# BAB V

# KESIMPULAN

## A. Kesimpulan

Berdasarkan hasil penelitian tablet hisap sari buah belimbing manis dengan variasi konsentrasi bahan pengisi manitol dan laktosa dapat disimpulkan bahwa:

1. Sari buah belimbing manis dapat dibuat tablet hisap dengan konsentrasi bahan pengisi manitol dan laktosa.

2. Variasi konsentrasi bahan pengisi manitol dan laktosa berpengaruh terhadap sifat fisik tablet hisap sari buah belimbing manis yaitu semakin tinggi konsentrasi laktosa maka kekerasan semakin meningkat sehingga mempunyai kerapuhan yang rendah dan waktu larut yang paling lama.

3. Formula III memiliki sifar fisik tablet yang lebih baik dibandingkan pada formula I dan formula II. Tablet hisap yang paling diterima oleh responden adalah Formula I.

## B. Saran

1. Perlu dilakukan penelitian lebih lanjut tentang tablet hisap sari buah belimbing manis.

2. Perlu dilakukan penelitian menggunakan bahan pengisi lain

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LAMPIRAN

Lampiran 1. Hasil determinasi tanaman belimbing manis



**UPT-LABORATORIUM**

Nomor          : 24/DET/UPT-LAB/4.03.2020
Hal            : Hasil determinasi tumbuhan
Lamp.          : -

Nama Pemesan            : Dewi Rafika Sari
NIM                     : 20171269B
Alamat                  : Program Studi D-3 Farmasi, Universitas Setia Budi, Surakarta

HASIL DETERMINASI TUMBUHAN

Nama sampel             : Belimbing Buah (*Averrhoa carambola* L.)
Familia                 : Oxalidaceae.

Hasil Determinasi menurut Steenis, C.G.G.J.V, Bloembergen, H, Eyma, P.J. 1992 :
1b – 2b – 3b – 4b – 6b – 7b – 9b – 10b – 11b – 12b – 13b – 15b. golongan 9. 197b – 208b –
219b – 220b – 224b – 225b – 227b – 229b – 230b – 234b – 235b – 236b – 237b – 238a.
familia 61. Oxalidaceae. a. 1. Averrhoa. 1a. *Averrhoa carambola* L.

Deskripsi:
Habitus  :  Pohon, tinggi 5-12 meter.
Batang   :  Bulat, berkayu, monopodial, tegak.
Daun     :  Majemuk, beranak daun ganjil, anak daun bulat telur memanjang, meruncing,
            panjang 1,5-9 cm, lebar 1-4,5 cm, ke arah ujung poros semakin besar,
            permukaan atas hijau tua, permukaan bawah hijau muda.
Bunga    :  Malai bunga kebanyakan terkumpul rapat, panjang 1,5-7,5 cm. Bunga sebagian
            dengan benang sari pendek dan tangkai putik panjang, sebagian dengan benang

sari panjang dan tangkai putik pendek. Kelopak tinggi lk 4 mm. Daun mahkota di tengah bergandengan, bulat telur terbalik memanjang, dengan pangkal dan tepi pucat. 5 benang sari yang di depan daun mahkota mereduksi menjadi staminodia.

Buah : Buni bulat memanjang, dengan 5 rusuk yang tajam, kuning muda, panjang 4-13 cm.

Akar : Tunggang.

Surakarta, 4 Maret 2020

Kepala UPT-LAB                          Penanggung jawab
Universitas Setia Budi                    Determinasi Tumbuhan

Asik Gunawan, Amdk                    Dra. Dewi Sulistyawati. M.Sc.

Lampiran 2. Gambar buah belimbing manis

Lampiran 3. Gambar granul sari buah beelimbing manis

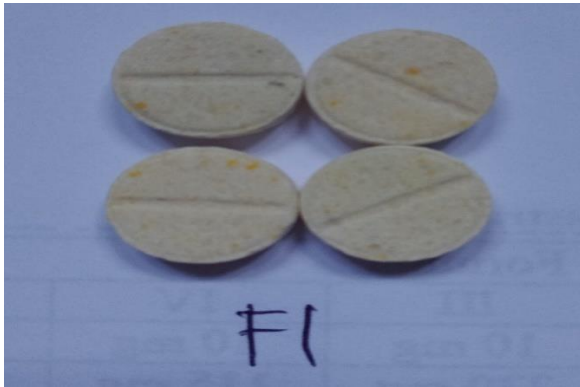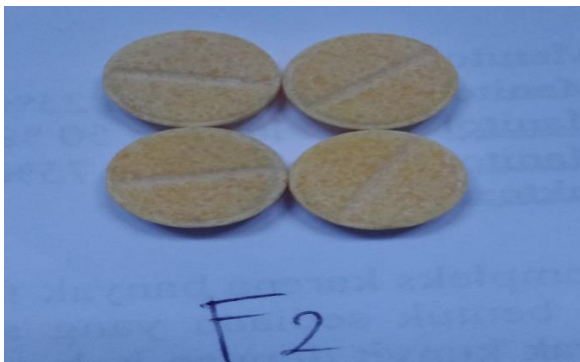Formula 1
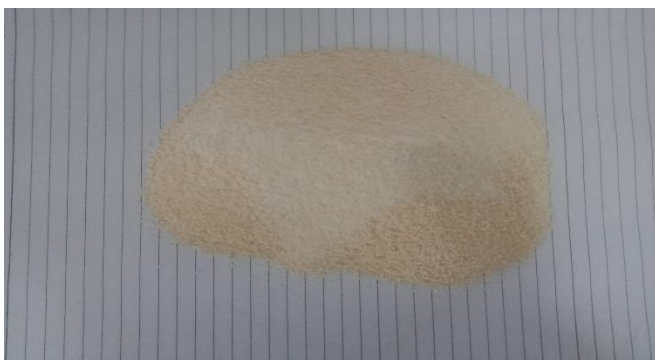


Formula 2



Formula 3

Lampiran 4. Gambar tablet hisap sari buah belimbing manis
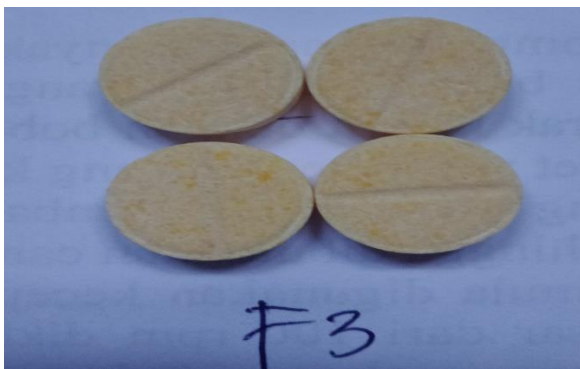
Formula 1



Formula 2



Formula 3

Lampiran 5. Mesin cetak tablet



Lampiran 6. Timbangan analitik

Lampiran 7.Alat uji susut pengeringan *(moisture balance)*



Lampiran 8. Alat uji kerapuhan (friabilator tester)



Lampiran 9. Alat uji kekerasan *(hardness tester)*

Lampiran 10.Perhitungan rendemen

Berat awal belimbing manis 500 gram

Penambahan maltodextrim sebanyak 450 gram

Berat sari + maltodektrim sebanyak 950 gram

Berat serbuk belimbing manis 528 gram

Untuk mengetahui berat kering:

Berat dikeringkan – berat penambahan maltodextrim

528 – 450 = 78 gram

Rendemen  terhadap buah belimbing manis

$=\dfrac{berat\ kering}{berat\ basah}$ x 100%

$=\dfrac{78\ g}{500\ g}\ x\ 100\%$

=15,6 %

Lampiran 11. Hasil uji waktu alir granul

| Replikasi | Waktu alir | | |
|---|---|---|---|
| | F1 | F2 | F3 |
| 1 | 7,37 | 7,08 | 6,41 |
| 2 | 7,26 | 7,03 | 6,30 |
| 3 | 7,02 | 6,10 | 6,10 |
| Rata-rata | 7,21 | 6,73 | 6,27 |
| SD | 0,17 | 0,55 | 0,15 |

Lampiran 12. Hasil statistik uji waktu alir granul

## NPar Tests

**Descriptive Statistics**

|  | N | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Waktu alir | 9 | 6.7411 | .50832 | 6.10 | 7.37 |

**One-Sample Kolmogorov-Smirnov Test**

|  |  | Nilai |
|---|---|---|
| N |  | 9 |
| Normal Parameters[a,b] | Mean | 6.7411 |
|  | Std. Deviation | .50832 |
| Most Extreme Differences | Absolute | .264 |
|  | Positive | .187 |
|  | Negative | -.264 |
| Test Statistic |  | .264 |
| Asymp. Sig. (2-tailed) |  | .071[c] |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

## Oneway

**Descriptives**

Waktu alir

|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Lower Bound | Upper Bound |  |  |
| F1 | 3 | 7.2167 | .17898 | .10333 | 6.7721 | 7.6613 | 7.02 | 7.37 |
| F2 | 3 | 6.7367 | .55194 | .31866 | 5.3656 | 8.1078 | 6.10 | 7.08 |
| F3 | 3 | 6.2700 | .15716 | .09074 | 5.8796 | 6.6604 | 6.10 | 6.41 |
| Total | 9 | 6.7411 | .50832 | .16944 | 6.3504 | 7.1318 | 6.10 | 7.37 |

**Test of Homogeneity of Variances**

Waktu alir

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 5.961 | 2 | 6 | .038 |

**ANOVA**

Waktu alir

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 1.344 | 2 | .672 | 5.580 | .043 |
| Within Groups | .723 | 6 | .120 | | |
| Total | 2.067 | 8 | | | |

## Post Hoc Tests

**Multiple Comparisons**

Waktu alir

Tukey HSD

| (I) formula | (J) formula | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| 1 | 2 | .48000 | .28338 | .282 | -.3895 | 1.3495 |
| | 3 | .94667* | .28338 | .036 | .0772 | 1.8162 |
| 2 | 1 | -.48000 | .28338 | .282 | -1.3495 | .3895 |
| | 3 | .46667 | .28338 | .299 | -.4028 | 1.3362 |
| 3 | 1 | -.94667* | .28338 | .036 | -1.8162 | -.0772 |
| | 2 | -.46667 | .28338 | .299 | -1.3362 | .4028 |

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

## Homogeneous Subsets

**Waktu alir**

Tukey HSD[a]

| formula | N | Subset for alpha = 0.05 | |
|---|---|---|---|
| | | 1 | 2 |
| 3 | 3 | 6.2700 | |
| 2 | 3 | 6.7367 | 6.7367 |
| 1 | 3 | | 7.2167 |
| Sig. | | .299 | .282 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 13. Hasil uji susut pengeringan

| Replikasi | Susut pengeringan | | |
|---|---|---|---|
| | **F1** | **F2** | **F3** |
| 1 | 3,3 | 3,2 | 2,5 |
| 2 | 4,1 | 3,1 | 2,5 |
| 3 | 4,3 | 2,5 | 1,5 |
| **Rata-rata** | **3,9** | **2,9** | **2,1** |
| **SD** | **0,52** | **0,37** | **0,57** |

Lampiran 14. Hasil stastik susut pengeringan

## NPar Tests

**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Susut pengeringan | 9 | 3.000 | .8689 | 1.5 | 4.3 |

**One-Sample Kolmogorov-Smirnov Test**

| | | Nilai |
|---|---|---|
| N | | 9 |
| Normal Parameters[a,b] | Mean | 3.000 |
| | Std. Deviation | .8689 |
| Most Extreme Differences | Absolute | .171 |
| | Positive | .162 |
| | Negative | -.171 |
| Test Statistic | | .171 |
| Asymp. Sig. (2-tailed) | | .200[c,d] |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

## Oneway

**Descriptives**

Susut pengeringan

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean Lower Bound | Upper Bound | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| F1 | 3 | 3.900 | .5292 | .3055 | 2.586 | 5.214 | 3.3 | 4.3 |
| F2 | 3 | 2.933 | .3786 | .2186 | 1.993 | 3.874 | 2.5 | 3.2 |
| F3 | 3 | 2.167 | .5774 | .3333 | .732 | 3.601 | 1.5 | 2.5 |
| Total | 9 | 3.000 | .8689 | .2896 | 2.332 | 3.668 | 1.5 | 4.3 |

**Test of Homogeneity of Variances**

Susut pengeringan

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .607 | 2 | 6 | .575 |

**ANOVA**

Susut pengeringan

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 4.527 | 2 | 2.263 | 8.974 | .016 |
| Within Groups | 1.513 | 6 | .252 |  |  |
| Total | 6.040 | 8 |  |  |  |

## Post Hoc Tests

**Multiple Comparisons**

Susut pengeringan

Tukey HSD

| (I) formula | (J) formula | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
|  |  |  |  |  | Lower Bound | Upper Bound |
| 1 | 2 | .9667 | .4101 | .122 | -.292 | 2.225 |
|  | 3 | 1.7333* | .4101 | .013 | .475 | 2.992 |
| 2 | 1 | -.9667 | .4101 | .122 | -2.225 | .292 |
|  | 3 | .7667 | .4101 | .227 | -.492 | 2.025 |
| 3 | 1 | -1.7333* | .4101 | .013 | -2.992 | -.475 |
|  | 2 | -.7667 | .4101 | .227 | -2.025 | .492 |

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

## Homogeneous Subsets

**Susut pengeringan**

Tukey HSD[a]

| formula | N | Subset for alpha = 0.05 | |
|---|---|---|---|
|  |  | 1 | 2 |
| 3 | 3 | 2.167 |  |
| 2 | 3 | 2.933 | 2.933 |
| 1 | 3 |  | 3.900 |
| Sig. |  | .227 | .122 |

Means for groups in homogeneous subsets are

displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 15. Hasil uji keseragaman bobot

| Tablet ke- | Formula I(mg) | Formula II(mg) | Formula III(mg) |
|---|---|---|---|
| 1 | 509 | 494 | 519 |
| 2 | 512 | 506 | 509 |
| 3 | 501 | 514 | 511 |
| 4 | 504 | 509 | 502 |
| 5 | 504 | 519 | 501 |
| 6 | 487 | 513 | 513 |
| 7 | 493 | 503 | 492 |
| 8 | 507 | 512 | 505 |
| 9 | 509 | 488 | 513 |
| 10 | 491 | 511 | 512 |
| 11 | 506 | 497 | 516 |
| 12 | 511 | 492 | 520 |
| 13 | 508 | 505 | 507 |
| 14 | 512 | 510 | 510 |
| 15 | 494 | 518 | 499 |
| 16 | 515 | 498 | 500 |
| 17 | 505 | 502 | 503 |
| 18 | 497 | 513 | 516 |
| 19 | 511 | 507 | 511 |
| 20 | 502 | 490 | 516 |
| Rata-rata | 503,9 | 505,05 | 508,75 |
| SD | 7,839 | 9.276 | 7,454 |
| CV | 1,55% | 1,83% | 1,46% |

Lampiran 16. Perhitungan penyimpangan bobot tablet

FORMULA I

a. Kolom A

$\frac{5}{100}$x 503,9 = 25,195

BA = 503,9 + 25,195 = 529,095

BB = 503,9 – 25,195 = 478,705

Range bobot tablet = 478,705 – 529,095

b. Kolom B

$\frac{10}{100}$ $x$ 503,9 = 50,39

BA= 503,9 + 50,39 = 554,29

BB = 503,9 – 50,39 = 453,51

Range bobot tablet = 453,51 – 554,29

CV = $\frac{SD}{rata-rata}$ $x$ 100%

=$\frac{7,839}{503,9}$ x 100% = 1,55%

FORMULA II

a. Kolom A

$\frac{5}{100}$x 505,05 = 25,2525

BA = 505,05 + 25,2525= 530,302

BB = 505,05 – 25,2525 = 479,79

Range bobot tablet = 479,79 – 530,30

b. Kolom B

$\frac{10}{100}$ $x$ 505,05 = 50,505

BA = 505,05 + 50,505 = 555,555

BB = 505,05 – 50,505 = 454, 545

Range bobot tablet = 454,545 – 555,555

$$CV = \frac{SD}{rata-rata} \; x \; 100\%$$

$$= \frac{9,276}{505,05} \; x \; 100\% = 1,83\%$$

FORMULA III

a. Kolom A

$$\frac{5}{100} x \; 508,75 = 25,437$$

BA = 508,75 + 25,437 = 534,187

BB = 508,75 − 25,437 = 483, 321

Range bobot tablet = 483,321 – 534,187

b. Kolom B

$$\frac{10}{100} \; x \; 508,75 = 50,875$$

BA = 508,75 + 50,875 = 559,625

BB = 508,75 − 50,875 = 457,875

Range bobot tablet = 457,875 – 559,625

$$CV = \frac{SD}{rata-rata} \; x \; 100\%$$

$$= \frac{7,454}{508,75} \; x \; 100\% = 1,46\%$$

Lampiran 17. Hasil statistik keseragaman bobot

## NPar Tests

**Descriptive Statistics**

| | N | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Keseragaman bobot | 60 | 505.90 | 8.352 | 487 | 520 |

**One-Sample Kolmogorov-Smirnov Test**

| | | Nilai |
|---|---|---|
| N | | 60 |
| Normal Parameters[a,b] | Mean | 505.90 |
| | Std. Deviation | 8.352 |
| Most Extreme Differences | Absolute | .111 |
| | Positive | .073 |
| | Negative | -.111 |
| Test Statistic | | .111 |
| Asymp. Sig. (2-tailed) | | .062[c] |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

## Oneway

**Descriptives**

Keseragaman bobot

| | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound | | |
| F1 | 20 | 503.90 | 7.840 | 1.753 | 500.23 | 507.57 | 487 | 515 |
| F2 | 20 | 505.05 | 9.276 | 2.074 | 500.71 | 509.39 | 488 | 519 |
| F3 | 20 | 508.75 | 7.454 | 1.667 | 505.26 | 512.24 | 492 | 520 |
| Total | 60 | 505.90 | 8.352 | 1.078 | 503.74 | 508.06 | 487 | 520 |

**Test of Homogeneity of Variances**

Keseragaman bobot

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .716 | 2 | 57 | .493 |

**ANOVA**

Keseragaman bobot

| | Sum of Squares | Df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 256.900 | 2 | 128.450 | 1.898 | .159 |
| Within Groups | 3858.500 | 57 | 67.693 | | |
| Total | 4115.400 | 59 | | | |

## Post Hoc Tests

**Multiple Comparisons**

Keseragaman bobot

Tukey HSD

| (I) formula | (J) formula | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| Formula 1 | formula2 | -1.150 | 2.602 | .898 | -7.41 | 5.11 |
| | formula3 | -4.850 | 2.602 | .159 | -11.11 | 1.41 |
| Formula 2 | formula1 | 1.150 | 2.602 | .898 | -5.11 | 7.41 |
| | formula3 | -3.700 | 2.602 | .336 | -9.96 | 2.56 |
| Formula 3 | formula1 | 4.850 | 2.602 | .159 | -1.41 | 11.11 |
| | formula2 | 3.700 | 2.602 | .336 | -2.56 | 9.96 |

## Homogeneous Subsets

**Keseragaman bobot**

Tukey HSD[a]

| Formula | N | Subset for alpha = 0.05 |
|---|---|---|
| | | 1 |
| 1 | 20 | 503.90 |
| 2 | 20 | 505.05 |
| 3 | 20 | 508.75 |
| Sig. | | .159 |

Means for groups in homogeneous

subsets are displayed.

a. Uses Harmonic Mean Sample Size =

20.000.

Lampiran 18. Hasil uji kekerasan tablet

Formula I

| Tablet ke- | Replikasi | | | |
|---|---|---|---|---|
| | I | II | III | |
| 1 | 3,9 | 4,2 | 6,3 | |
| 2 | 4,3 | 5,1 | 5,6 | |
| 3 | 5,1 | 5,6 | 6,9 | |
| 4 | 3,3 | 4,5 | 7,2 | |
| 5 | 4,8 | 5,8 | 5,3 | |
| 6 | 5,5 | 6,6 | 7,4 | |
| Rata-rata ± SD | 4,48 ± 0,81 | 5,3 ± 0,88 | 6,48 ± 0,86 | 5,41 ± 0,85 |

Formula II

| Tablet ke- | Replikasi | | | |
|---|---|---|---|---|
| | I | II | III | |
| 1 | 4,6 | 5,2 | 7,8 | |
| 2 | 5,9 | 5,6 | 7,3 | |
| 3 | 4,8 | 4,8 | 6,9 | |
| 4 | 7,2 | 6,1 | 8,2 | |
| 5 | 5,3 | 4,3 | 7,3 | |
| 6 | 5,6 | 6,7 | 7,4 | |
| Rata-rata ± SD | 5,56 ± 0,93 | 5,45 ± 0,87 | 7,48 ±0,45 | 6,16 ± 0,75 |

Formula III

| Tablet ke- | Replikasi | | | |
|---|---|---|---|---|
| | I | II | III | |
| 1 | 7,8 | 6,9 | 7,6 | |
| 2 | 6,8 | 7,8 | 6,0 | |
| 3 | 7,2 | 7,3 | 6,4 | |
| 4 | 6,5 | 6,4 | 7,9 | |
| 5 | 7,1 | 5,7 | 8,2 | |
| 6 | 8,2 | 8,1 | 7,8 | |
| Rata-rata ± SD | 7,26 ± 0,63 | 7,03 ± 0,89 | 7,31 ± 0,89 | 7,2 ± 0,80 |

Lampiran 19. Hasil statistik kekerasan tablet

## NPar Tests

**Descriptive Statistics**

|  | N | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Kekerasan tablet | 54 | 6.261 | 1.2813 | 3.3 | 8.2 |

**One-Sample Kolmogorov-Smirnov Test**

|  |  | Nilai |
|---|---|---|
| N |  | 54 |
| Normal Parameters[a,b] | Mean | 6.261 |
|  | Std. Deviation | 1.2813 |
| Most Extreme Differences | Absolute | .101 |
|  | Positive | .067 |
|  | Negative | -.101 |
| Test Statistic |  | .101 |
| Asymp. Sig. (2-tailed) |  | .200[c,d] |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

## Oneway

**Descriptives**

Kekerasan tablet

|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Lower Bound | Upper Bound |  |  |
| F1 | 18 | 5.411 | 1.1545 | .2721 | 4.837 | 5.985 | 3.3 | 7.4 |
| F2 | 18 | 6.167 | 1.2093 | .2850 | 5.565 | 6.768 | 4.3 | 8.2 |
| F3 | 18 | 7.206 | .7772 | .1832 | 6.819 | 7.592 | 5.7 | 8.2 |
| Total | 54 | 6.261 | 1.2813 | .1744 | 5.911 | 6.611 | 3.3 | 8.2 |

**Test of Homogeneity of Variances**

Kekerasan tablet

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 2.491 | 2 | 51 | .093 |

**ANOVA**

Kekerasan tablet

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 29.221 | 2 | 14.611 | 12.895 | .000 |
| Within Groups | 57.787 | 51 | 1.133 |  |  |
| Total | 87.008 | 53 |  |  |  |

## Post Hoc Tests

**Multiple Comparisons**

Kekerasan tablet

Tukey HSD

| (I) formula | (J) formula | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval Lower Bound | 95% Confidence Interval Upper Bound |
|---|---|---|---|---|---|---|
| formula1 | formula2 | -.7556 | .3548 | .094 | -1.612 | .101 |
|  | formula3 | -1.7944* | .3548 | .000 | -2.651 | -.938 |
| formula2 | formula1 | .7556 | .3548 | .094 | -.101 | 1.612 |
|  | formula3 | -1.0389* | .3548 | .014 | -1.895 | -.182 |
| formula3 | formula1 | 1.7944* | .3548 | .000 | .938 | 2.651 |
|  | formula2 | 1.0389* | .3548 | .014 | .182 | 1.895 |

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

## Homogeneous Subsets

**Kekerasan tablet**

Tukey HSD[a]

| formula | N | Subset for alpha = 0.05 1 | 2 |
|---|---|---|---|
| 1 | 18 | 5.411 |  |
| 2 | 18 | 6.167 |  |
| 3 | 18 |  | 7.206 |
| Sig. |  | .094 | 1.000 |

Means for groups in homogeneous subsets are
displayed.

a. Uses Harmonic Mean Sample Size = 18.000.

Lampiran 20. Hasil uji waktu larut tablet secara invivo

| Replikasi | Formula I(menit) | Formula II(menit) | Formula III(menit) |
|---|---|---|---|
| 1 | 6,34 | 7,45 | 8,32 |
| 2 | 6,09 | 7,16 | 8,56 |
| 3 | 6,05 | 7,41 | 7,38 |
| 4 | 6,22 | 7,01 | 8,46 |
| 5 | 6,12 | 7,37 | 8,19 |
| 6 | 7,23 | 6,43 | 7,11 |
| 7 | 7,15 | 7,23 | 8,22 |
| 8 | 6,43 | 7,16 | 7,51 |
| 9 | 6,09 | 7,34 | 7,39 |
| 10 | 6,05 | 6,43 | 7,57 |
| 11 | 7,08 | 7,12 | 8,06 |
| 12 | 6,14 | 6,17 | 7,18 |
| 13 | 7,11 | 6,51 | 8,10 |
| 14 | 6,35 | 7,15 | 7,47 |
| 15 | 6,41 | 7,15 | 8,31 |
| 16 | 6,52 | 7,39 | 7,51 |
| 17 | 6,15 | 6,49 | 8,37 |
| 18 | 7,13 | 7,08 | 7,31 |
| 19 | 7,08 | 7,05 | 8,16 |
| 20 | 6,27 | 7,11 | 8,03 |
| Rata-rata | 6,50 menit=410 detik | 7,01 menit=421 detik | 7,86menit=506 detik |
| SD | 0,44 | 0,38 | 0,47 |

Lampiran 21. hasil statistik uji waktu larut secara invivo

## NPar Tests

**Descriptive Statistics**

|  | N | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| nilai | 60 | 7.1238 | .70884 | 6.05 | 8.56 |

**One-Sample Kolmogorov-Smirnov Test**

|  |  | nilai |
|---|---|---|
| N |  | 60 |
| Normal Parameters[a,b] | Mean | 7.1238 |
|  | Std. Deviation | .70884 |
| Most Extreme Differences | Absolute | .125 |
|  | Positive | .120 |
|  | Negative | -.125 |
| Test Statistic |  | .125 |
| Asymp. Sig. (2-tailed) |  | .020[c] |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

## Oneway

**Descriptives**

Uji waktu alir

|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Lower Bound | Upper Bound |  |  |
| 1 | 20 | 6.5005 | .44294 | .09904 | 6.2932 | 6.7078 | 6.05 | 7.23 |
| 2 | 20 | 7.0105 | .38365 | .08579 | 6.8309 | 7.1901 | 6.17 | 7.45 |
| 3 | 20 | 7.8605 | .47235 | .10562 | 7.6394 | 8.0816 | 7.11 | 8.56 |
| Total | 60 | 7.1238 | .70884 | .09151 | 6.9407 | 7.3069 | 6.05 | 8.56 |

**Test of Homogeneity of Variances**

Uji waktu alir

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| 2.067 | 2 | 57 | .136 |

**ANOVA**

Uji waktu alir

|  | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | 18.881 | 2 | 9.441 | 49.996 | .000 |
| Within Groups | 10.763 | 57 | .189 | | |
| Total | 29.645 | 59 | | | |

## Post Hoc Tests

**Multiple Comparisons**

Uji waktu alir

Tukey HSD

| (I) formula | (J) formula | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| formula1 | formula2 | -.51000[*] | .13742 | .001 | -.8407 | -.1793 |
| | formula3 | -1.36000[*] | .13742 | .000 | -1.6907 | -1.0293 |
| formula2 | formula1 | .51000[*] | .13742 | .001 | .1793 | .8407 |
| | formula3 | -.85000[*] | .13742 | .000 | -1.1807 | -.5193 |
| formula3 | formula1 | 1.36000[*] | .13742 | .000 | 1.0293 | 1.6907 |
| | formula2 | .85000[*] | .13742 | .000 | .5193 | 1.1807 |

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

## Homogeneous Subsets

**Uji waktu alir**

Tukey HSD[a]

| formula | N | Subset for alpha = 0.05 | | |
|---|---|---|---|---|
| | | 1 | 2 | 3 |
| 1 | 20 | 6.5005 | | |
| 2 | 20 | | 7.0105 | |
| 3 | 20 | | | 7.8605 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 20.000.

Lampiran 22. Hasil uji kerapuhan tablet

| Replikasi | F1 | | | F2 | | | F3 | | |
|---|---|---|---|---|---|---|---|---|---|
| | a(g) | b(g) | F(%) | a(g) | b(g) | F(%) | a(g) | b(g) | F(%) |
| 1 | 10.010 | 9.928 | 0,81 | 9.849 | 9.775 | 0.75 | 9.960 | 9.899 | 0,61 |
| 2 | 9.990 | 9.911 | 0,79 | 9.969 | 9.899 | 0.70 | 9.985 | 9.921 | 0,64 |
| 3 | 9.872 | 9.796 | 0.76 | 9.920 | 9.847 | 0.73 | 9.884 | 9.884 | 0,60 |
| $\bar{\bar{X}}$ | | | 0,78 | | | 0.72 | | | 0,64 |
| SD | | | 0,025 | | | 0.025 | | | 0.020 |

Contoh perhitungan uji kerapuhan tablet:

Bobot 20 tablet mula-mula       (a) = gram

Bobot akhir       (b) = gram

Angka kerapuhan       (F) = $\frac{a-b}{a}$ x 100%

$$= \frac{10.010 - 9.928}{10.010} \text{ x } 100\%$$

Lampiran 23. Hasil statistik kerapuhan

## NPar Tests

**Descriptive Statistics**

|  | N | Mean | Std. Deviation | Minimum | Maximum |
|---|---|---|---|---|---|
| Kerapuhan | 9 | .7100 | .07746 | .60 | .81 |

**One-Sample Kolmogorov-Smirnov Test**

|  |  | nilai |
|---|---|---|
| N |  | 9 |
| Normal Parameters[a,b] | Mean | .7100 |
|  | Std. Deviation | .07746 |
| Most Extreme Differences | Absolute | .157 |
|  | Positive | .150 |
|  | Negative | -.157 |
| Test Statistic |  | .157 |
| Asymp. Sig. (2-tailed) |  | .200[c,d] |

a. Test distribution is Normal.

b. Calculated from data.

c. Lilliefors Significance Correction.

d. This is a lower bound of the true significance.

## Oneway

**Descriptives**

Kerapuhan

|  | N | Mean | Std. Deviation | Std. Error | 95% Confidence Interval for Mean | | Minimum | Maximum |
|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  | Lower Bound | Upper Bound |  |  |
| 1 | 3 | .7867 | .02517 | .01453 | .7242 | .8492 | .76 | .81 |
| 2 | 3 | .7267 | .02517 | .01453 | .6642 | .7892 | .70 | .75 |
| 3 | 3 | .6167 | .02082 | .01202 | .5650 | .6684 | .60 | .64 |
| Total | 9 | .7100 | .07746 | .02582 | .6505 | .7695 | .60 | .81 |

**Test of Homogeneity of Variances**

Kerapuhan

| Levene Statistic | df1 | df2 | Sig. |
|---|---|---|---|
| .038 | 2 | 6 | .963 |

**ANOVA**

Kerapuhan

| | Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Between Groups | .045 | 2 | .022 | 39.353 | .000 |
| Within Groups | .003 | 6 | .001 | | |
| Total | .048 | 8 | | | |

## Post Hoc Tests

**Multiple Comparisons**

Kerapuhan

Tukey HSD

| (I) formula | (J) formula | Mean Difference (I-J) | Std. Error | Sig. | 95% Confidence Interval | |
|---|---|---|---|---|---|---|
| | | | | | Lower Bound | Upper Bound |
| 1 | 2 | .06000* | .01944 | .049 | .0004 | .1196 |
| | 3 | .17000* | .01944 | .000 | .1104 | .2296 |
| 2 | 1 | -.06000* | .01944 | .049 | -.1196 | -.0004 |
| | 3 | .11000* | .01944 | .003 | .0504 | .1696 |
| 3 | 1 | -.17000* | .01944 | .000 | -.2296 | -.1104 |
| | 2 | -.11000* | .01944 | .003 | -.1696 | -.0504 |

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

## Homogeneous Subsets

**Nilai**

Tukey HSD[a]

| formula | N | Subset for alpha = 0.05 | | |
|---|---|---|---|---|
| | | 1 | 2 | 3 |
| 3 | 3 | .6167 | | |
| 2 | 3 | | .7267 | |
| 1 | 3 | | | .7867 |
| Sig. | | 1.000 | 1.000 | 1.000 |

Means for groups in homogeneous subsets are displayed.

a. Uses Harmonic Mean Sample Size = 3.000.

Lampiran 24. Anget uji tanggap rasa dan waktu larut tablet hisap sari buah belimbing manis

**Identitas Responden**

**Nama:……………………………..**

**Umur:……………………………..**

ANGKET UJI TANGGAP RASA DAN WAKTU LARUT TABLET HISAP
SARI BUAH BELIMBING MANIS

| Formula | Tanggap Rasa Responden Terhadap Tablet Hisap Sari Buah Belimbing Manis | | | Waktu larut (menit) |
|---|---|---|---|---|
| | Cukup | Manis | Sangat manis | |
| 1 | | | | |
| 2 | | | | |
| 3 | | | | |

Beri tanda (√) pada kolom yang telah disediakan pada tanggapan rasa masing-masing tiap formula tablet hisap serta catat waktu yang dibutuhkan tablet hisap untuk melarut sempurna dalam rongga mulut.

Lampiran 25. Hasil uji tanggapan rasa

| Replikasi | Nama (unisial) | Responden Rasa | | |
|---|---|---|---|---|
| | | Formula I | Formula II | Formula III |
| 1 | Er | Manis | Manis | Cukup |
| 2 | Ru | Sangat manis | Manis | Cukup |
| 3 | Et | Sangat manis | Manis | Manis |
| 4 | Ba | Sangat manis | Manis | Manis |
| 5 | Su | Manis | Sangat manis | Cukup |
| 6 | Wa | Manis | Manis | Cukup |
| 7 | Ba | Sangat manis | Manis | Cukup |
| 8 | De | Manis | Sangat manis | Cukup |
| 9 | Da | Sangat manis | Sangat manis | Cukup |
| 10 | Yu | Manis | Manis | Manis |
| 11 | Ol | Manis | Manis | Manis |
| 12 | Lu | Sangat manis | Manis | Manis |
| 13 | Ya | Manis | Manis | Cukup |
| 14 | Mu | Sangat manis | Sangat manis | Cukup |
| 15 | Tu | Sangat manis | Sangat manis | Cukup |
| 16 | Ri | Sangat manis | Manis | Cukup |
| 17 | Yu | Manis | Manis | Cukup |
| 18 | Fa | Sangat manis | Sangat manis | Manis |
| 19 | Ti | Sangat manis | Manis | Manis |
| 20 | Ag | Sangat manis | Manis | Manis |

Lampiran 26. Gambar hasil uji identifikasi kandungan kimia
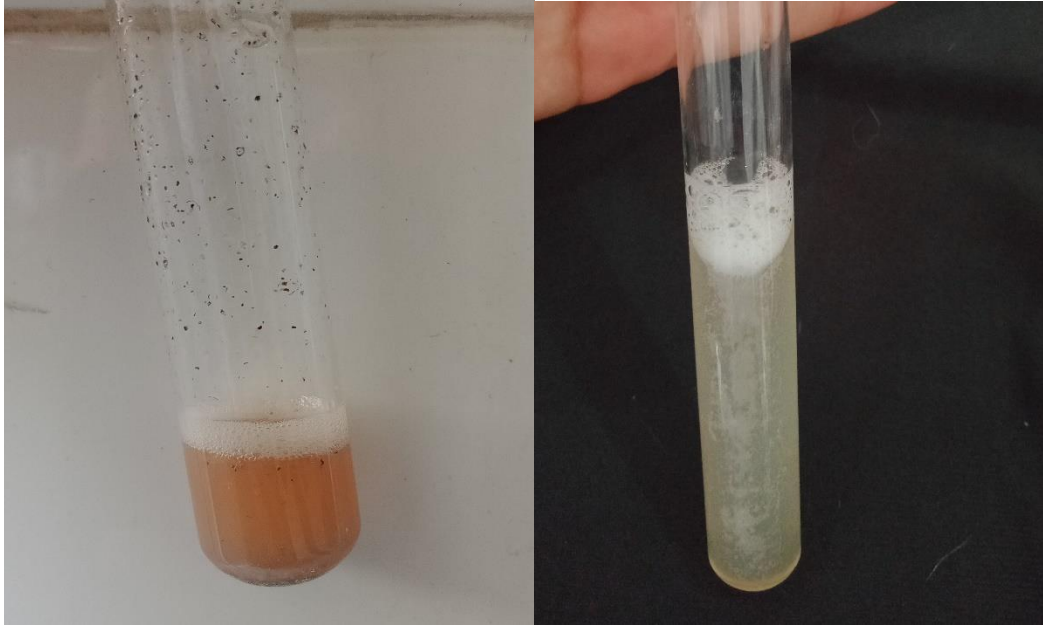


Flavonoid                                    Saponin

Lampiran 27. Perhitungan serbuk sari buah belimbing manis

Tiap tablet mengandung 15% serbuk sari buah belimbing manis untuk tablet dengan berat 500 mg.

Berat awal buah belimbing manis 500 mg

Penambahan maltodextrim 450 mg, maka berat total 950 mg

Untuk mengetahui berat serbuk sari buah belimbing manis tiap tablet (x) dapat dihitung sebagai berikut:

$$\frac{berat\ awal\ sari\ buah\ belimbing}{berat\ total} = \frac{x}{0,15}$$

$$\frac{500\ gram}{950\ gram} = \frac{x}{0,15}$$

$$= \frac{500\ x\ 0,15}{950} = 0,078\ gram = 78\ mg$$