | 3,359667* | ,030102 | ,000 | 3,29585 | 3,42348 |
| | | formula 2 | 2,598000* | ,030102 | ,000 | 2,53419 | 2,66181 |
| | | formula 4 | -3,415333* | ,030102 | ,000 | -3,47915 | -3,35152 |
| | | ekstrak 5000ppm | ,752667* | ,030102 | ,000 | ,68885 | ,81648 |
| | | ekstrak 10000ppm | -2,712333* | ,030102 | ,000 | -2,77615 | -2,64852 |
| | | ekstrak 15000ppm | -7,976000* | ,030102 | ,000 | -8,03981 | -7,91219 |
| | | nivea | -23,796333* | ,030102 | ,000 | -23,86015 | -23,73252 |
| | formula 4 | formula 1 | 6,775000* | ,030102 | ,000 | 6,71119 | 6,83881 |
| | | formula 2 | 6,013333* | ,030102 | ,000 | 5,94952 | 6,07715 |
| | | formula 3 | 3,415333* | ,030102 | ,000 | 3,35152 | 3,47915 |
| | | ekstrak 5000ppm | 4,168000* | ,030102 | ,000 | 4,10419 | 4,23181 |
| | | ekstrak 10000ppm | ,703000* | ,030102 | ,000 | ,63919 | ,76681 |
| | | ekstrak 15000ppm | -4,560667* | ,030102 | ,000 | -4,62448 | -4,49685 |
| | | nivea | -20,381000* | ,030102 | ,000 | -20,44481 | -20,31719 |

**---Lanjutan----------**

| | | | | | | |
|---|---|---|---|---|---|---|
| ekstrak 5000ppm | formula 1 | 2,607000* | ,030102 | ,000 | 2,54319 | 2,67081 |
| | formula 2 | 1,845333* | ,030102 | ,000 | 1,78152 | 1,90915 |
| | formula 3 | -,752667* | ,030102 | ,000 | -,81648 | -,68885 |
| | formula 4 | -4,168000* | ,030102 | ,000 | -4,23181 | -4,10419 |
| | ekstrak 10000ppm | -3,465000* | ,030102 | ,000 | -3,52881 | -3,40119 |
| | ekstrak 15000ppm | -8,728667* | ,030102 | ,000 | -8,79248 | -8,66485 |
| | nivea | -24,549000* | ,030102 | ,000 | -24,61281 | -24,48519 |
| ekstrak 10000ppm | formula 1 | 6,072000* | ,030102 | ,000 | 6,00819 | 6,13581 |
| | formula 2 | 5,310333* | ,030102 | ,000 | 5,24652 | 5,37415 |
| | formula 3 | 2,712333* | ,030102 | ,000 | 2,64852 | 2,77615 |
| | formula 4 | -,703000* | ,030102 | ,000 | -,76681 | -,63919 |
| | ekstrak 5000ppm | 3,465000* | ,030102 | ,000 | 3,40119 | 3,52881 |
| | ekstrak 15000ppm | -5,263667* | ,030102 | ,000 | -5,32748 | -5,19985 |
| | nivea | -21,084000* | ,030102 | ,000 | -21,14781 | -21,02019 |
| ekstrak 15000ppm | formula 1 | 11,335667* | ,030102 | ,000 | 11,27185 | 11,39948 |
| | formula 2 | 10,574000* | ,030102 | ,000 | 10,51019 | 10,63781 |
| | formula 3 | 7,976000* | ,030102 | ,000 | 7,91219 | 8,03981 |
| | formula 4 | 4,560667* | ,030102 | ,000 | 4,49685 | 4,62448 |
| | ekstrak 5000ppm | 8,728667* | ,030102 | ,000 | 8,66485 | 8,79248 |
| | ekstrak 10000ppm | 5,263667* | ,030102 | ,000 | 5,19985 | 5,32748 |
| | nivea | -15,820333* | ,030102 | ,000 | -15,88415 | -15,75652 |
| nivea | formula 1 | 27,156000* | ,030102 | ,000 | 27,09219 | 27,21981 |
| | formula 2 | 26,394333* | ,030102 | ,000 | 26,33052 | 26,45815 |
| | formula 3 | 23,796333* | ,030102 | ,000 | 23,73252 | 23,86015 |
| | formula 4 | 20,381000* | ,030102 | ,000 | 20,31719 | 20,44481 |
| | ekstrak 5000ppm | 24,549000* | ,030102 | ,000 | 24,48519 | 24,61281 |
| | ekstrak 10000ppm | 21,084000* | ,030102 | ,000 | 21,02019 | 21,14781 |
| | ekstrak 15000ppm | 15,820333* | ,030102 | ,000 | 15,75652 | 15,88415 |

## Lampiran 14. Dokumentasi Penelitian


Proses peleburan fase minyak untuk basis *spray lotion*




Proses peleburan fase air untuk basis *spray lotion*


Proses homogenisasi basis *spray lotion* dengan *Ultra-Turrax*®

Hasil formulasi *spray lotion*

Uji stabilitas paparan langsung sinar matahari

Preparasi sampel untuk penentuan nilai SPF

**Lampiran 15. Analisis Korelasi Evaluasi Fisik terhadap Nilai SPF Sediaan**

## Correlation: pH. SPF

```
Pearson correlation of pH and SPF = -0,670
P-Value = 0,330
```

## Correlation: viskositas. SPF

```
Pearson correlation of viskositas and SPF = 0,947
P-Value = 0,053
```

## Correlation: dayasebar. SPF

```
Pearson correlation of dayasebar and SPF = -0,636
P-Value = 0,364
```

## Correlation: dayalekat. SPF

```
Pearson correlation of dayalekat and SPF = 0,581
P-Value = 0,419
```

## Correlation: dayatercuci. SPF

```
Pearson correlation of dayatercuci and SPF = 0,470
P-Value = 0,530
```

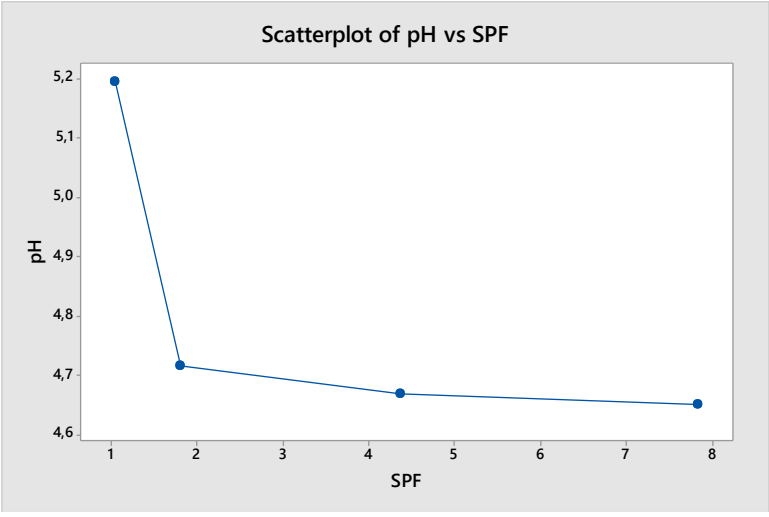
## Correlation: diameter semprot. SPF

```
Pearson correlation of diameter semprot and SPF = -0,887
P-Value = 0,113
```

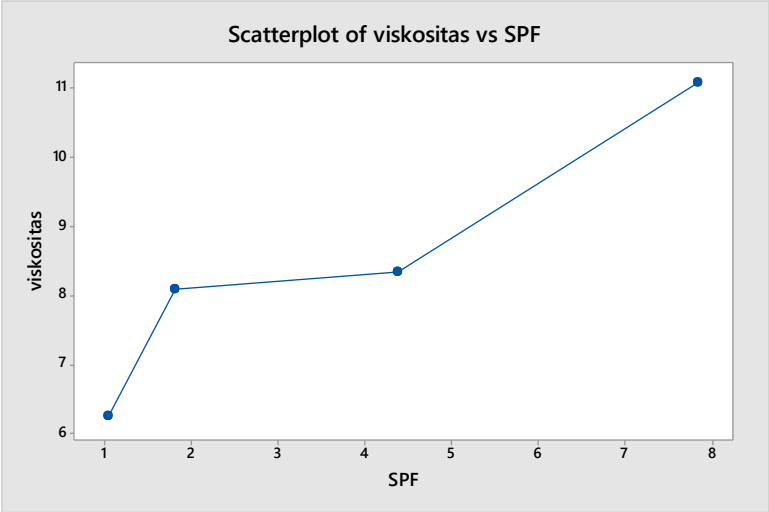
## Correlation: pumpdelivery. SPF

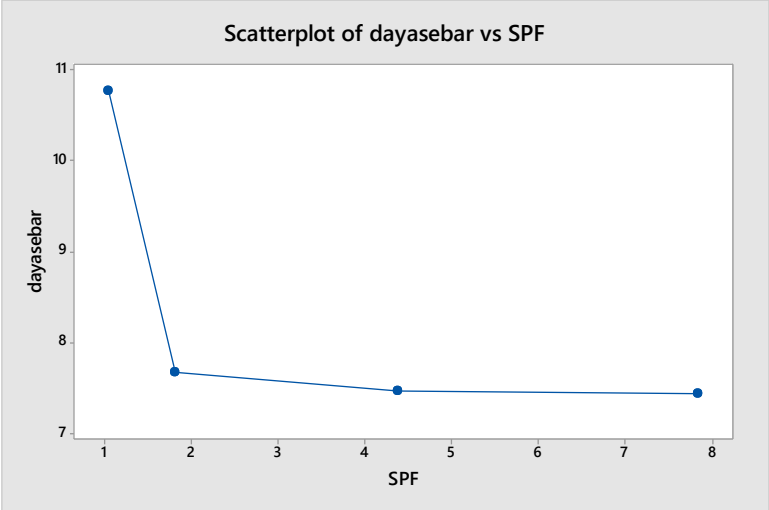
```
Pearson correlation of pumpdelivery and SPF = -0,629
P-Value = 0,371
```

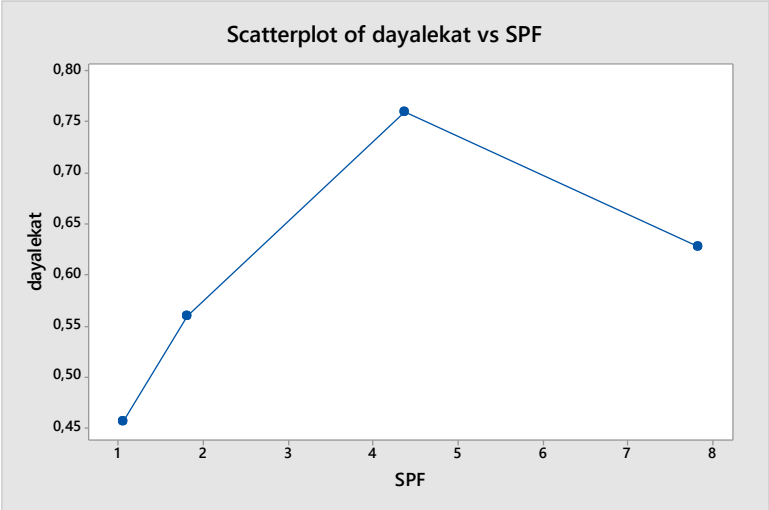
**Grafik Korelasi Hasil Evaluasi Fisik terhadap Nilai SPF Sediaan**



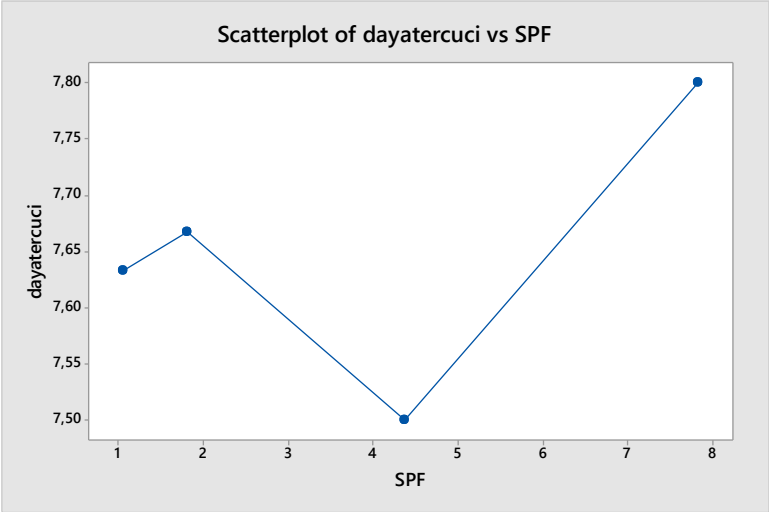
**Lampiran 15. (Lanjutan)**

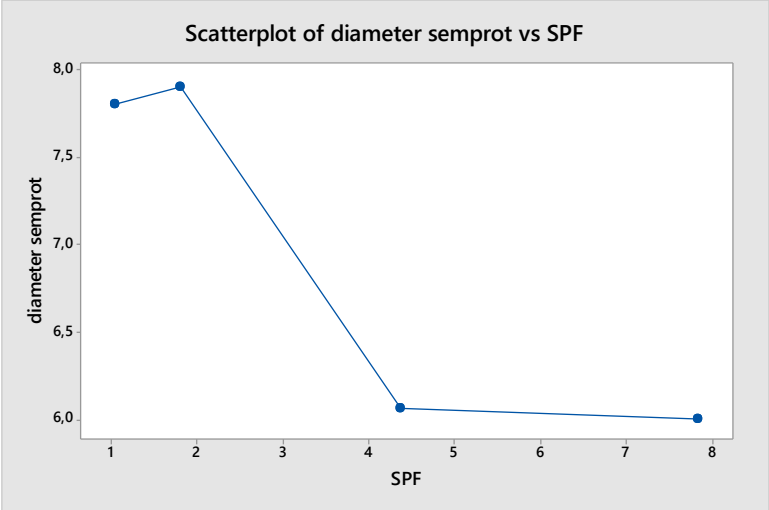


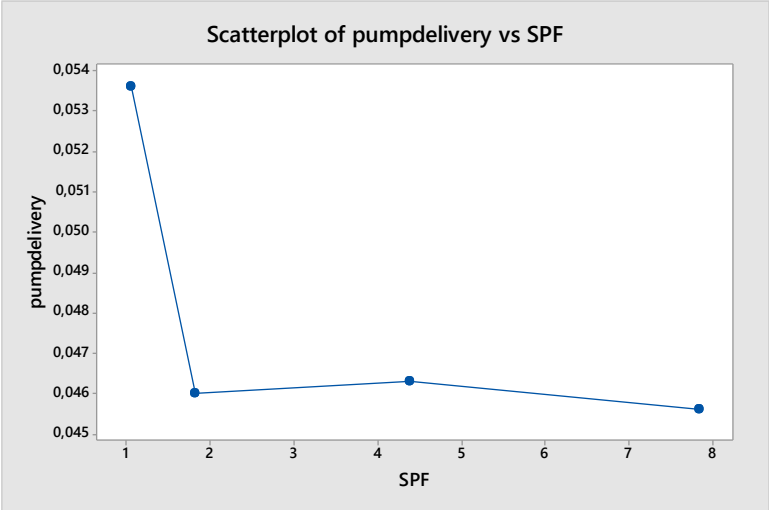



**Lampiran 15. (Lanjutan)**



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