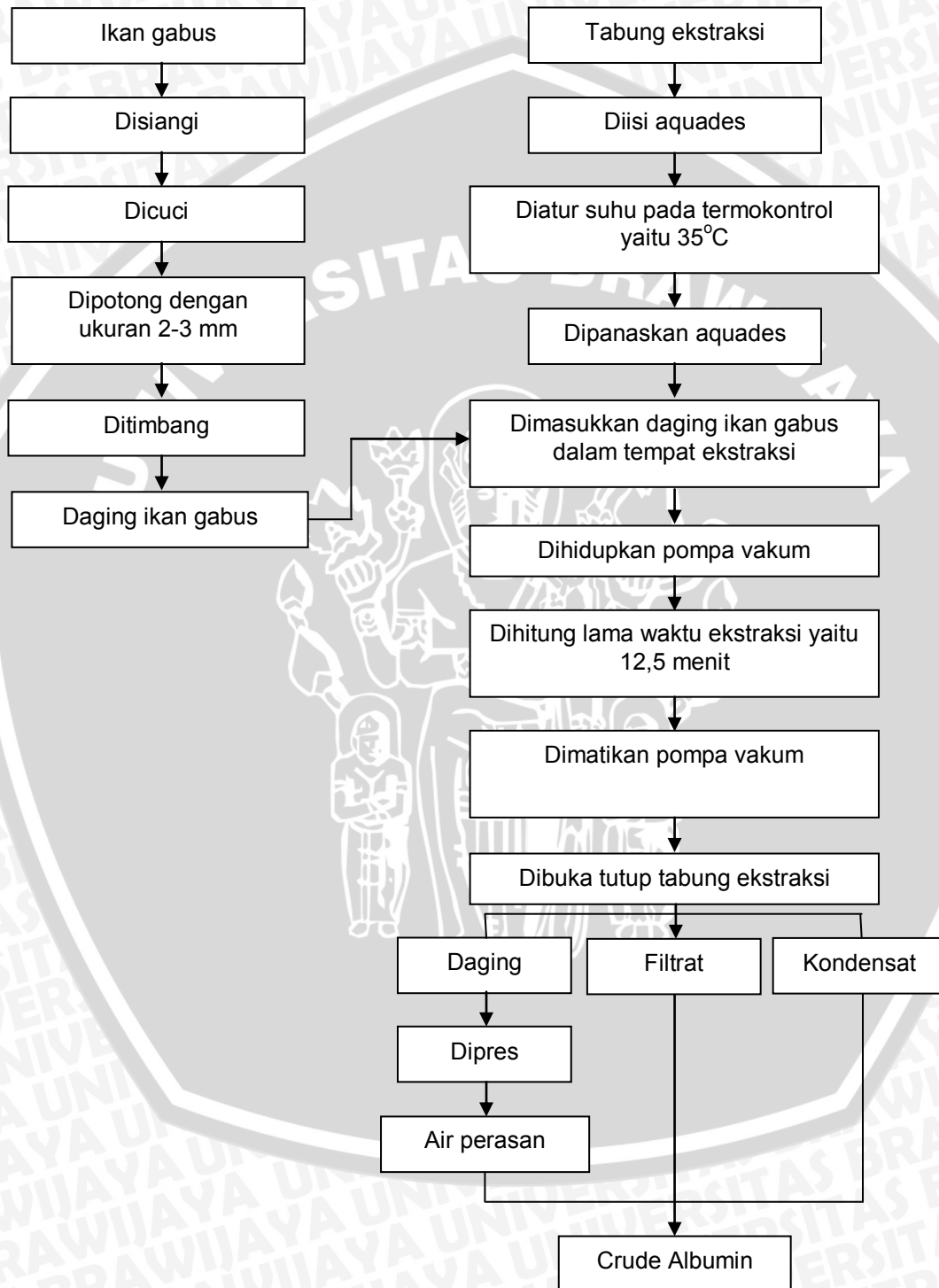
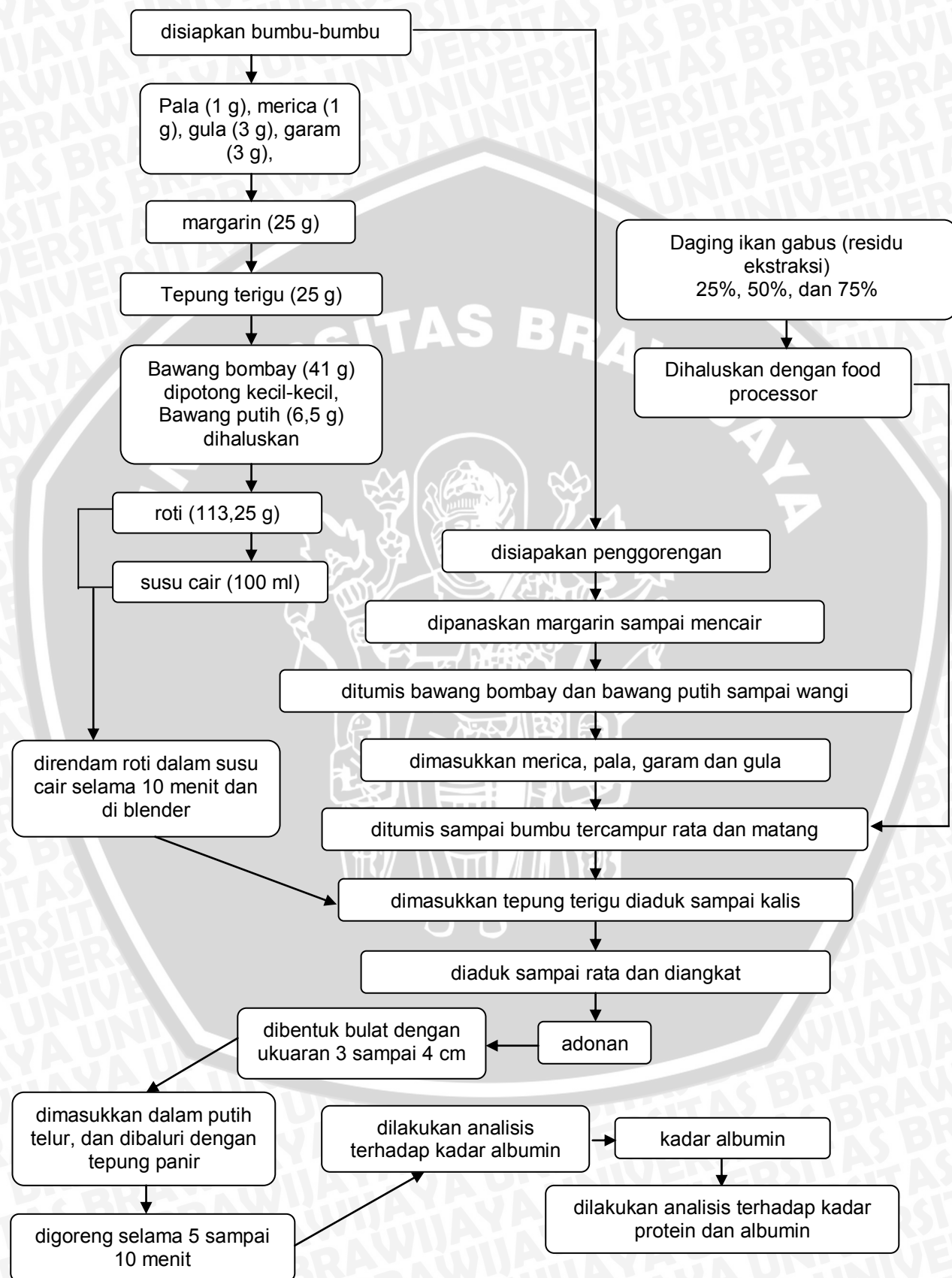


## LAMPIRAN

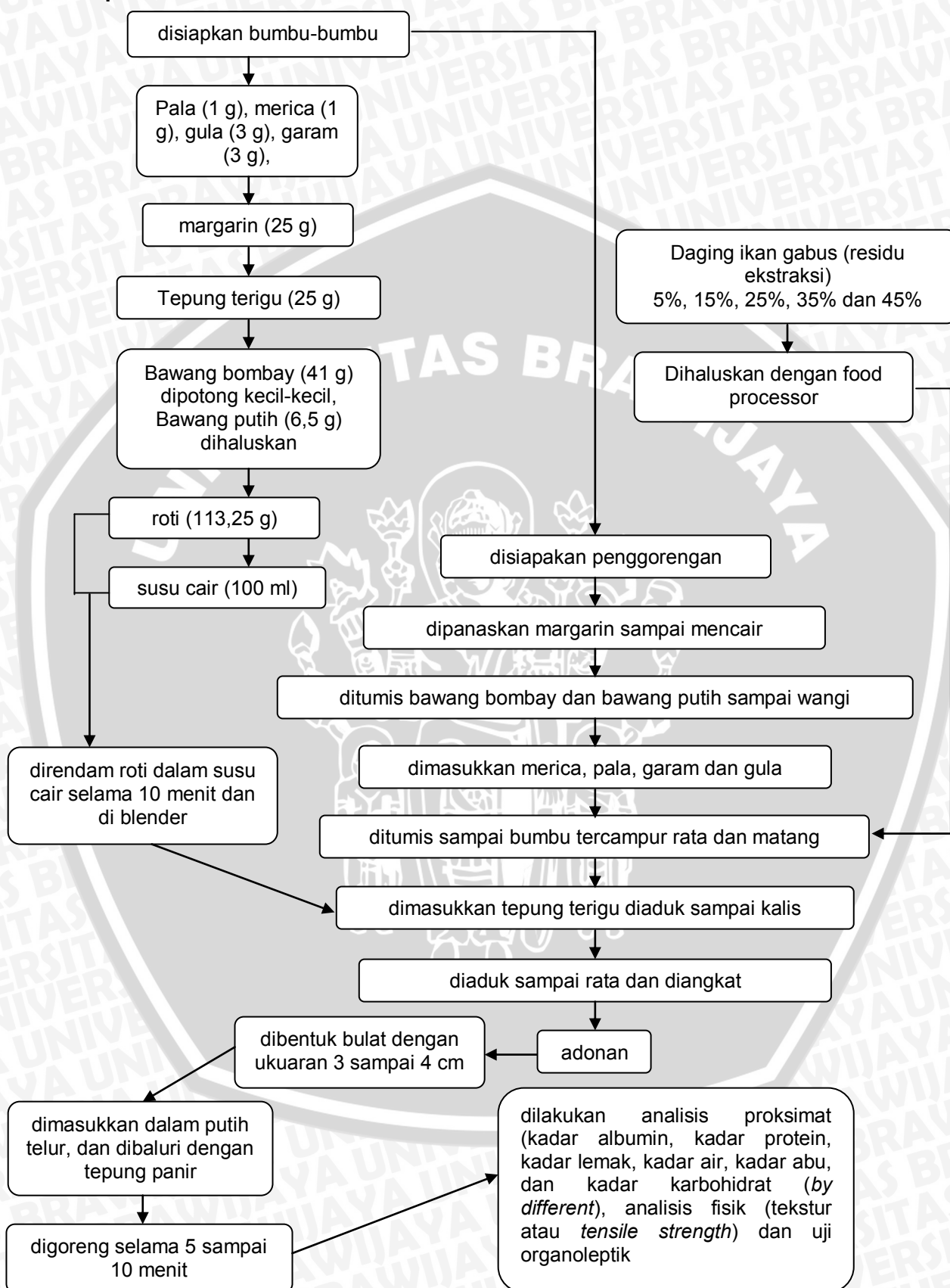
### Lampiran 1. Prosedur Pembuatan Residu Daging Ikan Gabus



## Lampiran 2. Skema Penelitian Pendahuluan Pembuatan Bitterballen Ikan Gabus



### Lampiran 3. Proses Pembuatan Bitterballen Ikan Gabus Pada Penelitian Inti



#### Lampiran 4. Prosedur Kerja dan Teknik Analisis Kadar Albumin

Prosedur uji analisis kadar albumin adalah sebagai berikut:

1. Diambil 2 ml sampel ditambah dengan 8 ml reagen Biuret, kemudian dikocok.
2. Dipanaskan pada suhu 37°C selama 10 menit.
3. Dinginkan kemudian ukur dengan spektrometri dengan panjang gelombang 550 nm dan dicatat absorbansinya.
4. Hitung hasilnya dengan rumus.

$$\text{ppm} = \frac{\text{absorbansi sampel}}{0,0000526 A}$$

$$\% = \frac{\text{ppm} \times 25}{\text{g sampel} \times 10^6} \times 100\%$$

Pembuatan reagen Biuret:

1. 0,1500 g  $\text{CuSO}_4 \cdot 5\text{H}_2\text{O}$  + 25 ml aquades
2. 0,6000 g Na K-tartat + 25 ml aquades

Reagen 1 dan 2 dicampur, ditambah dengan 30 ml NaOH 10%, diaduk kemudian diencerkan menjadi 100 ml larutan. Dikocok sampai homogen.

### Lampiran 5. Prosedur Penentuan Kadar Protein (Metode Mikro Kjedhal)

Penentuan kadar protein dilakukan dengan menggunakan metode Makro-Kjedahl yang dimodifikasi (Sudarmadji *et al.*, 2007), yaitu

1. Timbang 1 g bahan yang telah dihaluskan dan masukkan ke dalam labu Kjedahl. Kemudian, tambahkan 7,5 g  $K_2S_2O_4$  dan 0,35 g HgO dan akhirnya tambahkan 15 ml  $H_2SO_4$  pekat.
2. Panaskan semua bahan dalam labu Kjeldahl dalam almari asam sampai berhenti berasap. Teruskan pemanasan dengan api besar sampai mendidih dan cairan menjadi jernih. Teruskan pemanasan tambahan lebih kurang satu jam. Matikan api pemanas dan biarkan bahan menjadi dingin.
3. Kemudian tambahkan 100 ml aquades dalam labu Kjeldahl yang didinginkan dalam air es dan beberapa lempeng Zn, juga ditambahkan 15 ml larutan  $K_2S$  4% (dalam air) dan tambahkan perlahan-lahan larutan NaOH 50% sebanyak 50 ml yang sudah didinginkan dalam almari es. Pasanglah labu Kjeldahl dengan segera pada alat distilasi.
4. Panaskan labu Kjeldahl perlahan-lahan sampai dua lapisan cairan tercampur, kemudian panaskan dengan cepat sampai mendidih.
5. Distilat ini ditampung dalam Erlenmeyer yang telah diisi dengan 50 ml larutan standart HCl (0,1 N) dan 5 tetes indikator metal merah. Lakukan distilasi sampai distilat yang tertampung sebanyak 75 ml.
6. Titrasi distilat yang diperoleh dengan standart NaOH (0,1 N) sampai warna kuning.

Perhitungan %N :

$$\%N = \frac{(\text{ml NaOH blanko} - \text{ml NaOH contoh})}{\text{g contoh} \times 1000} \times 100 \times 14,008$$

$$\% \text{ Protein} = \%N \times \text{faktor}$$

### Lampiran 6. Prosedur Penentuan Kadar Lemak (Metode Soxhlet)

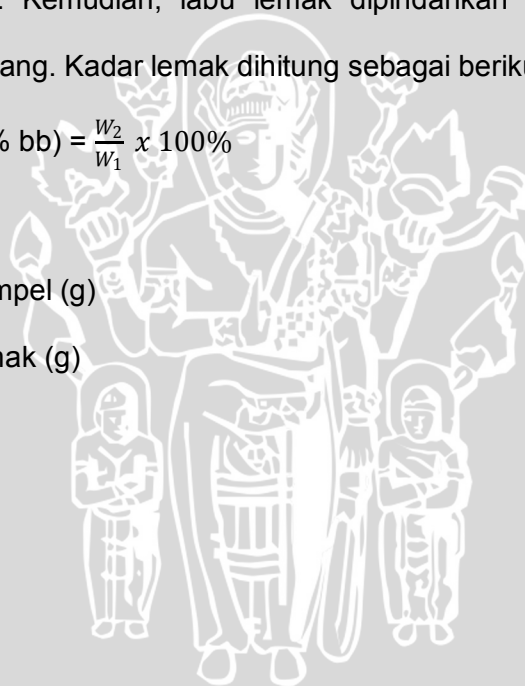
Labu lemak yang telah bebas lemak dikeringkan di dalam oven kemudian ditimbang setelah dingin. Sampel sebanyak 5 gram dibungkus dalam kertas saring kemudian ditutup kapas yang bebas lemak. Sampel dimasukkan ke dalam alat ekstraksi soxhlet, kemudian pasang kondensor dan labu pada ujung-ujungnya. Pelarut heksana diamsukkan ke dalam alat lalu sampel direfluks selama 5 jam (minimum). Setelah itu, pelarut didestilasi dan ditampung pada wadah lain. Labu lemak dikeringkan di dalam oven pada suhu 105oC samapi diperoleh berat tetap. Kemudian, labu lemak dipindahkan ke desikator, lalu didinginkan dan ditimbang. Kadar lemak dihitung sebagai berikut :

$$\text{Kadar lemak (\% bb)} = \frac{W_2}{W_1} \times 100\%$$

Keterangan :

W1 = Berat sampel (g)

W2 = Berat lemak (g)



**Lampiran 7. Prosedur Penentuan Kadar Air (Metode pengeringan/Thermogravimetri)**

Perlakuan yang dilakukan dalam penentuan kadar air ini yaitu :

1. Dikeringkan botol timbang bersih dalam oven bersuhu 105 °C selama semalam dengan tutup ½ terbuka
2. Dimasukkan dalam desikator selama 15-30 menit dan timbang beratnya
3. Ditimbang sampel sebanyak 2 gram dan masukkan dalam botol timbang
4. Dikeringkan dalam oven bersuhu 105 °C diamati setiap 2 jam sampai berat konstan
5. Didinginkan dalam desikator selama 15-30 menit
6. Ditimbang berat botol timbang dan sampel
7. Dihitung kadar airnya menggunakan rumus:

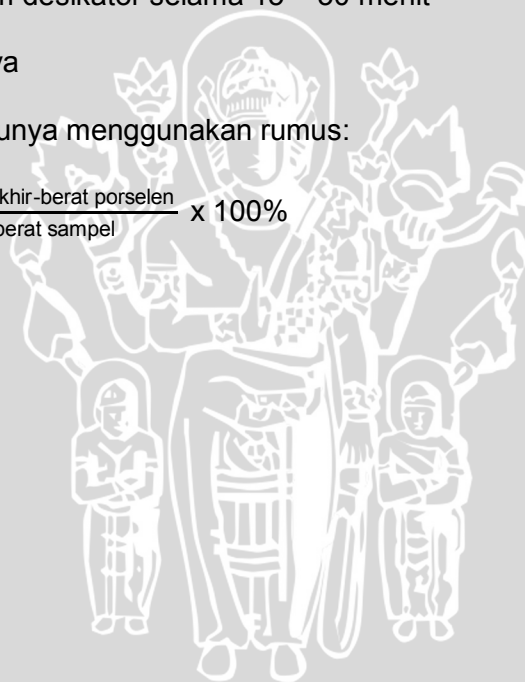
$$\text{Kadar Air (\%WB)} = \frac{(\text{berat botol timbang} + \text{berat sampel}) - \text{berat akhir}}{\text{berat sampel}} \times 100\%$$

### Lampiran 8. Prosedur Penentuan Kadar Abu

Prosedurnya penentuan kadar abu adalah sebagai berikut :

1. Dikeringkan porselen dalam oven pada suhu 105°C selama semalam
2. Dimasukkan desikator selama 15 – 30 menit
3. Ditimbang berat porselen
4. Ditimbang sampel kering halus sebanyak 2 gram
5. Dimasukkan sampel dalam porselen dan abukan dalam muffle bersuhu 650°C sampai seluruh bahan terabukan (abu berwarna keputih-putihan)
6. Dimasukkan dalam desikator selama 15 – 30 menit
7. Ditimbang beratnya
8. Dihitung kadar abunya menggunakan rumus:

$$\text{Kadar abu} = \frac{\text{berat akhir}-\text{berat porselen}}{\text{berat sampel}} \times 100\%$$



### Lampiran 9. Perhitungan Analisis Ragam Kadar Albumin

| Perlakuan    | Ulangan |        |        | Total          | Rerata        | ST<br>DEVIASI |
|--------------|---------|--------|--------|----------------|---------------|---------------|
|              | 1       | 2      | 3      |                |               |               |
| <b>A</b>     | 1,3800  | 1,3900 | 1,3500 | 4,1200         | 1,3733        | 0,0208        |
| <b>B</b>     | 1,4000  | 1,4100 | 1,4600 | 4,2700         | 1,4233        | 0,0321        |
| <b>C</b>     | 1,4700  | 1,5200 | 1,5300 | 4,5200         | 1,5067        | 0,0321        |
| <b>D</b>     | 1,5100  | 1,6000 | 1,5400 | 4,6500         | 1,5500        | 0,0458        |
| <b>E</b>     | 1,5400  | 1,5900 | 1,4900 | 4,6200         | 1,5400        | 0,0500        |
| <b>Total</b> |         |        |        | <b>22,1800</b> | <b>7,3933</b> |               |

### Sidik Ragam (ANOVA)

| Sumber Keragaman(SK) | db | JK     | KT     | F Hitung        | F 5% | F 1% |
|----------------------|----|--------|--------|-----------------|------|------|
| Perlakuan            | 4  | 0,0714 | 0,0178 | <b>12,5657*</b> | 3,48 | 5,99 |
| Galat                | 10 | 0,0142 | 0,0014 |                 |      |      |
| Total                | 14 | 0,0856 |        |                 |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

ns) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| thitung 5%              | 2,2281 | BNT 5% | 0,0594 |
| thitung 1%              | 3,1693 | BNT 1% | 0,0844 |

### Tabel Uji Beda Nyata Terkecil (BNT)

| RERATA<br>PERLAKUAN |               | A      | B      | C      | E      | D      | Notasi    |
|---------------------|---------------|--------|--------|--------|--------|--------|-----------|
|                     |               | 1,3733 | 1,4233 | 1,5067 | 1,5400 | 1,5500 |           |
| <b>A</b>            | <b>1,3733</b> | 0      | 0      | 0      | 0      | 0      | <b>a</b>  |
| <b>B</b>            | <b>1,4233</b> | 0,0500 | 0      | 0      | 0      | 0      | <b>ab</b> |
| <b>C</b>            | <b>1,5067</b> | 0,1333 | 0,0833 | 0      | 0      | 0      | <b>bc</b> |
| <b>E</b>            | <b>1,5400</b> | 0,1667 | 0,1167 | 0,0333 | 0      | 0      | <b>c</b>  |
| <b>D</b>            | <b>1,5500</b> | 0,1767 | 0,1267 | 0,0433 | 0,0100 | 0      | <b>c</b>  |

Keterangan :

Selisi < BNT 5 % = tidak berbeda nyata (ns)

BNT 5% < Selisi < BNT 1% = berbeda nyata (\*)

Selisi > BNT 1% = sangat berbeda nyata (\*\*)

### Lampiran 10. Perhitungan Analisis Ragam Kadar Protein

| Perlakuan    | Ulangan |        |        | Total          | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|--------|----------------|----------------|---------------|
|              | 1       | 2      | 3      |                |                |               |
| <b>A</b>     | 4,2300  | 4,7600 | 4,1400 | 13,1300        | 4,3767         | 0,3350        |
| <b>B</b>     | 5,4200  | 5,1500 | 4,5200 | 15,0900        | 5,0300         | 0,4618        |
| <b>C</b>     | 6,4300  | 5,5900 | 5,7600 | 17,7800        | 5,9267         | 0,4441        |
| <b>D</b>     | 6,7800  | 6,1500 | 6,2500 | 19,1800        | 6,3933         | 0,3386        |
| <b>E</b>     | 6,1300  | 6,2470 | 6,6400 | 19,0170        | 6,3390         | 0,2672        |
| <b>Total</b> |         |        |        | <b>84,1970</b> | <b>28,0657</b> |               |

### Sidik Ragam (ANOVA)

| Sumber Keragaman (SK) | db | JK      | KT     | F Hitung        | F 5% | F 1% |
|-----------------------|----|---------|--------|-----------------|------|------|
| Perlakuan             | 4  | 9,3084  | 2,3271 | <b>16,4164*</b> | 3,48 | 5,99 |
| Galat                 | 10 | 1,4175  | 0,1418 |                 |      |      |
| Total                 | 14 | 10,7259 |        |                 |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

ns) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,5932 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,8437 |

### Tabel Uji Beda Nyata Terkecil (BNT)

| RERATA<br>PERLAKUAN |        | A      | B      | C      | E      | D      | Notasi    |
|---------------------|--------|--------|--------|--------|--------|--------|-----------|
|                     |        | 4,3767 | 5,0300 | 5,9267 | 6,3390 | 6,3933 |           |
| <b>A</b>            | 4,3767 | 0      | 0      | 0      | 0      | 0      | <b>a</b>  |
| <b>B</b>            | 5,0300 | 0,6533 | 0      | 0      | 0      | 0      | <b>ab</b> |
| <b>C</b>            | 5,9267 | 1,5500 | 0,8967 | 0      | 0      | 0      | <b>b</b>  |
| <b>E</b>            | 6,3390 | 1,9623 | 1,3090 | 0,4123 | 0      | 0      | <b>bc</b> |
| <b>D</b>            | 6,3933 | 2,0167 | 1,3633 | 0,4667 | 0,0543 | 0      | <b>c</b>  |

Keterangan :

Selisih < BNT 5 % = tidak berbeda nyata (ns)

BNT 5% < Selisih < BNT 1% = berbeda nyata (\*)

Selisih > BNT 1% = sangat berbeda nyata (\*\*)

### Lampiran 11. Perhitungan Analisis Ragam Kadar Lemak

| Perlakuan    | Ulangan |        |        | Total           | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|--------|-----------------|----------------|---------------|
|              | 1       | 2      | 3      |                 |                |               |
| <b>A</b>     | 6,9300  | 7,0100 | 6,8400 | 20,7800         | 6,9267         | 0,0850        |
| <b>B</b>     | 7,2500  | 7,1600 | 7,3700 | 21,7800         | 7,2600         | 0,1054        |
| <b>C</b>     | 7,3400  | 7,4100 | 7,2700 | 22,0200         | 7,3400         | 0,0700        |
| <b>D</b>     | 7,2400  | 7,3300 | 7,3800 | 21,9500         | 7,3167         | 0,0709        |
| <b>E</b>     | 7,2500  | 7,3600 | 7,4700 | 22,0800         | 7,3600         | 0,1100        |
| <b>Total</b> |         |        |        | <b>108,6100</b> | <b>36,2033</b> |               |

### Sidik Ragam (ANOVA)

| Sidik Keragaman (SK) | db | JK     | KT     | F Hitung        | F 5% | F 1% |
|----------------------|----|--------|--------|-----------------|------|------|
| Perlakuan            | 4  | 0,3866 | 0,0966 | <b>11,9703*</b> | 3,48 | 5,99 |
| Galat                | 10 | 0,0807 | 0,0081 |                 |      |      |
| Total                | 14 | 0,4673 |        |                 |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

ns) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,1416 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,2014 |

### Tabel Uji Beda Nyata Terkecil (BNT)

| RERATA<br>PERLAKUAN |               | A      | B      | D      | C      | E      | Notasi   |
|---------------------|---------------|--------|--------|--------|--------|--------|----------|
|                     |               | 6,9267 | 7,2600 | 7,3167 | 7,3400 | 7,3600 |          |
| <b>A</b>            | <b>6,9267</b> | 0      | 0      | 0      | 0      | 0      | <b>a</b> |
| <b>B</b>            | <b>7,2600</b> | 0,3333 | 0      | 0      | 0      | 0      | <b>b</b> |
| <b>D</b>            | <b>7,3167</b> | 0,3900 | 0,0567 | 0      | 0      | 0      | <b>b</b> |
| <b>C</b>            | <b>7,3400</b> | 0,4133 | 0,0800 | 0,0233 | 0      | 0      | <b>b</b> |
| <b>E</b>            | <b>7,3600</b> | 0,4333 | 0,1000 | 0,0433 | 0,02   | 0      | <b>b</b> |

Keterangan :

Selisih < BNT 5 % = tidak berbeda nyata (ns)

BNT 5% < Selisih < BNT 1% = berbeda nyata (\*)

Selisih > BNT 1% = sangat berbeda nyata (\*\*)

## Lampiran 12. Perhitungan Analisis Ragam Kadar Air

| Perlakuan    | Ulangan |        |        | Total          | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|--------|----------------|----------------|---------------|
|              | 1       | 2      | 3      |                |                |               |
| <b>A</b>     | 3,7500  | 3,2500 | 3,3400 | 10,3400        | 3,4467         | 0,0636        |
| <b>B</b>     | 2,4500  | 2,5300 | 2,6200 | 7,6000         | 2,5333         | 0,0850        |
| <b>C</b>     | 2,0200  | 2,0500 | 2,4700 | 6,5400         | 2,1800         | 0,2516        |
| <b>D</b>     | 2,7500  | 2,0700 | 2,2400 | 7,0600         | 2,3533         | 0,3539        |
| <b>E</b>     | 2,0500  | 2,3500 | 2,8500 | 7,2500         | 2,4167         | 0,4041        |
| <b>Total</b> |         |        |        | <b>38,7900</b> | <b>12,9300</b> |               |

### Sidik Ragam (ANOVA)

| Sidik Keragaman (SK) | db | JK     | KT     | F Hitung       | F 5% | F 1% |
|----------------------|----|--------|--------|----------------|------|------|
| Perlakuan            | 4  | 2,9735 | 0,7434 | <b>8,6412*</b> | 3,48 | 5,99 |
| Galat                | 10 | 0,8603 | 0,0860 |                |      |      |
| Total                | 14 | 3,8338 |        |                |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

ns) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,4621 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,6573 |

### Tabel Uji Beda Nyata Terkecil (BNT)

| RERATA<br>PERLAKUAN |        | C      | D      | E      | B      | A      | NOTASI   |
|---------------------|--------|--------|--------|--------|--------|--------|----------|
|                     |        | 2,1800 | 2,3533 | 2,4167 | 2,5333 | 3,4467 |          |
| <b>C</b>            | 2,1800 | 0      | 0      | 0      | 0      | 0      | <b>a</b> |
| <b>D</b>            | 2,3533 | 0,1733 | 0      | 0      | 0      | 0      | <b>a</b> |
| <b>E</b>            | 2,4167 | 0,2367 | 0,0633 | 0      | 0      | 0      | <b>a</b> |
| <b>B</b>            | 2,5333 | 0,3533 | 0,1800 | 0,1167 | 0      | 0      | <b>a</b> |
| <b>A</b>            | 3,4467 | 1,2667 | 1,0933 | 1,0300 | 0,9133 | 0      | <b>b</b> |

Keterangan :

Selisih < BNT 5 % = tidak berbeda nyata (ns)

BNT 5% < Selisih < BNT 1% = berbeda nyata (\*)

Selisih > BNT 1% = sangat berbeda nyata (\*\*)

### Lampiran 13. Perhitungan Analisis Ragam Kadar Abu

| Perlakuan    | Ulangan |        |        | Total          | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|--------|----------------|----------------|---------------|
|              | 1       | 2      | 3      |                |                |               |
| <b>A</b>     | 2,7800  | 2,1500 | 2,0100 | 6,9400         | 2,3133         | 0,4102        |
| <b>B</b>     | 2,1500  | 2,1500 | 2,0600 | 6,3600         | 2,1200         | 0,0520        |
| <b>C</b>     | 2,7000  | 2,0700 | 2,1500 | 6,9200         | 2,3067         | 0,3430        |
| <b>D</b>     | 2,0500  | 2,1400 | 2,2500 | 6,4400         | 2,1467         | 0,1002        |
| <b>E</b>     | 1,8500  | 1,7000 | 1,3000 | 4,8500         | 1,6167         | 0,2843        |
| <b>Total</b> |         |        |        | <b>31,5100</b> | <b>10,5033</b> |               |

### Sidik Ragam (ANOVA)

| Sumber keragaman (SK) | db | JK     | KT     | F Hitung                   | F 5% | F 1% |
|-----------------------|----|--------|--------|----------------------------|------|------|
| Perlakuan             | 4  | 0,9732 | 0,2433 | <b>3,2062<sup>ns</sup></b> | 3,48 | 5,99 |
| Galat                 | 10 | 0,7589 | 0,0759 |                            |      |      |
| Total                 | 14 | 1,7321 |        |                            |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

<sup>ns</sup>) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,4340 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,6173 |

#### Lampiran 14. Perhitungan Analisis Ragam Warna

| Perlakuan    | Ulangan |        |         | Total          | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|---------|----------------|----------------|---------------|
|              | 1       | 2      | 3       |                |                |               |
| <b>A</b>     | 4,3600  | 4,8000 | 13,9600 | 4,6533         | 4,3600         | 0,2540        |
| <b>B</b>     | 4,4000  | 5,1600 | 14,2000 | 4,7333         | 4,4000         | 0,3885        |
| <b>C</b>     | 4,8000  | 5,0400 | 15,0000 | 5,0000         | 4,8000         | 0,1833        |
| <b>D</b>     | 4,9600  | 4,3600 | 14,3600 | 4,7867         | 4,9600         | 0,3717        |
| <b>E</b>     | 5,0000  | 4,8800 | 14,9200 | 4,9733         | 5,0000         | 0,0833        |
| <b>Total</b> |         |        |         | <b>72,4400</b> | <b>24,1467</b> |               |

#### Sidik Ragam (ANOVA)

| Sidik Keragaman (SK) | db | JK     | KT     | F Hitung                   | F 5% | F 1% |
|----------------------|----|--------|--------|----------------------------|------|------|
| Perlakuan            | 4  | 0,2756 | 0,0689 | <b>0,8742<sup>ns</sup></b> | 3,48 | 5,99 |
| Galat                | 10 | 0,7883 | 0,0788 |                            |      |      |
| Total                | 14 | 1,0639 |        |                            |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

<sup>ns</sup>) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,4423 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,6292 |

### Lampiran 15. Perhitungan Analisis Ragam Aroma

| Perlakuan    | Ulangan |        |        | Total          | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|--------|----------------|----------------|---------------|
|              | 1       | 2      | 3      |                |                |               |
| <b>A</b>     | 4,8000  | 4,7200 | 4,8000 | 14,3200        | 4,7733         | 0,0462        |
| <b>B</b>     | 5,2400  | 4,6000 | 4,8400 | 14,6800        | 4,8933         | 0,3233        |
| <b>C</b>     | 5,2400  | 4,8400 | 4,8000 | 14,8800        | 4,9600         | 0,2433        |
| <b>D</b>     | 4,9600  | 4,9200 | 4,6800 | 14,5600        | 4,8533         | 0,1514        |
| <b>E</b>     | 5,4800  | 5,2000 | 4,8400 | 15,5200        | 5,1733         | 0,3208        |
| <b>Total</b> |         |        |        | <b>73,9600</b> | <b>24,6533</b> |               |

### Sidik Ragam (ANOVA)

| Sidik Keragaman (SK) | db | JK     | KT     | F Hitung                   | F 5% | F 1% |
|----------------------|----|--------|--------|----------------------------|------|------|
| Perlakuan            | 4  | 0,2756 | 0,0689 | <b>1,1810<sup>ns</sup></b> | 3,48 | 5,99 |
| Galat                | 10 | 0,5835 | 0,0583 |                            |      |      |
| Total                | 14 | 0,8591 |        |                            |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

<sup>ns</sup>) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,3806 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,5413 |

### Lampiran 16. Perhitungan Analisis Ragam Rasa

| Perlakuan    | Ulangan |        |        | Total          | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|--------|----------------|----------------|---------------|
|              | 1       | 2      | 3      |                |                |               |
| <b>A</b>     | 4,8800  | 4,5600 | 4,7200 | 14,1600        | 4,7200         | 0,1600        |
| <b>B</b>     | 4,5600  | 4,2400 | 5,1200 | 13,9200        | 4,6400         | 0,4454        |
| <b>C</b>     | 5,1600  | 4,6800 | 4,8400 | 14,6800        | 4,8933         | 0,2444        |
| <b>D</b>     | 5,0400  | 4,8000 | 4,3600 | 14,2000        | 4,7333         | 0,3449        |
| <b>E</b>     | 5,0800  | 4,9200 | 4,6800 | 14,6800        | 4,8933         | 0,2013        |
| <b>Total</b> |         |        |        | <b>71,6400</b> | <b>23,8800</b> |               |

### Sidik Ragam (ANOVA)

| Sidik Keragaman (SK) | db | JK     | KT     | F Hitung                   | F 5% | F 1% |
|----------------------|----|--------|--------|----------------------------|------|------|
| Perlakuan            | 4  | 0,1530 | 0,0382 | <b>0,4314<sup>ns</sup></b> | 3,48 | 5,99 |
| Galat                | 10 | 0,8864 | 0,0886 |                            |      |      |
| Total                | 14 | 1,0394 |        |                            |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

<sup>ns</sup>) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,4691 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,6672 |

### Lampiran 17. Perhitungan Analisis Ragam Kenampakan

| Perlakuan    | Ulangan |        |        | Total          | Rerata         | ST<br>DEVIASI |
|--------------|---------|--------|--------|----------------|----------------|---------------|
|              | 1       | 2      | 3      |                |                |               |
| <b>A</b>     | 4,4800  | 5,0800 | 4,9600 | 14,5200        | 4,8400         | 0,3175        |
| <b>B</b>     | 5,2400  | 5,3600 | 5,0000 | 15,6000        | 5,2000         | 0,1833        |
| <b>C</b>     | 5,1600  | 5,1600 | 5,3200 | 15,6400        | 5,2133         | 0,0924        |
| <b>D</b>     | 5,0800  | 4,6000 | 5,1600 | 14,8400        | 4,9467         | 0,3029        |
| <b>E</b>     | 5,2400  | 5,0800 | 5,0400 | 15,3600        | 5,1200         | 0,1058        |
| <b>Total</b> |         |        |        | <b>75,9600</b> | <b>25,3200</b> |               |

### Sidik Ragam (ANOVA)

| Sidik Keragaman (SK) | db | JK     | KT     | F Hitung                   | F 5% | F 1% |
|----------------------|----|--------|--------|----------------------------|------|------|
| Perlakuan            | 4  | 0,3236 | 0,0809 | <b>1,6453<sup>ns</sup></b> | 3,48 | 5,99 |
| Galat                | 10 | 0,4917 | 0,0492 |                            |      |      |
| Total                | 14 | 0,8154 |        |                            |      |      |

Keterangan :

\*) berbeda nyata

\*\*) berbeda sangat nyata

<sup>ns</sup>) tidak berbeda nyata

| Nilai BNT Kadar Albumin |        |        |        |
|-------------------------|--------|--------|--------|
| Tabel t 5%              | 2,2281 | bnt 5% | 0,3494 |
| Tabel t 1%              | 3,1693 | bnt 1% | 0,4969 |

## Lampiran 18. Perlakuan Terbaik

| VARIABEL                | PERLAKUAN |         |         |         |         | TERBAIK | TERJELEK | SELISIH |
|-------------------------|-----------|---------|---------|---------|---------|---------|----------|---------|
|                         | A         | B       | C       | D       | E       |         |          |         |
| Kadar Albumin           | 1,3733    | 1,4233  | 1,5067  | 1,5500  | 1,5400  | 1,5500  | 1,3733   | 0,1767  |
| Kadar Protein           | 4,3767    | 5,0300  | 5,9267  | 6,3933  | 6,3390  | 6,3933  | 4,3767   | 2,0167  |
| Kadar Air               | 3,4467    | 2,5333  | 2,1800  | 2,3533  | 2,4167  | 3,4467  | 2,1800   | 1,2667  |
| Kadar Karbohidrat       | 77,2833   | 77,2700 | 77,2767 | 77,2867 | 77,2833 | 77,2867 | 77,2700  | 0,0167  |
| Kadar Lemak             | 6,9267    | 7,2600  | 7,3400  | 7,3167  | 7,3600  | 7,3600  | 6,9267   | 0,4333  |
| Kadar Abu               | 2,3133    | 2,1200  | 2,3067  | 2,1467  | 1,6167  | 2,3133  | 1,6167   | 0,6967  |
| Organoleptik Rasa       | 4,7200    | 4,6400  | 4,8933  | 4,7333  | 4,8933  | 4,8933  | 4,6400   | 0,2533  |
| Organoleptik Aroma      | 4,7733    | 4,8933  | 4,9600  | 4,8533  | 5,3400  | 5,3400  | 4,7733   | 0,5667  |
| Organoleptik Warna      | 4,6533    | 4,7333  | 5,0000  | 4,7867  | 4,9733  | 5,0000  | 4,6533   | 0,3467  |
| Organoleptik Tekstur    | 4,7467    | 4,9867  | 5,0667  | 4,9067  | 5,0000  | 5,0667  | 4,7467   | 0,3200  |
| Organoleptik Kenampakan | 4,8400    | 5,2000  | 5,2133  | 4,9467  | 5,1200  | 5,2133  | 4,8400   | 0,3733  |

## Lampiran 19. de Garmo

| VARIABEL                | BV         | BN     | PERLAKUAN 1 |               | PERLAKUAN 2 |               | PERLAKUAN 3 |               | PERLAKUAN 4 |               | PERLAKUAN 5 |               |
|-------------------------|------------|--------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|-------------|---------------|
|                         |            |        | NE          | NP            | NE          | NP            | NE          | NP            | NE          | NP            | NE          | NP            |
| Kadar Albumin           | 1          | 0,1449 | 0,0000      | 0,0000        | 0,2830      | 0,0410        | 0,7547      | 0,1094        | 1,0000      | 0,1449        | 0,9434      | 0,1367        |
| Kadar Protein           | 1          | 0,1449 | 0,0000      | 0,0000        | 0,3240      | 0,0470        | 0,7686      | 0,1114        | 1,0000      | 0,1449        | 0,9731      | 0,1410        |
| Kadar Air               | 0,9        | 0,1304 | 1,0000      | 0,1304        | 0,2789      | 0,0364        | 0,0000      | 0,0000        | 0,1368      | 0,0178        | 0,1868      | 0,0244        |
| Kadar Karbohidrat       | 0,8        | 0,1159 | 0,8000      | 0,0928        | 0,0000      | 0,0000        | 0,4000      | 0,0464        | 1,0000      | 0,1159        | 0,8000      | 0,0928        |
| Kadar Lemak             | 0,7        | 0,1014 | 0,0000      | 0,0000        | 0,7692      | 0,0780        | 0,9538      | 0,0968        | 0,9000      | 0,0913        | 1,0000      | 0,1014        |
| Kadar Abu               | 0,6        | 0,0870 | 1,0000      | 0,0870        | 0,7225      | 0,0628        | 0,9904      | 0,0861        | 0,7608      | 0,0662        | 0,0000      | 0,0000        |
| Organoleptik Rasa       | 0,5        | 0,0725 | 0,3158      | 0,0229        | 0,0000      | 0,0000        | 1,0000      | 0,0725        | 0,3684      | 0,0267        | 1,0000      | 0,0725        |
| Organoleptik Aroma      | 0,5        | 0,0725 | 0,0000      | 0,0000        | 0,2118      | 0,0153        | 0,3294      | 0,0239        | 0,1412      | 0,0102        | 1,0000      | 0,0725        |
| Organoleptik Warna      | 0,4        | 0,0580 | 0,0000      | 0,0000        | 0,2308      | 0,0134        | 1,0000      | 0,0580        | 0,3846      | 0,0223        | 0,9231      | 0,0535        |
| Organoleptik Tekstur    | 0,3        | 0,0435 | 0,0000      | 0,0000        | 0,7500      | 0,0326        | 1,0000      | 0,0435        | 0,5000      | 0,0217        | 0,7917      | 0,0344        |
| Organoleptik Kenampakan | 0,2        | 0,0290 | 0,0000      | 0,0000        | 0,9644      | 0,0280        | 1,0000      | 0,0290        | 0,2858      | 0,0083        | 0,7501      | 0,0217        |
| <b>TOTAL</b>            | <b>6,9</b> |        |             | <b>0,3330</b> |             | <b>0,3545</b> |             | <b>0,6768</b> |             | <b>0,6704</b> |             | <b>0,7509</b> |

**Lampiran 20. Perhitungan Penerimaan Konsumen Terhadap Organoleptik Aroma**

| PANELIS                 | PERLAKUAN |         |        |         |        |         |        |         |        |         |
|-------------------------|-----------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
|                         | A         |         | B      |         | C      |         | D      |         | E      |         |
| 1                       | 4         | 0,6400  | 6      | 0,5776  | 6      | 0,5776  | 5      | 0,0016  | 5      | 0,2304  |
| 2                       | 5         | 0,0400  | 5      | 0,0576  | 4      | 1,5376  | 5      | 0,0016  | 5      | 0,2304  |
| 3                       | 5         | 0,0400  | 5      | 0,0576  | 5      | 0,0576  | 4      | 0,9216  | 5      | 0,2304  |
| 4                       | 5         | 0,0400  | 4      | 1,5376  | 5      | 0,0576  | 4      | 0,9216  | 5      | 0,2304  |
| 5                       | 4         | 0,6400  | 4      | 1,5376  | 5      | 0,0576  | 4      | 0,9216  | 6      | 0,2704  |
| 6                       | 4         | 0,6400  | 6      | 0,5776  | 6      | 0,5776  | 7      | 4,1616  | 6      | 0,2704  |
| 7                       | 6         | 1,4400  | 6      | 0,5776  | 7      | 3,0976  | 6      | 1,0816  | 7      | 2,3104  |
| 8                       | 5         | 0,0400  | 5      | 0,0576  | 5      | 0,0576  | 5      | 0,0016  | 6      | 0,2704  |
| 9                       | 4         | 0,6400  | 4      | 1,5376  | 5      | 0,0576  | 5      | 0,0016  | 5      | 0,2304  |
| 10                      | 6         | 1,4400  | 6      | 0,5776  | 4      | 1,5376  | 5      | 0,0016  | 7      | 2,3104  |
| 11                      | 4         | 0,6400  | 7      | 3,0976  | 7      | 3,0976  | 7      | 4,1616  | 7      | 2,3104  |
| 12                      | 5         | 0,0400  | 5      | 0,0576  | 5      | 0,0576  | 5      | 0,0016  | 4      | 2,1904  |
| 13                      | 5         | 0,0400  | 6      | 0,5776  | 6      | 0,5776  | 6      | 1,0816  | 5      | 0,2304  |
| 14                      | 4         | 0,6400  | 5      | 0,0576  | 5      | 0,0576  | 6      | 1,0816  | 5      | 0,2304  |
| 15                      | 4         | 0,6400  | 5      | 0,0576  | 5      | 0,0576  | 4      | 0,9216  | 6      | 0,2704  |
| 16                      | 7         | 4,8400  | 7      | 3,0976  | 7      | 3,0976  | 5      | 0,0016  | 7      | 2,3104  |
| 17                      | 5         | 0,0400  | 5      | 0,0576  | 6      | 0,5776  | 4      | 0,9216  | 6      | 0,2704  |
| 18                      | 5         | 0,0400  | 5      | 0,0576  | 5      | 0,0576  | 5      | 0,0016  | 5      | 0,2304  |
| 19                      | 5         | 0,0400  | 4      | 1,5376  | 5      | 0,0576  | 4      | 0,9216  | 6      | 0,2704  |
| 20                      | 5         | 0,0400  | 5      | 0,0576  | 6      | 0,5776  | 5      | 0,0016  | 4      | 2,1904  |
| 21                      | 6         | 1,4400  | 6      | 0,5776  | 3      | 5,0176  | 3      | 3,8416  | 6      | 0,2704  |
| 22                      | 5         | 0,0400  | 6      | 0,5776  | 5      | 0,0576  | 5      | 0,0016  | 4      | 2,1904  |
| 23                      | 4         | 0,6400  | 4      | 1,5376  | 4      | 1,5376  | 6      | 1,0816  | 5      | 0,2304  |
| 24                      | 4         | 0,6400  | 6      | 0,5776  | 5      | 0,0576  | 3      | 3,8416  | 5      | 0,2304  |
| 25                      | 4         | 0,6400  | 4      | 1,5376  | 5      | 0,0576  | 6      | 1,0816  | 5      | 0,2304  |
| <b>Jumlah</b>           | 120       | 16,0000 | 131    | 20,5600 | 131    | 22,5600 | 124    | 26,9600 | 137    | 20,2400 |
| <b>Rearata</b>          | 4,8000    |         | 5,2400 |         | 5,2400 |         | 4,9600 |         | 5,4800 |         |
| <b>S Kuadrat</b>        |           | 0,5333  |        | 0,6853  |        | 0,7520  |        | 0,8987  |        | 0,6747  |
| <b>S</b>                |           | 0,7303  |        | 0,8278  |        | 0,8672  |        | 0,9480  |        | 0,8214  |
| <b>Akar N</b>           |           | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |
|                         |           | 0,2613  |        | 0,2962  |        | 0,3103  |        | 0,3392  |        | 0,2939  |
| <b>P1</b>               |           | 4,5387  |        | 4,9438  |        | 4,9297  |        | 4,6208  |        | 5,1861  |
| <b>P2</b>               |           | 5,0613  |        | 5,5362  |        | 5,5503  |        | 5,2992  |        | 5,7739  |
|                         |           | 4,8000  |        | 5,2400  |        | 5,2400  |        | 4,9600  |        | 5,4800  |
| <b>Angka Penerimaan</b> |           | 5       |        | 5       |        | 5       |        | 5       |        | 5       |

### Lampiran 21. Perhitungan Penerimaan Konsumen Terhadap Organoleptik Warna

| PANELIS          | PERLAKUAN |         |        |         |        |         |        |         |        |         |
|------------------|-----------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
|                  | A         |         | B      |         | C      |         | D      |         | E      |         |
| 1                | 4         | 0,6400  | 4      | 0,1600  | 7      | 3,3856  | 6      | 0,9216  | 5      | 0,0016  |
| 2                | 5         | 0,0400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 4      | 1,0816  |
| 3                | 5         | 0,0400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 5      | 0,0016  |
| 4                | 4         | 0,6400  | 5      | 0,3600  | 5      | 0,0256  | 4      | 1,0816  | 5      | 0,0016  |
| 5                | 5         | 0,0400  | 3      | 1,9600  | 5      | 0,0256  | 4      | 1,0816  | 5      | 0,0016  |
| 6                | 5         | 0,0400  | 5      | 0,3600  | 6      | 0,7056  | 7      | 3,8416  | 7      | 3,8416  |
| 7                | 6         | 1,4400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 5      | 0,0016  |
| 8                | 6         | 1,4400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 5      | 0,0016  |
| 9                | 5         | 0,0400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 4      | 1,0816  |
| 10               | 7         | 4,8400  | 5      | 0,3600  | 7      | 3,3856  | 5      | 0,0016  | 6      | 0,9216  |
| 11               | 4         | 0,6400  | 4      | 0,1600  | 5      | 0,0256  | 7      | 3,8416  | 5      | 0,0016  |
| 12               | 5         | 0,0400  | 5      | 0,3600  | 5      | 0,0256  | 5      | 0,0016  | 5      | 0,0016  |
| 13               | 5         | 0,0400  | 6      | 2,5600  | 6      | 0,7056  | 6      | 0,9216  | 6      | 0,9216  |
| 14               | 4         | 0,6400  | 5      | 0,3600  | 5      | 0,0256  | 6      | 0,9216  | 5      | 0,0016  |
| 15               | 5         | 0,0400  | 5      | 0,3600  | 4      | 1,3456  | 5      | 0,0016  | 4      | 1,0816  |
| 16               | 3         | 3,2400  | 5      | 0,3600  | 6      | 0,7056  | 6      | 0,9216  | 7      | 3,8416  |
| 17               | 4         | 0,6400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 7      | 3,8416  |
| 18               | 4         | 0,6400  | 4      | 0,1600  | 4      | 1,3456  | 4      | 1,0816  | 4      | 1,0816  |
| 19               | 6         | 1,4400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 4      | 1,0816  |
| 20               | 4         | 0,6400  | 5      | 0,3600  | 5      | 0,0256  | 4      | 1,0816  | 4      | 1,0816  |
| 21               | 6         | 1,4400  | 4      | 0,1600  | 4      | 1,3456  | 3      | 4,1616  | 7      | 3,8416  |
| 22               | 4         | 0,6400  | 4      | 0,1600  | 5      | 0,0256  | 5      | 0,0016  | 4      | 1,0816  |
| 23               | 4         | 0,6400  | 5      | 0,3600  | 4      | 1,3456  | 5      | 0,0016  | 5      | 0,0016  |
| 24               | 5         | 0,0400  | 4      | 0,1600  | 5      | 0,0256  | 4      | 1,0816  | 5      | 0,0016  |
| 25               | 5         | 0,0400  | 4      | 0,1600  | 6      | 0,7056  | 5      | 0,0016  | 3      | 4,1616  |
| Jumlah           | 120       | 20,0000 | 110    | 10,0000 | 129    | 15,3600 | 126    | 20,9600 | 126    | 28,9600 |
| Rearata          | 4,8000    |         | 4,4000 |         | 5,1600 |         | 5,0400 |         | 5,0400 |         |
| S Kuadrat        |           | 0,6667  |        | 0,3333  |        | 0,5120  |        | 0,6987  |        | 0,9653  |
| S                |           | 0,8165  |        | 0,5774  |        | 0,7155  |        | 0,8359  |        | 0,9825  |
| Akar N           |           | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |
|                  |           | 0,2922  |        | 0,2066  |        | 0,2561  |        | 0,2991  |        | 0,3516  |
| P1               |           | 4,5078  |        | 4,1934  |        | 4,9039  |        | 4,7409  |        | 4,6884  |
| P2               |           | 5,0922  |        | 4,6066  |        | 5,4161  |        | 5,3391  |        | 5,3916  |
|                  |           | 4,8000  |        | 4,4000  |        | 5,1600  |        | 5,0400  |        | 5,0400  |
| Angka Penerimaan |           | 5       |        | 4       |        | 5       |        | 5       |        | 5       |

## Lampiran 22. Perhitungan Penerimaan Konsumen Terhadap Organoleptik Kenampakan

| PANELIS          | PERLAKUAN |         |        |         |        |         |        |         |        |         |
|------------------|-----------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
|                  |           | A       |        | B       |        | C       |        | D       |        | E       |
| 1                | 7         | 4,8400  | 7      | 3,5344  | 7      | 3,3856  | 6      | 0,9216  | 5      | 0,0064  |
| 2                | 4         | 0,0400  | 5      | 0,0144  | 5      | 0,0256  | 5      | 0,0016  | 4      | 1,1664  |
| 3                | 5         | 0,0400  | 5      | 0,0144  | 5      | 0,0256  | 5      | 0,0016  | 4      | 1,1664  |
| 4                | 4         | 0,6400  | 7      | 3,5344  | 5      | 0,0256  | 4      | 1,0816  | 6      | 0,8464  |
| 5                | 5         | 0,0400  | 5      | 0,0144  | 5      | 0,0256  | 4      | 1,0816  | 4      | 1,1664  |
| 6                | 5         | 0,0400  | 5      | 0,0144  | 6      | 0,7056  | 6      | 0,9216  | 6      | 0,8464  |
| 7                | 5         | 0,6400  | 4      | 1,2544  | 4      | 1,3456  | 5      | 0,0016  | 5      | 0,0064  |
| 8                | 5         | 0,0400  | 5      | 0,0144  | 5      | 0,0256  | 5      | 0,0016  | 5      | 0,0064  |
| 9                | 5         | 0,0400  | 4      | 1,2544  | 5      | 0,0256  | 4      | 1,0816  | 5      | 0,0064  |
| 10               | 6         | 0,0400  | 5      | 0,0144  | 4      | 1,3456  | 5      | 0,0016  | 6      | 0,8464  |
| 11               | 5         | 0,0400  | 5      | 0,0144  | 4      | 1,3456  | 7      | 3,8416  | 5      | 0,0064  |
| 12               | 5         | 0,0400  | 5      | 0,0144  | 5      | 0,0256  | 5      | 0,0016  | 5      | 0,0064  |
| 13               | 6         | 1,4400  | 6      | 0,7744  | 6      | 0,7056  | 6      | 0,9216  | 5      | 0,0064  |
| 14               | 5         | 0,0400  | 5      | 0,0144  | 5      | 0,0256  | 6      | 0,9216  | 5      | 0,0064  |
| 15               | 5         | 0,6400  | 6      | 0,7744  | 7      | 3,3856  | 6      | 0,9216  | 6      | 0,8464  |
| 16               | 5         | 0,6400  | 7      | 3,5344  | 5      | 0,0256  | 5      | 0,0016  | 6      | 0,8464  |
| 17               | 4         | 0,6400  | 3      | 4,4944  | 6      | 0,7056  | 4      | 1,0816  | 6      | 0,8464  |
| 18               | 4         | 0,0400  | 4      | 1,2544  | 5      | 0,0256  | 5      | 0,0016  | 5      | 0,0064  |
| 19               | 5         | 0,0400  | 6      | 0,7744  | 5      | 0,0256  | 5      | 0,0016  | 6      | 0,8464  |
| 20               | 4         | 3,2400  | 5      | 0,0144  | 4      | 1,3456  | 5      | 0,0016  | 4      | 1,1664  |
| 21               | 4         | 0,0400  | 6      | 0,7744  | 5      | 0,0256  | 3      | 4,1616  | 6      | 0,8464  |
| 22               | 5         | 0,0400  | 5      | 0,0144  | 5      | 0,0256  | 5      | 0,0016  | 4      | 1,1664  |
| 23               | 4         | 0,6400  | 3      | 4,4944  | 5      | 0,0256  | 4      | 1,0816  | 5      | 0,0064  |
| 24               | 4         | 0,6400  | 5      | 0,0144  | 5      | 0,0256  | 4      | 1,0816  | 5      | 0,0064  |
| 25               | 6         | 1,4400  | 5      | 0,0144  | 6      | 0,7056  | 7      | 3,8416  | 4      | 1,1664  |
| Jumlah           | 122       | 16,0000 | 128    | 26,6400 | 129    | 15,3600 | 126    | 22,9600 | 127    | 13,8400 |
| Rearata          | 4,8800    |         | 5,1200 |         | 5,1600 |         | 5,0400 |         | 5,0800 |         |
| S Kuadrat        |           | 0,5333  |        | 0,8880  |        | 0,5120  |        | 0,7653  |        | 0,4613  |
| S                |           | 0,7303  |        | 0,9423  |        | 0,7155  |        | 0,8748  |        | 0,6792  |
| Akar N           |           | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |
|                  |           | 0,2613  |        | 0,3372  |        | 0,2561  |        | 0,3131  |        | 0,2431  |
| P1               |           | 4,5387  |        | 4,7828  |        | 4,9039  |        | 4,7269  |        | 4,8369  |
| P2               |           | 5,0613  |        | 5,4572  |        | 5,4161  |        | 5,3531  |        | 5,3231  |
|                  |           | 4,8000  |        | 5,1200  |        | 5,1600  |        | 5,0400  |        | 5,0800  |
| Angka Penerimaan |           | 5       |        | 5       |        | 5       |        | 5       |        | 5       |

**Lampiran 23. Perhitungan Penerimaan Konsumen Terhadap Organoleptik Rasa**

| PANELIS                 | PERLAKUAN |         |        |         |        |         |        |         |        |         |
|-------------------------|-----------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
|                         | A         |         | B      |         | C      |         | D      |         | E      |         |
| 1                       | 3         | 4,0000  | 6      | 0,3136  | 5      | 0,0576  | 5      | 0,0256  | 4      | 1,3456  |
| 2                       | 5         | 0,0000  | 5      | 0,1936  | 5      | 0,0576  | 5      | 0,0256  | 6      | 0,7056  |
| 3                       | 4         | 1,0000  | 5      | 0,1936  | 6      | 0,5776  | 5      | 0,0256  | 5      | 0,0256  |
| 4                       | 4         | 1,0000  | 4      | 2,0736  | 6      | 0,5776  | 4      | 1,3456  | 7      | 3,3856  |
| 5                       | 5         | 0,0000  | 5      | 0,1936  | 5      | 0,0576  | 6      | 0,7056  | 6      | 0,7056  |
| 6                       | 5         | 0,0000  | 7      | 2,4336  | 4      | 1,5376  | 5      | 0,0256  | 7      | 3,3856  |
| 7                       | 5         | 0,0000  | 5      | 0,1936  | 5      | 0,0576  | 6      | 0,7056  | 4      | 1,3456  |
| 8                       | 5         | 0,0000  | 6      | 0,3136  | 5      | 0,0576  | 6      | 0,7056  | 7      | 3,3856  |
| 9                       | 6         | 1,0000  | 6      | 0,3136  | 5      | 0,0576  | 5      | 0,0256  | 6      | 0,7056  |
| 10                      | 7         | 4,0000  | 6      | 0,3136  | 6      | 0,5776  | 4      | 1,3456  | 5      | 0,0256  |
| 11                      | 5         | 0,0000  | 7      | 2,4336  | 5      | 0,0576  | 7      | 3,3856  | 7      | 3,3856  |
| 12                      | 5         | 0,0000  | 5      | 0,1936  | 4      | 1,5376  | 5      | 0,0256  | 4      | 1,3456  |
| 13                      | 7         | 4,0000  | 6      | 0,3136  | 6      | 0,5776  | 6      | 0,7056  | 6      | 0,7056  |
| 14                      | 5         | 0,0000  | 5      | 0,1936  | 6      | 0,5776  | 6      | 0,7056  | 5      | 0,0256  |
| 15                      | 5         | 0,0000  | 4      | 2,0736  | 5      | 0,0576  | 5      | 0,0256  | 4      | 1,3456  |
| 16                      | 4         | 1,0000  | 5      | 0,1936  | 6      | 0,5776  | 6      | 0,7056  | 5      | 0,0256  |
| 17                      | 5         | 0,0000  | 5      | 0,1936  | 6      | 0,5776  | 7      | 3,3856  | 7      | 3,3856  |
| 18                      | 5         | 0,0000  | 5      | 0,1936  | 5      | 0,0576  | 5      | 0,0256  | 5      | 0,0256  |
| 19                      | 6         | 1,0000  | 6      | 0,3136  | 6      | 0,5776  | 4      | 1,3456  | 6      | 0,7056  |
| 20                      | 6         | 1,0000  | 6      | 0,3136  | 7      | 3,0976  | 6      | 0,7056  | 2      | 9,9856  |
| 21                      | 4         | 1,0000  | 5      | 0,1936  | 4      | 1,5376  | 3      | 4,6656  | 6      | 0,7056  |
| 22                      | 5         | 0,0000  | 6      | 0,3136  | 5      | 0,0576  | 5      | 0,0256  | 4      | 1,3456  |
| 23                      | 5         | 0,0000  | 5      | 0,1936  | 5      | 0,0576  | 4      | 1,3456  | 4      | 1,3456  |
| 24                      | 3         | 4,0000  | 6      | 0,3136  | 5      | 0,0576  | 4      | 1,3456  | 4      | 1,3456  |
| 25                      | 6         | 1,0000  | 5      | 0,1936  | 4      | 1,5376  | 5      | 0,0256  | 3      | 4,6656  |
| <b>Jumlah</b>           | 125       | 24,0000 | 136    | 14,1600 | 131    | 14,5600 | 129    | 23,3600 | 129    | 45,3600 |
| <b>Rearata</b>          | 5,0000    |         | 5,4400 |         | 5,2400 |         | 5,1600 |         | 5,1600 |         |
| <b>S Kuadrat</b>        |           | 0,8000  |        | 0,4720  |        | 0,4853  |        | 0,7787  |        | 1,5120  |
| <b>S</b>                |           | 0,8944  |        | 0,6870  |        | 0,6967  |        | 0,8824  |        | 1,2296  |
| <b>Akar N</b>           |           | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |
|                         |           | 0,3201  |        | 0,2458  |        | 0,2493  |        | 0,3158  |        | 0,4400  |
| <b>P1</b>               |           | 4,6799  |        | 5,1942  |        | 4,9907  |        | 4,8442  |        | 4,7200  |
| <b>P2</b>               |           | 5,3201  |        | 5,6858  |        | 5,4893  |        | 5,4758  |        | 5,6000  |
|                         |           | 5,0000  |        | 5,4400  |        | 5,2400  |        | 5,1600  |        | 5,1600  |
| <b>Angka Penerimaan</b> | 5         |         | 5      |         | 5      |         | 5      |         | 5      |         |

**Lampiran 24. Perhitungan Penerimaan Konsumen Terhadap Organoleptik Tekstur**

| PANELIS          | PERLAKUAN |         |        |         |        |         |        |         |        |         |
|------------------|-----------|---------|--------|---------|--------|---------|--------|---------|--------|---------|
|                  | A         |         | B      |         | C      |         | D      |         | E      |         |
| 1                | 6         | 0,8464  | 7      | 2,6896  | 6      | 0,4624  | 6      | 0,7056  | 4      | 1,5376  |
| 2                | 5         | 0,0064  | 4      | 1,8496  | 5      | 0,1024  | 6      | 0,7056  | 6      | 0,5776  |
| 3                | 6         | 0,8464  | 6      | 0,4096  | 6      | 0,4624  | 6      | 0,7056  | 6      | 0,5776  |
| 4                | 6         | 0,8464  | 6      | 0,4096  | 6      | 0,4624  | 6      | 0,7056  | 7      | 3,0976  |
| 5                | 6         | 0,8464  | 6      | 0,4096  | 7      | 2,8224  | 6      | 0,7056  | 7      | 3,0976  |
| 6                | 5         | 0,0064  | 5      | 0,1296  | 6      | 0,4624  | 5      | 0,0256  | 5      | 0,0576  |
| 7                | 7         | 3,6864  | 5      | 0,1296  | 6      | 0,4624  | 5      | 0,0256  | 5      | 0,0576  |
| 8                | 4         | 1,1664  | 5      | 0,1296  | 5      | 0,1024  | 6      | 0,7056  | 6      | 0,5776  |
| 9                | 5         | 0,0064  | 5      | 0,1296  | 5      | 0,1024  | 4      | 1,3456  | 5      | 0,0576  |
| 10               | 6         | 0,8464  | 5      | 0,1296  | 7      | 2,8224  | 5      | 0,0256  | 5      | 0,0576  |
| 11               | 4         | 1,1664  | 5      | 0,1296  | 6      | 0,4624  | 6      | 0,7056  | 7      | 3,0976  |
| 12               | 5         | 0,0064  | 5      | 0,1296  | 5      | 0,1024  | 5      | 0,0256  | 5      | 0,0576  |
| 13               | 6         | 0,8464  | 6      | 0,4096  | 6      | 0,4624  | 6      | 0,7056  | 6      | 0,5776  |
| 14               | 5         | 0,0064  | 5      | 0,1296  | 5      | 0,1024  | 6      | 0,7056  | 5      | 0,0576  |
| 15               | 6         | 0,8464  | 6      | 0,4096  | 5      | 0,1024  | 6      | 0,7056  | 5      | 0,0576  |
| 16               | 4         | 1,1664  | 6      | 0,4096  | 4      | 1,7424  | 5      | 0,0256  | 4      | 1,5376  |
| 17               | 4         | 1,1664  | 5      | 0,1296  | 4      | 1,7424  | 5      | 0,0256  | 5      | 0,0576  |
| 18               | 5         | 0,0064  | 6      | 0,4096  | 6      | 0,4624  | 4      | 1,3456  | 5      | 0,0576  |
| 19               | 4         | 1,1664  | 6      | 0,4096  | 5      | 0,1024  | 4      | 1,3456  | 5      | 0,0576  |
| 20               | 5         | 0,0064  | 6      | 0,4096  | 5      | 0,1024  | 3      | 4,6656  | 4      | 1,5376  |
| 21               | 4         | 1,1664  | 3      | 5,5696  | 6      | 0,4624  | 7      | 3,3856  | 6      | 0,5776  |
| 22               | 6         | 0,8464  | 5      | 0,1296  | 3      | 5,3824  | 5      | 0,0256  | 4      | 1,5376  |
| 23               | 4         | 1,1664  | 6      | 0,4096  | 5      | 0,1024  | 4      | 1,3456  | 4      | 1,5376  |
| 24               | 5         | 0,0064  | 6      | 0,4096  | 4      | 1,7424  | 5      | 0,0256  | 6      | 0,5776  |
| 25               | 4         | 1,1664  | 4      | 1,8496  | 5      | 0,1024  | 3      | 4,6656  | 4      | 1,5376  |
| Jumlah           | 127       | 19,8400 | 134    | 17,7600 | 133    | 21,4400 | 129    | 25,3600 | 131    | 22,5600 |
| Rearata          | 5,0800    |         | 5,3600 |         | 5,3200 |         | 5,1600 |         | 5,2400 |         |
| S Kuadrat        |           | 0,6613  |        | 0,5920  |        | 0,7147  |        | 0,8453  |        | 0,7520  |
| S                |           | 0,8132  |        | 0,7694  |        | 0,8454  |        | 0,9194  |        | 0,8672  |
| Akar N           |           | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |        | 5,4772  |
|                  |           | 0,2910  |        | 0,2753  |        | 0,3025  |        | 0,3290  |        | 0,3103  |
| P1               |           | 4,7890  |        | 5,0847  |        | 5,0175  |        | 4,8310  |        | 4,9297  |
| P2               |           | 5,3710  |        | 5,6353  |        | 5,6225  |        | 5,4890  |        | 5,5503  |
|                  |           | 5,0800  |        | 5,3600  |        | 5,3200  |        | 5,1600  |        | 5,2400  |
| Angka Penerimaan | 5         |         | 5      |         | 5      |         | 5      |         | 5      |         |

### Lampiran 25. Dokumentasi Pembuatan Bitterballen Ikan Gabus

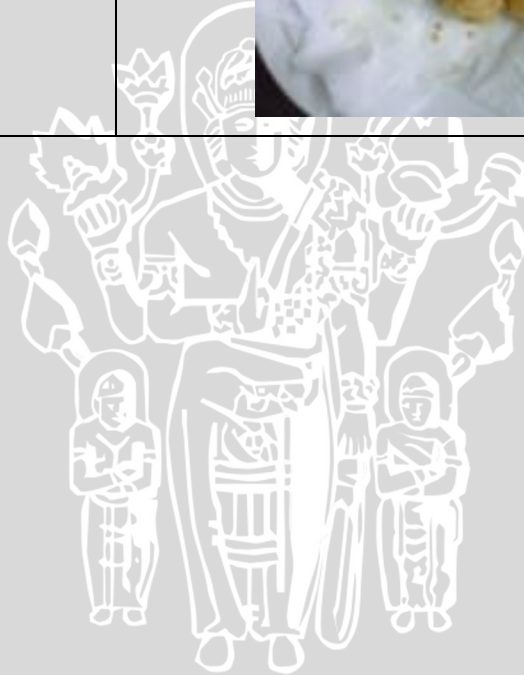
|    |                                                                                  |                                                                                      |
|----|----------------------------------------------------------------------------------|--------------------------------------------------------------------------------------|
| 1. | Ikan Gabus sebagai bahan baku utama                                              |    |
| 2. | Proses penyiangan ikan gabus                                                     |    |
| 3. | Fillet ikan gaus sebelum pemotongan menjadi kecil                                |   |
| 4. | Proses pemotongan daging ikan gabus menjadi kecil dengan ukuran $\pm 5\text{cm}$ |  |

|    |                                                           |                                                                                      |
|----|-----------------------------------------------------------|--------------------------------------------------------------------------------------|
| 5. | Hasi pemotongan fillet ikan gabus                         |    |
| 6. | Vakun ekstraktor sebagai alat ekstraksi daging ikan gabus |    |
| 7. | Daging ikan gabus setelah di ekstraksi (residu)           |  |

|     |                                                 |                                                                                      |
|-----|-------------------------------------------------|--------------------------------------------------------------------------------------|
| 8.  | Penghalusan residu daging dengan food processor |    |
| 9.  | Hasil penghalusan residu daging daging          |    |
| 10. | Persiapan bahan tambahan untuk dijadikan adonan |  |
| 11. | Adonan pertama bitterballen ikan gabus          |  |

|     |                                                           |                                                                                      |
|-----|-----------------------------------------------------------|--------------------------------------------------------------------------------------|
| 12. | Adonan setengah jadi bitterballen ikan gabus              |    |
| 13. | Proses pembulatan bitterballen                            |    |
| 14. | Bitteballen ikan gabus sebelum dilumuri denga tepung roti |  |
| 15. | Pelumuran bitterballen dengan tepung roti                 |  |

|     |                                               |                                                                                    |
|-----|-----------------------------------------------|------------------------------------------------------------------------------------|
| 16. | Proses penggorengan<br>bitteballen ikan gabus |  |
| 17. | Bitterballen ikan gabus                       |  |



## LEMBAR UJI ORGANOLEPTIK

Nama Produk : **Bitterballen Ikan Gabus**

Nama Panelis :

Tanggal :

Instansi :

Ujilah rasa, warna, aroma, penampakan dan kerenyahan dari produk berikut dan tuliskan seberapa jauh saudara menyukai dengan menuliskan angka dari 1 – 7 yang paling sesuai menurut anda pada tabel yang tersedia sesuai dengan pertanyaan-pertanyaan tersebut.

| Produk   | Aroma |   |   | Warna |   |   | Kenampakan |   |   | Rasa |   |   | Kerenyahan |   |   |
|----------|-------|---|---|-------|---|---|------------|---|---|------|---|---|------------|---|---|
|          | 1     | 2 | 3 | 1     | 2 | 3 | 1          | 2 | 3 | 1    | 2 | 3 | 1          | 2 | 3 |
| <b>A</b> |       |   |   |       |   |   |            |   |   |      |   |   |            |   |   |
| <b>B</b> |       |   |   |       |   |   |            |   |   |      |   |   |            |   |   |
| <b>C</b> |       |   |   |       |   |   |            |   |   |      |   |   |            |   |   |
| <b>D</b> |       |   |   |       |   |   |            |   |   |      |   |   |            |   |   |
| <b>E</b> |       |   |   |       |   |   |            |   |   |      |   |   |            |   |   |

**Keterangan :**

7 : amat sangat suka

6 : sangat suka

5 : suka

4 : agak suka

3 : agak tidak suka

2 : tidak suka

1 : sangat tidak suka

Perangkingan : Urutkan parameter dibawah ini dengan bobot 1-11 dari yang sangat penting (1) sampai tidak penting (11).

- Kadar Air ( )
- Kadar Abu ( )
- Kadar Lemak ( )
- Kadar Protein ( )
- Kadar Albumin ( )
- Kadar Karbohidrat ( )
- Warna ( )
- Aroma ( )
- Kerenyahan ( )
- Kenampakan ( )
- Rasa ( )

Komentar :

-

Atas ketersediaan saudara, saya sampaikan terimakasih.

## Lampiran 26. Hasil Analisis Kimia (Albumin dan Protein) Pada Penelitian Pendahuluan



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FAKULTAS MIPA JURUSAN KIMIA  
JL. VETERAN TELP. (0341)575838 MALANG 65145

### LAPORAN HASIL ANALISA

NO : Tn.215/RT.7/T.5/R.0/TT.071103/2013

1. Data Konsumen
  - Nama Konsumen : Moh. Khairur Rozi Kurniawan
  - Instansi : Fakultas Perikanan dan Ilmu Kelautan
  - Alamat : Jl. Sunan Ampel III no.5
  - Telepon : 085733398507
  - Status : Mahasiswa
  - Keperluan Analisis : Albumin dan Protein
2. Sampling Dilakukan : Oleh Konsumen
3. Identifikasi Sampel
  - Nama Sampel : Bitterballen Residu Daging Ikan Gabus
  - Wujud : Padatan
  - Warna : Coklat
  - Bentuk : jajanan / Bitterballen
4. Prosedur Analisa : Dari Lab. Lingkungan Jurusan Kimia FMIPA Unibraw Malang
5. Penyampaian Laporan Hasil Analisis :
6. Tanggal Terima Sampel : 7 November 2013
7. Data Hasil Analisa :

| Parameter | Kode | Hasil Analisa |        | Metode Analisa   |
|-----------|------|---------------|--------|------------------|
|           |      | Kadar         | Satuan |                  |
| Albumin   | A    | 2.15          | %      | Spektrofotometer |
|           | B    | 1.18          | %      |                  |
|           | C    | 1.68          | %      |                  |
| Protein   | A    | 6.79          | %      | Spektrofotometer |
|           | B    | 4.51          | %      |                  |
|           | C    | 5.68          | %      |                  |

#### Catatan:

Hasil analisa ini hanya berlaku untuk sampel yang kami terima dengan kondisi sampel saat itu.



Dr. Edi Priyo Utomo, MS  
NIP. 19571227 198603 1 003

Malang, 7 November 2013  
Ketua UPT. Layanan Analisa & Pengukuran

Dra. Sri Wardani, MS.i  
NIP. 19680226 199203 2 001

## Lampiran 27. Hasil Analisis Kimia (Proksimat dan Albumin) Pada Penelitian Inti

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KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN  
UNIVERSITAS BRAWIJAYA MALANG  
FAKULTAS MIPA JURUSAN KIMIA  
JL. VETERAN TELP. (0341)575838 MALANG 65145

### LAPORAN HASIL ANALISA

NO : Tn.279/RT.7/T.9/R.0/TT.251103/2013

1. Data Konsumen  
 Nama Konsumen : Moh. Khairur Rozi Kurniawan  
 Instansi : Fakultas Perikanan dan Ilmu Kelautan  
 Alamat : Jl. Sunan Ampel III no.5  
 Telepon : 085733398507  
 Status : Mahasiswa  
 Keperluan Analisis : Proksimat
2. Sampling Dilakukan : Oleh Konsumen
3. Identifikasi Sampel  
 Nama Sampel : Bitterballen Residu Daging Ikan Gabus  
 Wujud : Padatan  
 Warna : Coklat  
 Bentuk : jajanan / Bitterballen
4. Prosedur Analisa : Dari Lab. Lingkungan Jurusan Kimia FMIPA Unibraw Malang
5. Penyampaian Laporan Hasil Analisis :
6. Tanggal Terima Sampel : 25 November 2013
7. Data Hasil Analisa :

| Parameter | Kode | Hasil Analisa |        | Metode Analisa |
|-----------|------|---------------|--------|----------------|
|           |      | Kadar         | Satuan |                |
| Air       | A1   | 3,75          | %      | Gravimetri     |
|           | A2   | 3,25          | %      |                |
|           | A3   | 3,34          | %      |                |
|           | B1   | 2,45          | %      |                |
|           | B2   | 2,53          | %      |                |
|           | B3   | 2,62          | %      |                |
|           | C1   | 2,02          | %      |                |
|           | C2   | 2,05          | %      |                |
|           | C3   | 2,47          | %      |                |
|           | D1   | 2,75          | %      |                |
|           | D2   | 2,07          | %      |                |
|           | D3   | 2,24          | %      |                |
|           | E1   | 2,05          | %      |                |
|           | E2   | 2,35          | %      |                |
|           | E3   | 2,85          | %      |                |



**KEMENTERIAN PENDIDIKAN DAN KEBUDAYAAN**  
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**JL. VETERAN TELP. (0341)575838 MALANG 65145**

|       |    |      |   |            |
|-------|----|------|---|------------|
| Abu   | A1 | 2,78 | % | Gravimetri |
|       | A2 | 2,15 | % |            |
|       | A3 | 2,01 | % |            |
|       | B1 | 2,15 | % |            |
|       | B2 | 2,15 | % |            |
|       | B3 | 2,06 | % |            |
|       | C1 | 2,70 | % |            |
|       | C2 | 2,07 | % |            |
|       | C3 | 2,15 | % |            |
|       | D1 | 2,05 | % |            |
|       | D2 | 2,14 | % |            |
|       | D3 | 2,25 | % |            |
|       | E1 | 1,85 | % |            |
|       | E2 | 1,70 | % |            |
|       | E3 | 1,30 | % |            |
| Lemak | A1 | 6,93 | % | Soxhlet    |
|       | A2 | 7,01 | % |            |
|       | A3 | 6,84 | % |            |
|       | B1 | 7,25 | % |            |
|       | B2 | 7,16 | % |            |
|       | B3 | 7,37 | % |            |
|       | C1 | 7,34 | % |            |
|       | C2 | 7,41 | % |            |
|       | C3 | 7,27 | % |            |
|       | D1 | 7,24 | % |            |
|       | D2 | 7,33 | % |            |
|       | D3 | 7,38 | % |            |
|       | E1 | 7,25 | % |            |
|       | E2 | 7,36 | % |            |
|       | E3 | 7,47 | % |            |



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|         |    |      |   |                  |
|---------|----|------|---|------------------|
| Protein | A1 | 4,23 | % | Spektrofotometer |
|         | A2 | 4,76 | % |                  |
|         | A3 | 4,14 | % |                  |
|         | B1 | 5,42 | % |                  |
|         | B2 | 5,15 | % |                  |
|         | B3 | 4,52 | % |                  |
|         | C1 | 6,43 | % |                  |
|         | C2 | 5,59 | % |                  |
|         | C3 | 5,76 | % |                  |
|         | D1 | 6,78 | % |                  |
|         | D2 | 6,15 | % |                  |
|         | D3 | 6,25 | % |                  |
|         | E1 | 6,13 | % |                  |
|         | E2 | 6,25 | % |                  |
|         | E3 | 6,64 | % |                  |
| Albumin | A1 | 1,38 | % | Spektrofotometer |
|         | A2 | 1,39 | % |                  |
|         | A3 | 1,35 | % |                  |
|         | B1 | 1,40 | % |                  |
|         | B2 | 1,41 | % |                  |
|         | B3 | 1,46 | % |                  |
|         | C1 | 1,47 | % |                  |
|         | C2 | 1,52 | % |                  |
|         | C3 | 1,53 | % |                  |
|         | D1 | 1,51 | % |                  |
|         | D2 | 1,60 | % |                  |
|         | D3 | 1,54 | % |                  |
|         | E1 | 1,54 | % |                  |
|         | E2 | 1,59 | % |                  |
|         | E3 | 1,49 | % |                  |

Catatan:  
Hasil analisa ini hanya berlaku untuk sampel yang kami terima dengan kondisi sampel saat itu.



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