

LAMPIRAN II PERHITUNGAN

1. Perhitungan Kadar Air

Rumus:

$$\% \text{ Kadar Air} = \frac{(A-C)}{B} \times 100\%$$

Dimana:

A = Berat cawan kosong + sampel (sebelum dioven) (gr)

B = Berat sampel (gr)

C = Berat cawan + sampel (setelah dioven) (gr)

- a. Mi Kering A1 (50% Tepung terigu, 35% Tepung sukun, 15% Tepung jagung)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 34,0076 gr

Berat sampel (B) = 5,0249 gr

Berat cawan + sampel (setelah dioven) (C) = 33,6394 gr

$$\% \text{ Kadar Air} = \frac{(A-C)}{B} \times 100\%$$

$$= \frac{(34,0076 - 33,6394) \text{ gr}}{5,0249 \text{ gr}} \times 100\%$$

$$= 8,72 \%$$

- b. Mi Kering A2 (50% Tepung terigu, 30% Tepung sukun, 20% Tepung jagung)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 34,0776 gr

Berat sampel (B) = 5,1456 gr

$$\text{Berat cawan + sampel (setelah dioven) (C)} = 33,6651 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(34,0776 - 33,6651) \text{ gr}}{5,1456 \text{ gr}} \times 100\% \\ &= 8,21\% \end{aligned}$$

c. Mi Kering A3 (50% Tepung terigu, 25% Tepung sukun, 25% Tepung jagung)

Diketahui:

$$\text{Berat cawan kosong + sampel (sebelum dioven) (A)} = 35,9501 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0852 \text{ gr}$$

$$\text{Berat cawan + sampel (setelah dioven) (C)} = 35,5891 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(35,9501 - 35,5891) \text{ gr}}{5,0852 \text{ gr}} \times 100\% \\ &= 7,10\% \end{aligned}$$

d. Mi Kering A4 (50% Tepung terigu, 20% Tepung sukun, 30% Tepung jagung)

Diketahui:

$$\text{Berat cawan kosong + sampel (sebelum dioven) (A)} = 35,9400 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0751 \text{ gr}$$

$$\text{Berat cawan + sampel (setelah dioven) (C)} = 35,6193 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(35,9400 - 35,6193) \text{ gr}}{5,0751 \text{ gr}} \times 100\% \\ &= 6,32\% \end{aligned}$$

- e. Mi Kering A5 (50% Tepung terigu, 15% Tepung sukun, 35% Tepung jagung)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 34,2138 gr

Berat sampel (B) = 5,1076 gr

Berat cawan + sampel (setelah dioven) (C) = 33,9278 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(34,2138 - 33,9278) \text{ gr}}{5,1076 \text{ gr}} \times 100\% \\ &= 5,60 \% \end{aligned}$$

2. Perhitungan Kadar Abu

Rumus:

$$\% \text{ Kadar Abu} = \frac{(C-A)}{B} \times 100\%$$

Dimana:

A = Berat *crussible* kosong (gr)

B = Berat sampel (gr)

C = Berat *crussible* + abu (gr)

- a. Mi Kering A1 (50% Tepung terigu, 35% Tepung sukun, 15% Tepung jagung)

Diketahui:

Berat *crussible* kosong (A) = 21,8373 gr

Berat sampel (B) = 5,0013 gr

Berat *crussible* + abu (C) = 21,7910 gr

$$\% \text{ Kadar Abu} = \frac{(C-A)}{B} \times 100\%$$

$$= \frac{(21,7910 - 21,8373) \text{ gr}}{5,0013 \text{ gr}} \times 100\%$$

$$= 0,93 \%$$

- b. Mi Kering A2 (50% Tepung terigu, 30% Tepung sukun, 20% Tepung jagung)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 41,9911 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0014 \text{ gr}$$

$$\text{Berat } crussible + \text{abu (C)} = 41,9464 \text{ gr}$$

$$\% \text{ Kadar Abu} = \frac{(C-A)}{B} \times 100\%$$

$$= \frac{(41,9464 - 41,9911) \text{ gr}}{5,0014 \text{ gr}} \times 100\%$$

$$= 0,89 \%$$

- c. Mi Kering A3 (50% Tepung terigu, 25% Tepung sukun, 25% Tepung jagung)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 39,9709 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0398 \text{ gr}$$

$$\text{Berat } crussible + \text{abu (C)} = 39,9286 \text{ gr}$$

$$\% \text{ Kadar Abu} = \frac{(C-A)}{B} \times 100\%$$

$$= \frac{(39,9709 - 39,9286) \text{ gr}}{5,0398 \text{ gr}} \times 100\%$$

$$= 0,84 \%$$

- d. Mi Kering A4 (50% Tepung terigu, 20% Tepung sukun, 30% Tepung jagung)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 37,2633 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0398 \text{ gr}$$

$$\text{Berat } crussible + \text{abu (C)} = 37,2225 \text{ gr}$$

$$\begin{aligned}
 \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\
 &= \frac{(37,2225 - 37,2633) \text{ gr}}{5,0398 \text{ gr}} \times 100\% \\
 &= 0,81 \%
 \end{aligned}$$

e. Mi Kering A5 (50% Tepung terigu, 15% Tepung sukun, 35% Tepung jagung)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 40,2624 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0462 \text{ gr}$$

$$\text{Berat } crussible + \text{ abu (C)} = 40,2269 \text{ gr}$$

$$\begin{aligned}
 \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\
 &= \frac{(40,2269 - 40,2624) \text{ gr}}{5,0462 \text{ gr}} \times 100\% \\
 &= 0,70 \%
 \end{aligned}$$

3. Perhitungan Kadar Karbohidrat (Luff-Schoorl)

Rumus:

$$\% \text{ Kadar Glukosa} = \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\%$$

$$\% \text{ Kadar Karbohidrat} = 0,90 \times \% \text{ Kadar Glukosa}$$

Dimana:

$$\text{mg glukosa} = \text{volume blanko} - \text{volume sampel (Tabel)}$$

$$\text{fp} = \text{faktor pengenceran}$$

- a. Mi Kering A1 (50% Tepung terigu, 35% Tepung sukun, 15% Tepung jagung)

Diketahui:

$$\text{Berat sampel} = 5018,3 \text{ mg}$$

$$\text{Volume blanko} = 25,7 \text{ ml}$$

$$\text{Volume sampel} = 3,0 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume sampel

$$\begin{aligned} \text{Volume blanko} - \text{Volume sampel} &= (25,7 - 3,0) \text{ ml} \\ &= 22,7 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned} \frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{22,7 - 22}{23 - 22} &= \frac{y - 59,1}{62,2 - 59,1} \\ y &= 61,27 \text{ mg} \end{aligned}$$

- % Kadar Glukosa

$$\begin{aligned} \% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{61,27 \text{ mg} \times \frac{500}{10}}{5018,3 \text{ mg}} \times 100\% \\ &= 61,05\% \end{aligned}$$

- % Kadar Karbohidrat

$$\begin{aligned} \% \text{ Kadar Karbohidrat} &= 0,90 \times \% \text{ Kadar Glukosa} \\ &= 0,90 \times 61,05 \% \\ &= 54,94 \% \end{aligned}$$

b. Mi Kering A2 (50% Tepung terigu, 30% Tepung sukun, 20% Tepung jagung)

Diketahui:

Berat sampel = 5087,1 mg

Volume blanko = 25,7 ml

Volume sampel = 4,1 ml

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume sampel

$$\begin{aligned} \text{Volume blanko} - \text{Volume sampel} &= (25,7 - 4,1) \text{ ml} \\ &= 21,6 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned} \frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{21,6 - 21}{22 - 21} &= \frac{y - 56,0}{59,1 - 56,0} \\ y &= 57,86 \text{ mg} \end{aligned}$$

- % Kadar Glukosa

$$\begin{aligned} \% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{57,86 \text{ mg} \times \frac{500}{10}}{5087,1 \text{ mg}} \times 100\% \\ &= 56,87\% \end{aligned}$$

- % Kadar Karbohidrat

$$\begin{aligned} \% \text{ Kadar Karbohidrat} &= 0,90 \times \% \text{ Kadar Glukosa} \\ &= 0,90 \times 56,87 \% \\ &= 51,18 \% \end{aligned}$$

c. Mi Kering A3 (50% Tepung terigu, 25% Tepung sukun, 25% Tepung jagung)

Diketahui:

Berat sampel = 5026,7 mg

Volume blanko = 25,7 ml

Volume sampel = 6,5 ml

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume sampel

$$\begin{aligned} \text{Volume blanko} - \text{Volume sampel} &= (25,7 - 6,5) \text{ ml} \\ &= 19,2 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned} \frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{19,2 - 19}{20 - 19} &= \frac{y - 50,0}{53,0 - 50,0} \\ y &= 50,58 \text{ mg} \end{aligned}$$

- % Kadar Glukosa

$$\begin{aligned} \% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{50,58 \text{ mg} \times \frac{500}{10}}{5026,7 \text{ mg}} \times 100\% \\ &= 50,31\% \end{aligned}$$

- % Kadar Karbohidrat

$$\begin{aligned} \% \text{ Kadar Karbohidrat} &= 0,90 \times \% \text{ Kadar Glukosa} \\ &= 0,90 \times 50,31 \% \\ &= 45,28 \% \end{aligned}$$

d. Mi Kering A4 (50% Tepung terigu, 20% Tepung sukun, 30% Tepung jagung)

Diketahui:

Berat sampel = 5028,3 mg

Volume blanko = 25,7 ml

Volume sampel = 7,6 ml

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume sampel

$$\begin{aligned} \text{Volume blanko} - \text{Volume sampel} &= (25,7 - 7,6) \text{ ml} \\ &= 18,1 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned} \frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{18,1 - 18}{19 - 18} &= \frac{y - 47,1}{50,0 - 47,1} \\ y &= 47,39 \text{ mg} \end{aligned}$$

- % Kadar Glukosa

$$\begin{aligned} \% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{47,39 \text{ mg} \times \frac{500}{10}}{5028,3 \text{ mg}} \times 100\% \\ &= 47,12 \% \end{aligned}$$

- % Kadar Karbohidrat

$$\begin{aligned} \% \text{ Kadar Karbohidrat} &= 0,90 \times \% \text{ Kadar Glukosa} \\ &= 0,90 \times 47,12 \% \\ &= 42,41 \% \end{aligned}$$

e. Mi Kering A5 (50% Tepung terigu, 15% Tepung sukun, 35% Tepung jagung)

Diketahui:

Berat sampel = 5085,1 mg

Volume blanko = 25,7 ml

Volume sampel = 9,0 ml

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume sampel

$$\begin{aligned} \text{Volume blanko} - \text{Volume sampel} &= (25,7 - 9,0) \text{ ml} \\ &= 16,7 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned} \frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{16,7 - 16}{17 - 16} &= \frac{y - 41,3}{44,2 - 41,3} \\ y &= 43,33 \text{ mg} \end{aligned}$$

- % Kadar Glukosa

$$\begin{aligned} \% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{43,33 \text{ mg} \times \frac{500}{10}}{5085,1 \text{ mg}} \times 100\% \\ &= 42,60 \% \end{aligned}$$

- % Kadar Karbohidrat

$$\begin{aligned} \% \text{ Kadar Karbohidrat} &= 0,90 \times \% \text{ Kadar Glukosa} \\ &= 0,90 \times 42,60 \% \\ &= 38,34 \% \end{aligned}$$

4. Perhitungan Kadar Protein

Sampel	Konsentrasi Sampel	Absorbansi Sampel
A1	3426	1,7277
A2	4046,4	2,0379
A3	5173,2	2,6013
A4	5542,8	2,7861
A5	6722,8	3,3761

1 % = 10.000 ppm

$$\begin{aligned} \text{a. \% Protein} &= \frac{3426}{10.000} \times 20 \\ &= 6,85 \% \end{aligned}$$

$$\begin{aligned} \text{b. \% Protein} &= \frac{4046,4}{10.000} \times 20 \\ &= 6,85 \% \end{aligned}$$

$$\begin{aligned} \text{c. \% Protein} &= \frac{5173,2}{10.000} \times 20 \\ &= 6,85 \% \end{aligned}$$

$$\begin{aligned} \text{d. \% Protein} &= \frac{5542,8}{10.000} \times 20 \\ &= 6,85 \% \end{aligned}$$

$$\begin{aligned} \text{e. \% Protein} &= \frac{6722,8}{10.000} \times 20 \\ &= 6,85 \% \end{aligned}$$

5. Perhitungan Uji Organoleptik

a. Organoleptik Terhadap Warna

Diketahui :

$$N = 125$$

$$k = 5$$

$$n = 25$$

Ditanya : F tabel

Penyelesaian :

$$dbK = k - 1$$

$$= 5 - 1$$

$$= 4$$

$$dbG = N - k$$

$$= 125 - 5$$

$$= 120$$

$$dbT = N - 1$$

$$= 125 - 1$$

$$= 124$$

$$\begin{aligned} JKK &= \frac{(\sum Y_T)^2}{n} - \frac{(\sum Y)^2}{N} \\ &= \left(\frac{73^2}{25} + \frac{84^2}{25} + \frac{71^2}{25} + \frac{99^2}{25} + \frac{87^2}{25} \right) - \frac{414^2}{125} \\ &= 20,6720 \end{aligned}$$

$$\begin{aligned} JKT &= \sum Y^2 - \frac{(\sum Y)^2}{N} \\ &= 1490 - \left(\frac{414^2}{125} \right) \\ &= 118,8320 \end{aligned}$$

$$\begin{aligned} \text{JKG} &= \text{JKT} - \text{JKK} \\ &= 118,8320 - 20,6720 \\ &= 98,1600 \end{aligned}$$

$$\begin{aligned} \text{KTK} &= \frac{\text{JKK}}{\text{dbK}} \\ &= \frac{20,6720}{4} \\ &= 5.1680 \end{aligned}$$

$$\begin{aligned} \text{KTG} &= \frac{\text{JKG}}{\text{dbG}} \\ &= \frac{98,1600}{120} \\ &= 0.8180 \end{aligned}$$

$$\begin{aligned} F \text{ hitung} &= \frac{\text{KTK}}{\text{KTG}} \\ &= \frac{5.1680}{0.8180} \\ &= 6,32 \end{aligned}$$

F tabel = 2,44 (diperoleh dari Tabel F)

F tabel < *F hitung*

Kode Panelis	Perlakuan					Jumlah (ΣY)	A1 ²	A2 ²	A3 ²	A4 ²	A5 ²	Jumlah (ΣY^2)
	A1	A2	A3	A4	A5							
P1	3	3	3	3	3	15	9	9	9	9	9	45
P2	2	4	3	3	2	14	4	16	9	9	4	42
P3	3	3	3	4	4	17	9	9	9	16	16	59
P4	3	3	3	4	4	17	9	9	9	16	16	59
P5	3	4	3	5	4	19	9	16	9	25	16	75
P6	4	4	4	4	5	21	16	16	16	16	25	89
P7	4	3	3	3	3	16	16	9	9	9	9	52
P8	3	4	3	4	3	17	9	16	9	16	9	59
P9	2	4	2	4	2	14	4	16	4	16	4	44
P10	3	4	3	4	3	17	9	16	9	16	9	59
P11	3	3	3	3	3	15	9	9	9	9	9	45
P12	3	3	3	3	3	15	9	9	9	9	9	45
P13	4	3	3	5	2	17	16	9	9	25	4	63
P14	3	4	3	3	3	16	9	16	9	9	9	52
P15	2	5	2	3	1	13	4	25	4	9	1	43
P16	3	3	3	3	2	14	9	9	9	9	4	40
P17	3	3	2	5	5	18	9	9	4	25	25	72
P18	3	3	2	5	5	18	9	9	4	25	25	72
P19	5	5	4	5	4	23	25	25	16	25	16	107
P20	3	3	3	5	4	18	9	9	9	25	16	68
P21	2	3	2	4	2	13	4	9	4	16	4	37
P22	4	4	3	4	5	20	16	16	9	16	25	82
P23	2	2	3	4	5	16	4	4	9	16	25	58
P24	1	1	1	4	5	12	1	1	1	16	25	44
P25	2	3	4	5	5	19	4	9	16	25	25	79
(ΣY)	73	84	71	99	87	414	231	300	213	407	339	1490

b. Organoleptik Terhadap Aroma

Diketahui :

$$N = 125$$

$$k = 5$$

$$n = 25$$

Ditanya : F tabel

Penyelesaian :

$$dbK = k - 1$$

$$= 5 - 1$$

$$= 4$$

$$dbG = N - k$$

$$= 125 - 5$$

$$= 120$$

$$dbT = N - 1$$

$$= 125 - 1$$

$$= 124$$

$$\begin{aligned} JKK &= \frac{(\sum Y_T)^2}{n} - \frac{(\sum Y)^2}{N} \\ &= \left(\frac{67^2}{25} + \frac{70^2}{25} + \frac{70^2}{25} + \frac{84^2}{25} + \frac{80^2}{25} \right) - \frac{371^2}{125} \\ &= 8.6720 \end{aligned}$$

$$\begin{aligned} JKT &= \sum Y^2 - \frac{(\sum Y)^2}{N} \\ &= 1283 - \left(\frac{371^2}{125} \right) \\ &= 181,8720 \end{aligned}$$

$$\begin{aligned} JKG &= JKT - JKK \\ &= 181,8720 - 8.6720 \\ &= 173,2000 \end{aligned}$$

$$\begin{aligned} \text{KTK} &= \frac{\text{JKK}}{\text{dbK}} \\ &= \frac{8.6720}{4} \\ &= 2,1680 \end{aligned}$$

$$\begin{aligned} \text{KTG} &= \frac{\text{JKG}}{\text{dbG}} \\ &= \frac{173,2000}{120} \\ &= 1,4433 \end{aligned}$$

$$\begin{aligned} F \text{ hitung} &= \frac{\text{KTK}}{\text{KTG}} \\ &= \frac{2,1680}{1,4433} \\ &= 1,50 \end{aligned}$$

F tabel = 2,44 (diperoleh dari Tabel F)

F tabel > *F hitung*

Kode Panelis	Perlakuan					Jumlah ($\sum Y$)	Nilai Kuadrat					
	A1	A2	A3	A4	A5		A1 ²	A2 ²	A3 ²	A4 ²	A5 ²	Jumlah ($\sum Y^2$)
P1	3	3	3	4	4	17	9	9	9	16	16	59
P2	3	2	2	4	3	14	9	4	4	16	9	42
P3	3	3	3	4	3	16	9	9	9	16	9	52
P4	3	3	3	4	3	16	9	9	9	16	9	52
P5	5	4	3	3	4	19	25	16	9	9	16	75
P6	5	4	4	4	5	22	25	16	16	16	25	98
P7	4	4	3	4	4	19	16	16	9	16	16	73
P8	1	3	3	3	5	15	1	9	9	9	25	53
P9	3	5	4	4	1	17	9	25	16	16	1	67
P10	3	3	3	3	3	15	9	9	9	9	9	45
P11	1	1	1	1	1	5	1	1	1	1	1	5
P12	2	1	1	1	1	6	4	1	1	1	1	8
P13	3	3	3	4	3	16	9	9	9	16	9	52
P14	3	3	3	3	4	16	9	9	9	9	16	52
P15	4	4	1	1	0	10	16	16	1	1	0	34
P16	2	2	2	3	3	12	4	4	4	9	9	30
P17	2	2	2	2	2	10	4	4	4	4	4	20
P18	2	2	2	2	2	10	4	4	4	4	4	20
P19	3	3	2	4	3	15	9	9	4	16	9	47
P20	3	3	5	4	3	18	9	9	25	16	9	68
P21	3	4	5	5	4	21	9	16	25	25	16	91
P22	4	4	3	4	4	19	16	16	9	16	16	73
P23	1	1	3	4	5	14	1	1	9	16	25	52
P24	1	2	3	4	5	15	1	4	9	16	25	55
P25	0	1	3	5	5	14	0	1	9	25	25	60
Jumlah (yt)	67	70	70	84	80	371	217	226	222	314	304	1283

c. Organoleptik Terhadap Rasa

Diketahui :

$$N = 125$$

$$k = 5$$

$$n = 25$$

Ditanya : F tabel

Penyelesaian :

$$dbK = k - 1$$

$$= 5 - 1$$

$$= 4$$

$$dbG = N - k$$

$$= 125 - 5$$

$$= 120$$

$$dbT = N - 1$$

$$= 125 - 1$$

$$= 124$$

$$\begin{aligned} JKK &= \frac{(\sum Y_T)^2}{n} - \frac{(\sum Y)^2}{N} \\ &= \left(\frac{64^2}{25} + \frac{67^2}{25} + \frac{64}{25} + \frac{77^2}{25} + \frac{74^2}{25} \right) - \frac{346^2}{125} \\ &= 5,7120 \end{aligned}$$

$$\begin{aligned} JKT &= \sum Y^2 - \frac{(\sum Y)^2}{N} \\ &= 1160 - \left(\frac{346^2}{125} \right) \\ &= 202,2720 \end{aligned}$$

$$\begin{aligned} JKG &= JKT - JKK \\ &= 202,2720 - 5,7120 \\ &= 196,5600 \end{aligned}$$

$$KTK = \frac{JKK}{dbK}$$

$$\begin{aligned} &= \frac{5,7120}{4} \\ &= 1,4280 \end{aligned}$$

$$\begin{aligned} \text{KTG} &= \frac{\text{JKG}}{\text{dbG}} \\ &= \frac{196,5600}{120} \\ &= 1,6380 \end{aligned}$$

$$\begin{aligned} F \text{ hitung} &= \frac{\text{KTK}}{\text{KTG}} \\ &= \frac{1,4280}{1,6380} \\ &= 0,87 \end{aligned}$$

F tabel = 2,44 (diperoleh dari Tabel F)

F tabel > F hitung

Kode Panelis	Perlakuan					Jumlah ($\sum Y$)
	A1	A2	A3	A4	A5	
P1	3	3	4	4	3	17
P2	3	2	2	3	3	13
P3	3	3	3	4	4	17
P4	2	2	3	4	3	14
P5	3	4	4	5	3	19
P6	5	5	5	4	4	23
P7	4	4	4	3	4	19
P8	4	4	3	4	3	18
P9	3	5	2	3	1	14
P10	4	4	3	4	3	18
P11	1	1	1	1	1	5
P12	1	1	1	1	1	5
P13	3	3	3	4	3	16
P14	3	3	3	4	4	17
P15	1	4	2	3	0	10
P16	4	3	2	4	1	14
P17	1	1	3	4	5	14
P18	1	1	1	1	4	8
P19	3	2	2	2	3	12
P20	4	3	3	3	3	16
P21	3	2	2	1	2	10
P22	3	4	3	3	4	17
P23	0	0	2	3	4	9
P24	0	0	1	1	3	5
P25	2	3	2	4	5	16
Jumlah	64	67	64	77	74	346

A1 ²	A2 ²	A3 ²	A4 ²	A5 ²	Jumlah ($\sum Y^2$)
9	9	16	16	9	59
9	4	4	9	9	35
9	9	9	16	16	59
4	4	9	16	9	42
9	16	16	25	9	75
25	25	25	16	16	107
16	16	16	9	16	73
16	16	9	16	9	66
9	25	4	9	1	48
16	16	9	16	9	66
1	1	1	1	1	5
1	1	1	1	1	5
9	9	9	16	9	52
9	9	9	16	16	59
1	16	4	9	0	30
16	9	4	16	1	46
1	1	9	16	25	52
1	1	1	1	16	20
9	4	4	4	9	30
16	9	9	9	9	52
9	4	4	1	4	22
9	16	9	9	16	59
0	0	4	9	16	29
0	0	1	1	9	11
4	9	4	16	25	58
208	229	190	273	260	1160

d. Organoleptik Terhadap Tekstur

Diketahui :

$$N = 125$$

$$k = 5$$

$$n = 25$$

Ditanya : F tabel

Penyelesaian :

$$dbK = k - 1$$

$$= 5 - 1$$

$$= 4$$

$$dbG = N - k$$

$$= 125 - 5$$

$$= 120$$

$$dbT = N - 1$$

$$= 125 - 1$$

$$= 124$$

$$\begin{aligned} JKK &= \frac{(\sum Y_T)^2}{n} - \frac{(\sum Y)^2}{N} \\ &= \left(\frac{64^2}{69} + \frac{67^2}{80} + \frac{64}{68} + \frac{77^2}{95} + \frac{74^2}{84} \right) - \frac{396^2}{125} \\ &= 20,1120 \end{aligned}$$

$$\begin{aligned} JKT &= \sum Y^2 - \frac{(\sum Y)^2}{N} \\ &= 1404 - \left(\frac{396^2}{125} \right) \\ &= 149,4720 \end{aligned}$$

$$\begin{aligned} JKG &= JKT - JKK \\ &= 149,4720 - 20,1120 \\ &= 129,3600 \end{aligned}$$

$$KTK = \frac{JKK}{dbK}$$

$$\begin{aligned} &= \frac{20,1120}{4} \\ &= 5,0280 \end{aligned}$$

$$\begin{aligned} \text{KTG} &= \frac{\text{JKG}}{\text{dbG}} \\ &= \frac{129,3600}{120} \\ &= 1,0780 \end{aligned}$$

$$\begin{aligned} F \text{ hitung} &= \frac{\text{KTK}}{\text{KTG}} \\ &= \frac{5,0280}{1,0780} \\ &= 4,66 \end{aligned}$$

F tabel = 2,44 (diperoleh dari Tabel F)

F tabel < F hitung

Kode Panelis	Perlakuan					ΣY	Nilai Kuadrat					
	A1	A2	A3	A4	A5		A1 ²	A2 ²	A3 ²	A4 ²	A5 ²	Jumlah (ΣY^2)
P1	3	3	3	4	4	17	9	9	9	16	16	59
P2	2	4	3	3	2	14	4	16	9	9	4	42
P3	3	3	3	4	4	17	9	9	9	16	16	59
P4	2	2	3	4	3	14	4	4	9	16	9	42
P5	3	4	3	5	4	19	9	16	9	25	16	75
P6	4	4	4	4	5	21	16	16	16	16	25	89
P7	4	3	3	3	3	16	16	9	9	9	9	52
P8	3	4	3	4	3	17	9	16	9	16	9	59
P9	2	4	2	4	2	14	4	16	4	16	4	44
P10	3	4	3	4	3	17	9	16	9	16	9	59
P11	3	3	3	3	3	15	9	9	9	9	9	45
P12	3	3	3	3	3	15	9	9	9	9	9	45
P13	4	3	3	5	2	17	16	9	9	25	4	63
P14	3	4	3	3	3	16	9	16	9	9	9	52
P15	2	5	2	3	1	13	4	25	4	9	1	43
P16	3	3	3	3	2	14	9	9	9	9	4	40
P17	3	3	2	5	5	18	9	9	4	25	25	72
P18	3	3	2	5	5	18	9	9	4	25	25	72
P19	5	5	4	5	4	23	25	25	16	25	16	107
P20	3	3	3	5	4	18	9	9	9	25	16	68
P21	2	3	2	4	2	13	4	9	4	16	4	37
P22	4	4	3	4	5	20	16	16	9	16	25	82
P23	0	0	2	3	4	9	0	0	4	9	16	29
P24	0	0	1	1	3	5	0	0	1	1	9	11
P25	2	3	2	4	5	16	4	9	4	16	25	58
ΣY	69	80	68	95	84	396	221	290	196	383	314	1404

6. Perhitungan Break Even Point (BEP)

Harga mi kering burung dara 136 gr = Rp. 4.500

Harga mi kering modifikasi dari tepung sukun dan jagung 100 gr = Rp.4000

Cara menghitung BEP :

Diketahui :

1. Fix Cost : Alat penggiling mi = Rp. 150.000

2. Variabel Cost : 50 gr tepung sukun = Rp. 1.225

30 gr tepung jagung = Rp. 900

20 gr tepung cakra = Rp. 550

10 gr telur = Rp. 400

Total = Rp. 3.075

3. Harga Jual = Rp.4000

Break Even Point :

$$\begin{aligned} \text{BEP (Unit)} &= \frac{\text{Fix Cost}}{\text{Price} - \text{variabel cost}} \\ &= \frac{\text{Rp.150.000}}{\text{Rp.4000} - \text{Rp.3.075}} \\ &= 163 \text{ unit} \end{aligned}$$

Maka perlu dilakukan penjualan sebanyak 163 unit supaya terjadi Break Even Point (BEP) dan di penjualan ke-164 baru mulai memperoleh keuntungan.

$$\begin{aligned} \text{BEP (Rupiah)} &= \frac{\text{Fix Cost}}{1 - \frac{\text{Variabel cost}}{\text{Price}}} \\ &= \frac{\text{Rp.150.000}}{1 - \frac{3.075}{4000}} = \text{Rp. 648.648} \end{aligned}$$

Maka akan terjadi BEP setelah mendapat omset sebesar Rp. 648.648