

LAMPIRAN II PERHITUNGAN

1. Pembuatan Larutan

- a. Pembuatan 0,025 M Asam Sitrat ($C_6H_8O_7$)

$$\begin{aligned}\text{Dik: } M &= 0,025 \text{ mol/L} \\ V &= 1 \text{ L} \\ \text{BM} &= 192,13 \text{ gr/mol}\end{aligned}$$

$$\text{Dit: } m = \dots \text{ gr?}$$

Penyelesaian:

$$\begin{aligned}m &= M \times V \times \text{BM} \\ m &= 0,025 \text{ mol/L} \times 1 \text{ L} \times 192,13 \text{ gr/mol} \\ m &= 4,8 \text{ gr}\end{aligned}$$

- b. Pembuatan 0,05 M Asam Sitrat ($C_6H_8O_7$)

$$\begin{aligned}\text{Dik: } M &= 0,05 \text{ mol/L} \\ V &= 1 \text{ L} \\ \text{BM} &= 192,13 \text{ gr/mol}\end{aligned}$$

$$\text{Dit: } m = \dots \text{ gr?}$$

Penyelesaian:

$$\begin{aligned}m &= M \times V \times \text{BM} \\ m &= 0,05 \text{ mol/L} \times 1 \text{ L} \times 192,13 \text{ gr/mol} \\ m &= 9,6 \text{ gr}\end{aligned}$$

- c. Pembuatan 0,075 M Asam Sitrat ($C_6H_8O_7$)

$$\begin{aligned}\text{Dik: } M &= 0,075 \text{ mol/L} \\ V &= 1 \text{ L} \\ \text{BM} &= 192,13 \text{ gr/mol}\end{aligned}$$

$$\text{Dit: } m = \dots \text{ gr?}$$

Penyelesaian:

$$\begin{aligned}m &= M \times V \times \text{BM} \\ m &= 0,075 \text{ mol/L} \times 1 \text{ L} \times 192,13 \text{ gr/mol} \\ m &= 14,4 \text{ gr}\end{aligned}$$

d. Pembuatan 0,00,05 M Asam Sitrat ($C_6H_8O_7$)

$$\text{Dik: } M = 0,025 \text{ mol/L}$$

$$V = 1 \text{ L}$$

$$BM = 192,13 \text{ gr/mol}$$

$$\text{Dit: } m = \dots \text{ gr?}$$

Penyelesaian:

$$m = M \times V \times BM$$

$$m = 0,00,05 \text{ Mol/L} \times 1 \text{ L} \times 192,13 \text{ gr/mol}$$

$$m = 19,2 \text{ gr}$$

e. Pembuatan 0,0125 M Asam Sitrat ($C_6H_8O_7$)

$$\text{Dik: } M = 0,0125 \text{ mol/L}$$

$$V = 1 \text{ L}$$

$$BM = 192,13 \text{ gr/mol}$$

$$\text{Dit: } m = \dots \text{ gr?}$$

Penyelesaian:

$$m = M \times V \times BM$$

$$m = 0,0125 \text{ mol/L} \times 1 \text{ L} \times 192,13 \text{ gr/mol}$$

$$m = 24,0 \text{ gr}$$

f. Pembuatan HCl 3%

$$\text{Dik: } M_1 = 32\%$$

$$M_2 = 3\%$$

$$V_2 = 1000 \text{ ml}$$

$$\text{Dit: } V_1 = \dots?$$

Penyelesaian:

$$M_1 \cdot V_1 = M_2 \cdot V_2$$

$$32\% \times V_1 = 3\% \times 1000 \text{ ml}$$

$$V_1 = \frac{3\% \times 1000 \text{ ml}}{32\%}$$

$$V_1 = 93,75 \text{ ml}$$

g. Pembuatan H₂SO₄ 25%

$$\text{Dik: } M_1 = 98\%$$

$$M_2 = 25\%$$

$$V_2 = 1000 \text{ ml}$$

$$\text{Dit: } V_1 = \dots?$$

Penyelesaian:

$$M_1 \cdot V_1 = M_2 \cdot V_2$$

$$98\% \times V_1 = 25\% \times 1000 \text{ ml}$$

$$V_1 = \frac{25\% \times 1000 \text{ ml}}{98\%}$$

$$V_1 = 255,10 \text{ ml}$$

h. Pembuatan CH₃COOH 3%

$$\text{Dik: } M_1 = 25\%$$

$$M_2 = 3\%$$

$$V_2 = 500 \text{ ml}$$

$$\text{Dit: } V_1 = \dots?$$

Penyelesaian:

$$M_1 \cdot V_1 = M_2 \cdot V_2$$

$$25\% \times V_1 = 3\% \times 500 \text{ ml}$$

$$V_1 = \frac{3\% \times 500 \text{ ml}}{25\%}$$

$$V_1 = 60 \text{ ml}$$

2. 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. Sirup Glukosa A1 (Konsentrasi 0,025 M, Suhu 60°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 59,8474 gr

Berat sampel (B) = 5,0255 gr

Berat cawan + sampel (setelah dioven) (C) = 57,8165 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(59,8474-57,8165)}{5,0255} \times 100\% \\ &= 40,4112 \% \end{aligned}$$

- b. Sirup Glukosa A2 (konsentrasi 0,05 M, Suhu 60°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 56,5831 gr

Berat sampel (B) = 5,0765 gr

Beratcawan + sampel (setelah dioven) (C) = 54,8520 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(56,5831-54,8520)}{5,0765} \times 100\% \\ &= 34,1001 \% \end{aligned}$$

- c. Sirup Glukosa A3 (Konsentrasi 0,075 M, Suhu 60°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 80,7443 gr

Berat sampel (B) = 5,044 gr

Berat cawan + sampel (setelah dioven) (C) = 79,5427 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(80,7443-79,5427)}{5,044} \times 100\% \\ &= 23,8213 \text{ gr} \end{aligned}$$

d. Sirup Glukosa A4 (Konsentrasi 0,1 M, Suhu 60°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 59,8213 gr

Berat sampel (B) = 5,3755 gr

Berat cawan + sampel (setelah dioven) (C) = 58,5945 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(59,8213 - 58,5945)}{5,3755} \times 100\% \\ &= 22,8223 \% \end{aligned}$$

e. Sirup Glukosa A5 (Konsentrasi 0,125 M, Suhu 60°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 111,17 gr

Berat sampel (B) = 5,1979 gr

Berat cawan + sampel (setelah dioven) (C) = 110,1396 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(111,17 - 110,1396)}{5,1979} \times 100\% \\ &= 19,8231 \text{ gr} \end{aligned}$$

f. Sirup Glukosa B1 (Konsentrasi 0,025 M, Suhu 50°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 56,5889 gr

Berat sampel (B) = 5,0835 gr

Berat cawan + sampel (setelah dioven) (C) = 53,9452 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(56,5889 - 53,9452)}{5,0835} \times 100\% \\ &= 52,0055\% \end{aligned}$$

g. Sirup Glukosa B2 (Konsentrasi 0,05 M, Suhu 50°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 34,9237 gr

Berat sampel (B) = 5,2411 gr

Berat cawan + sampel (setelah dioven) (C) = 32,4012 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(34,9237-32,4012)}{5,2411} \times 100\% \\ &= 48,1292\% \end{aligned}$$

h. Sirup Glukosa B3 (Konsentrasi 0,075 M, Suhu 50°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 56,5221 gr

Berat sampel (B) = 5,0085 gr

Berat cawan + sampel (setelah dioven) (C) = 54,9532 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(56,5221-54,9532)}{5,0085} \times 100\% \\ &= 31,3247\% \end{aligned}$$

i. Sirup Glukosa B4 (Konsentrasi 0,1 M, Suhu 50°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 80,7321 gr

Berat sampel (B) = 5,1876 gr

Berat cawan + sampel (setelah dioven) (C) = 79,1593 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(80,7321-79,1593)}{5,1876} \times 100\% \\ &= 30,3185\% \end{aligned}$$

j. Sirup Glukosa B5 (Konsentrasi 0,125 M, Suhu 50°C)

Diketahui:

Berat cawan kosong + sampel (sebelum dioven) (A) = 59,8463 gr

Berat sampel (B) = 5,0255 gr

Berat cawan + sampel (setelah dioven) (C) = 58,3582 gr

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(A-C)}{B} \times 100\% \\ &= \frac{(59,8463 - 58,3582)}{5,0255} \times 100\% \\ &= 29,6110 \% \end{aligned}$$

3. 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. Sirup Glukosa A1 (Konsentrasi 0,025 M, Suhu 60°C)

Diketahui:

Berat *crussible* kosong (A) = 55,3232 gr

Berat sampel (B) = 5,0255 gr

Berat *crussible* + abu (C) = 55,3378 gr

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(55,3378 - 55,3232)}{5,0255} \times 100\% \\ &= 0,2911 \% \end{aligned}$$

b. Sirup Glukosa A2 (Konsentrasi 0,05 M, Suhu 60°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 51,8976 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0255 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 51,9231 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(51,9231 - 51,8976)}{5,0255} \times 100\% \\ &= 0,5101\% \end{aligned}$$

c. Sirup Glukosa A3 (Konsentrasi 0,075 M, Suhu 60°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 76,2375 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0245 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 76,2702 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(76,2702 - 76,2375)}{5,0245} \times 100\% \\ &= 0,6621\% \end{aligned}$$

d. Sirup Glukosa A4 (Konsentrasi 0,1 M, Suhu 60°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 26,7509 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0125 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 26,7901 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(26,7901 - 26,7509)}{5,0125} \times 100\% \\ &= 0,7820\% \end{aligned}$$

e. Sirup Glukosa A5 (Konsentrasi 0,125 M, Suhu 60°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 106,6106 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0952 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 106,6571 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(106,6571-106,106)}{5,0952} \times 100\% \\ &= 0,9112 \% \end{aligned}$$

f. Sirup Glukosa B1 (Konsentrasi 0,025 M, Suhu 50°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 55,2896 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0212 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 55,2999 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(55,2999-55,2896)}{5,0212} \times 100\% \\ &= 0,2052\% \end{aligned}$$

g. Sirup Glukosa B2 (Konsentrasi 0,05 M, Suhu 50°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 31,1695 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0019 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 31,1871 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(31,1871-31,1694 \text{ gr})}{5,0019} \times 100\% \\ &= 0,3522\% \end{aligned}$$

h. Sirup Glukosa B3 (Konsentrasi 0,075 M, Suhu 50°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 51,8959 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0073 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 51,9195 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(51,9195-51,8959)}{5,0073} \times 100\% \\ &= 0,4701\% \end{aligned}$$

i. Sirup Glukosa B4 (Konsentrasi 0,1 M, Suhu 50°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 55,2934 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0324 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 55,3217 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(55,3217-5,2934)}{5,0324} \times 100\% \\ &= 0,5630\% \end{aligned}$$

j. Sirup Glukosa B5 (Konsentrasi 0,125 M, Suhu 50°C)

Diketahui:

$$\text{Berat } crussible \text{ kosong (A)} = 51,9752 \text{ gr}$$

$$\text{Berat sampel (B)} = 5,0821 \text{ gr}$$

$$\text{Berat } crussible \text{ + abu (C)} = 52,0108 \text{ gr}$$

$$\begin{aligned} \% \text{ Kadar Abu} &= \frac{(C-A)}{B} \times 100\% \\ &= \frac{(52,0108-51,9752)}{5,0821} \times 100\% \\ &= 0,7002\% \end{aligned}$$

4. Perhitungan Kadar Gula Reduksi (D-Glukosa)

Rumus:

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

Dimana:

mg glukosa = volume blanko – volume sampel (Tabel)

fp = faktor pengenceran

a. Sirup Glukosa A1 (Konsentrasi 0,025 M, Suhu 60°C)

Diketahui:

Berat sampel = 5007,4 mg

Volume blanko = 25,7 ml

Volume titran = 17,5 ml

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned} \text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 17,5 \text{ ml} \\ &= 8,2 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\frac{x - x_1}{x_2 - x_1} = \frac{y - y_1}{y_2 - y_1}$$

$$\frac{8,2 - 8}{9 - 8} = \frac{y - 19,8}{22,4 - 19,8}$$

$$y = 20,32 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned} \% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{20,32 \times 50}{5007,4} \times 100\% \\ &= 20,29 \% \end{aligned}$$

b. Sirup Glukosa A2 (konsentrasi 0,05 M, Suhu 60°C)

Diketahui:

$$\text{Berat sampel} = 5021,1 \text{ mg}$$

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

$$\text{Volume titran} = 14,8 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned} \text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 14,8 \text{ ml} \\ &= 10,9 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\frac{x - x_1}{x_2 - x_1} = \frac{y - y_1}{y_2 - y_1}$$

$$\frac{10,9 - 10}{11 - 10} = \frac{y - 25}{27,6 - 25}$$

$$y = 24,74 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned} \text{\% Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{24,74 \times 50}{5021,1} \times 100\% \\ &= 24,64\% \end{aligned}$$

c. Sirup Glukosa A3 (Konsentrasi 0,075 M, Suhu 60°C)

Diketahui:

$$\text{Berat sampel} = 5009,8 \text{ mg}$$

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

$$\text{Volume titran} = 10,3 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned}\text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 10,3 \text{ ml} \\ &= 15,4 \text{ ml}\end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned}\frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{15,4 - 15}{16 - 15} &= \frac{y - 38,5}{41,3 - 38,5}\end{aligned}$$

$$y = 39,62 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned}\% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{39,62 \times 50}{5009,8} \times 100\% \\ &= 39,54 \%\end{aligned}$$

d. Sirup Glukosa A4 (Konsentrasi 0,1 M, Suhu 60°C)

Diketahui:

$$\text{Berat sampel} = 5037,1 \text{ mg}$$

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

$$\text{Volume titran} = 7,5 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned}\text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 7,5 \text{ ml} \\ &= 18,2 \text{ ml}\end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned}\frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{18,2 - 18}{19 - 18} &= \frac{y - 47,1}{50 - 47,1}\end{aligned}$$

$$y = 47,68 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned}\% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{47,68 \times 50}{5037,1} \times 100\% \\ &= 47,33\%\end{aligned}$$

- e. Sirup Glukosa A5 (Konsentrasi 0,125 M, Suhu 60°C)

Diketahui:

$$\text{Berat sampel} = 5077,3 \text{ mg}$$

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

$$\text{Volume titran} = 6,1 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned}\text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 6,1 \text{ ml} \\ &= 19,6 \text{ ml}\end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned}\frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{19,6 - 19}{20 - 19} &= \frac{y - 50}{53 - 50}\end{aligned}$$

$$y = 51,80 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned}\% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{51,80 \times 50}{5077,3} \times 100\% \\ &= 51,01\%\end{aligned}$$

- f. Sirup Glukosa B1 (Konsentrasi 0,025 M, Suhu 50°C)

Diketahui:

$$\text{Berat sampel} = 5071,2 \text{ mg}$$

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

Volume titran = 18 ml

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned}\text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 18 \text{ ml} \\ &= 7,7 \text{ ml}\end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned}\frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{7,7 - 7}{8 - 7} &= \frac{y - 17,2}{19,8 - 17,2}\end{aligned}$$

$$y = 19,02 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned}\% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{19,02 \text{ mg} \times 50}{5071,2} \times 100\% \\ &= 18,75 \%\end{aligned}$$

g. Sirup Glukosa B2 (Konsentrasi 0,05 M, Suhu 50°C)

Diketahui:

Berat sampel = 5011,5 mg

Volume blanko = 25,7 ml

Volume titran = 16,3 ml

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned}\text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 16,3 \text{ ml} \\ &= 9,4 \text{ ml}\end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\frac{x - x_1}{x_2 - x_1} = \frac{y - y_1}{y_2 - y_1}$$

$$\frac{9,4 - 9}{10 - 9} = \frac{y - 22,4}{25 - 22,4}$$

$$y = 23,39 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned} \text{\% Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{23,39 \times 50}{5011,5} \times 100\% \\ &= 23,33 \% \end{aligned}$$

h. Sirup Glukosa B3 (Konsentrasi 0,075 M, Suhu 50°C)

Diketahui:

$$\text{Berat sampel} = 5051,2 \text{ mg}$$

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

$$\text{Volume sampel} = 13,2 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned} \text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 13,2 \text{ ml} \\ &= 12,5 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned} \frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{12,5 - 12}{12 - 11} &= \frac{y - 27,6}{30,3 - 27,6} \end{aligned}$$

$$y = 31,65 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned} \text{\% Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{31,65 \times 50}{5051,2} \times 100\% \\ &= 31,33 \% \end{aligned}$$

i. Sirup Glukosa B4 (Konsentrasi 0,1 M, Suhu 50°C)

Diketahui:

$$\text{Berat sampel} = 5025,3 \text{ mg}$$

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

$$\text{Volume sampel} = 9,8 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned} \text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 9,8 \text{ ml} \\ &= 15,9 \text{ ml} \end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\frac{x - x_1}{x_2 - x_1} = \frac{y - y_1}{y_2 - y_1}$$

$$\frac{15,9 - 15}{16 - 15} = \frac{y - 38,5}{41,3 - 38,5}$$

$$y = 41,02 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned} \text{\% Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{41,02 \times 50}{5025,3} \times 100\% \\ &= 40,81 \text{ \%} \end{aligned}$$

j. Sirup Glukosa B5 (Konsentrasi 0,125 M, Suhu 50°C)

Diketahui:

$$\text{Berat sampel} = 5025,6 \text{ mg}$$

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

$$\text{Volume titran} = 8,2 \text{ ml}$$

Ditanya: % Kadar Glukosa

Penyelesaian:

- Volume blanko – Volume titran

$$\begin{aligned}\text{Volume blanko} - \text{Volume titran} &= 25,7 \text{ ml} - 8,2 \text{ ml} \\ &= 17,5 \text{ ml}\end{aligned}$$

- mg glukosa (interpolasi dari Tabel)

$$\begin{aligned}\frac{x - x_1}{x_2 - x_1} &= \frac{y - y_1}{y_2 - y_1} \\ \frac{17,5 - 17}{18 - 17} &= \frac{y - 44,2}{47,1 - 44,2}\end{aligned}$$

$$y = 42,75 \text{ mg}$$

- % Kadar Glukosa

$$\begin{aligned}\% \text{ Kadar Glukosa} &= \frac{\text{mg glukosa} \times \text{fp}}{\text{mg sampel}} \times 100\% \\ &= \frac{42,72 \times 50}{5025,7} \times 100\% \\ &= 42,53 \%\end{aligned}$$

5. Organoleptik (Uji Kesukaan)

a. Organoleptik Terhadap Bau

Diketahui :

$$N = 250$$

$$k = 10$$

$$n = 25$$

Ditanya : F tabel

Penyelesaian :

$$\begin{aligned}\text{dbK} &= k - 1 \\ &= 10 - 1 \\ &= 9\end{aligned}$$

$$\begin{aligned}\text{dbG} &= N - k \\ &= 250 - 10 \\ &= 240\end{aligned}$$

$$\begin{aligned}\text{dbT} &= N - 1 \\ &= 250 - 1 \\ &= 249\end{aligned}$$

$$\begin{aligned}
 JKK &= \frac{(\sum Yt)^2}{n} - \frac{(\sum Y)^2}{N} \\
 &= \left(\frac{58^2}{25} + \frac{71^2}{25} + \frac{84^2}{25} + \frac{86^2}{25} + \frac{103^2}{25} + \frac{55^2}{25} + \frac{63^2}{25} + \frac{76^2}{25} + \frac{81^2}{25} + \frac{95^2}{25} \right) - \frac{772^2}{250} \\
 &= 88,9440
 \end{aligned}$$

$$\begin{aligned}
 JKT &= \sum Y^2 - \frac{(\sum Y)^2}{N} \\
 &= 2.662 - \left(\frac{772^2}{250} \right) \\
 &= 278,0640
 \end{aligned}$$

$$\begin{aligned}
 JKG &= JKT - JKK \\
 &= 278,0640 - 88,9440 \\
 &= 189,1200
 \end{aligned}$$

$$\begin{aligned}
 KTK &= \frac{JKK}{dbK} \\
 &= \frac{88,9440}{9} \\
 &= 9,8827
 \end{aligned}$$

$$\begin{aligned}
 KTG &= \frac{JKG}{dbG} \\
 &= \frac{189,1200}{240} \\
 &= 0,7880
 \end{aligned}$$

$$\begin{aligned}
 F \text{ hitung} &= \frac{KTK}{KTG} \\
 &= \frac{9,8827}{0,7880} \\
 &= 12,5415
 \end{aligned}$$

F tabel = 1,92 (diperoleh dari tabel F)

F hitung > F tabel

Panelis	Perlakuan										ΣY	Nilai Kuadrat										ΣY^2
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5		A1 ²	A2 ²	A3 ²	A4 ²	A5 ²	B1 ²	B2 ²	B3 ²	B4 ²	B5 ²	
P1	1	3	4	2	3	3	3	4	4	3	30	1	9	16	4	9	9	9	16	16	9	98
P2	3	3	4	5	3	2	2	3	3	4	32	9	9	16	25	9	4	4	9	9	16	110
P3	2	3	3	4	3	1	1	2	2	3	24	4	9	9	16	9	1	1	4	4	9	66
P4	4	5	4	2	5	2	2	2	3	5	34	16	25	16	4	25	4	4	4	9	25	132
P5	3	3	2	4	3	3	3	3	4	3	31	9	9	4	16	9	9	9	9	16	9	99
P6	2	2	4	4	5	3	3	4	5	5	37	4	4	16	16	25	9	9	16	25	25	149
P7	3	3	5	5	3	4	4	4	4	5	40	9	9	25	25	9	16	16	16	16	25	166
P8	3	4	2	5	4	2	3	3	3	4	33	9	16	4	25	16	4	9	9	9	16	117
P9	4	4	4	2	2	3	3	3	4	4	33	16	16	16	4	4	9	9	9	16	16	115
P10	4	3	3	2	3	2	2	2	4	3	28	16	9	9	4	9	4	4	4	16	9	84
P11	2	2	2	4	3	2	2	2	3	3	25	4	4	4	16	9	4	4	4	9	9	67
P12	3	3	5	2	5	2	2	2	4	5	33	9	9	25	4	25	4	4	4	16	25	125
P13	2	3	4	5	5	2	2	2	3	4	32	4	9	16	25	25	4	4	4	9	16	116
P14	1	2	3	3	4	1	2	2	4	4	26	1	4	9	9	16	1	4	4	16	16	80
P15	2	3	4	2	5	2	2	2	3	3	28	4	9	16	4	25	4	4	4	9	9	88
P16	2	2	3	3	4	1	3	4	4	4	30	4	4	9	9	16	1	9	16	16	16	100
P17	2	2	3	4	5	2	4	3	4	5	34	4	4	9	16	25	4	16	9	16	25	128
P18	2	3	3	2	5	2	2	3	2	3	27	4	9	9	4	25	4	4	9	4	9	81
P19	1	1	3	3	5	2	4	4	2	4	29	1	1	9	9	25	4	16	16	4	16	101
P20	1	3	3	2	5	2	2	4	3	4	29	1	9	9	4	25	4	4	16	9	16	97
P21	3	3	4	4	5	3	3	4	4	3	36	9	9	16	16	25	9	9	16	16	9	134
P22	3	4	4	5	5	2	3	4	2	3	35	9	16	16	25	25	4	9	16	4	9	133
P23	2	3	3	5	5	3	2	3	2	3	31	4	9	9	25	25	9	4	9	4	9	107
P24	1	2	2	3	4	2	2	3	2	4	25	1	4	4	9	16	4	4	9	4	16	71
P25	2	2	3	4	4	2	2	4	3	4	30	4	4	9	16	16	4	4	16	9	16	98
ΣY_t	58	71	84	86	103	55	63	76	81	95	772	156	219	300	330	447	133	173	248	281	375	2662

b. Organoleptik Terhadap Rasa

Diketahui :

$$N = 250$$

$$k = 10$$

$$n = 25$$

Ditanya : F tabel

Penyelesaian :

$$\begin{aligned} dbK &= k - 1 \\ &= 10 - 1 \\ &= 9 \end{aligned}$$

$$\begin{aligned} dbG &= N - k \\ &= 250 - 10 \\ &= 240 \end{aligned}$$

$$\begin{aligned} dbT &= N - 1 \\ &= 250 - 1 \\ &= 249 \end{aligned}$$

$$\begin{aligned} JKK &= \frac{(\sum Yt)^2}{n} - \frac{(\sum Y)^2}{N} \\ &= \left(\frac{72^2}{25} + \frac{74^2}{25} + \frac{95^2}{25} + \frac{101^2}{25} + \frac{113^2}{25} + \frac{45^2}{25} + \frac{80^2}{25} + \frac{82^2}{25} + \frac{99^2}{25} + \frac{109^2}{25} \right) - \frac{870^2}{250} \\ &= 151,8400 \end{aligned}$$

$$\begin{aligned} JKT &= \sum Y^2 - \frac{(\sum Y)^2}{N} \\ &= 3344 - \left(\frac{716^2}{250} \right) \\ &= 316,4 \end{aligned}$$

$$\begin{aligned} JKG &= JKT - JKK \\ &= 316,4 - 151,84 \\ &= 164,56 \end{aligned}$$

$$\begin{aligned} \text{KTK} &= \frac{\text{JKK}}{\text{dbK}} \\ &= \frac{151,84}{9} \\ &= 16,8711 \end{aligned}$$

$$\begin{aligned} \text{KTG} &= \frac{\text{JKG}}{\text{dbG}} \\ &= \frac{164,56}{240} \\ &= 0,6857 \end{aligned}$$

$$\begin{aligned} \text{F hitung} &= \frac{\text{KTK}}{\text{KTG}} \\ &= \frac{16,8711}{0,6857} \\ &= 24,61 \end{aligned}$$

F tabel = 1,92 (diperoleh dari tabel F)

F hitung > F tabel

Panelis	Perlakuan										ΣY	Nilai Kuadrat										ΣY^2
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5		A1 ²	A2 ²	A3 ²	A4 ²	A5 ²	B1 ²	B2 ²	B3 ²	B4 ²	B5 ²	
P1	2	3	2	3	5	3	4	3	4	5	34	4	9	4	9	25	9	16	9	16	25	126
P2	2	3	3	4	4	2	2	2	3	4	29	4	9	9	16	16	4	4	4	9	16	91
P3	2	4	4	4	5	2	4	3	3	5	36	4	16	16	16	25	4	16	9	9	25	140
P4	4	4	4	4	5	2	3	3	3	3	35	16	16	16	16	25	4	9	9	9	9	129
P5	3	3	4	5	5	2	2	3	2	4	33	9	9	16	25	25	4	4	9	4	16	121
P6	2	5	3	4	5	2	4	3	2	5	35	4	25	9	16	25	4	16	9	4	25	137
P7	3	3	5	4	5	4	3	3	2	4	36	9	9	25	16	25	16	9	9	4	16	138
P8	3	4	4	4	4	2	4	3	5	4	37	9	16	16	16	16	4	16	9	25	16	143
P9	4	4	4	5	5	3	3	3	4	4	39	16	16	16	25	25	9	9	9	16	16	157
P10	2	3	3	3	4	2	2	4	4	3	30	4	9	9	9	16	4	4	16	16	9	96
P11	3	4	4	3	2	1	3	4	5	5	34	9	16	16	9	4	1	9	16	25	25	130
P12	3	3	5	5	5	2	2	2	5	5	37	9	9	25	25	25	4	4	4	25	25	155
P13	3	2	3	3	3	0	4	3	4	4	29	9	4	9	9	9	0	16	9	16	16	97
P14	4	2	3	4	4	1	3	4	5	4	34	16	4	9	16	16	1	9	16	25	16	128
P15	4	3	4	4	5	2	2	3	3	5	35	16	9	16	16	25	4	4	9	9	25	133
P16	4	2	4	3	5	2	3	5	5	4	37	16	4	16	9	25	4	9	25	25	16	149
P17	2	2	4	4	5	2	4	3	4	5	35	4	4	16	16	25	4	16	9	16	25	135
P18	2	2	3	4	5	1	4	2	5	4	32	4	4	9	16	25	1	16	4	25	16	120
P19	3	3	5	3	4	2	3	5	5	4	37	9	9	25	9	16	4	9	25	25	16	147
P20	3	2	5	4	4	2	3	3	5	5	36	9	4	25	16	16	4	9	9	25	25	142
P21	2	3	5	4	4	1	3	4	3	5	34	4	9	25	16	16	1	9	16	9	25	130
P22	3	3	3	5	5	2	3	3	5	5	37	9	9	9	25	25	4	9	9	25	25	149
P23	4	2	4	5	5	0	5	5	5	4	39	16	4	16	25	25	0	25	25	25	16	177
P24	2	2	4	5	5	1	3	3	5	5	35	4	4	16	25	25	1	9	9	25	25	143
P25	3	3	3	5	5	2	4	3	3	4	35	9	9	9	25	25	4	16	9	9	16	131
ΣY_t	72	74	95	101	113	45	80	82	99	109	870	222	236	377	421	525	99	272	286	421	485	3344

c. Organoleptik Terhadap Warna

Diketahui :

$$N = 250$$

$$k = 10$$

$$n = 25$$

Ditanya : F tabel

Penyelesaian :

$$\begin{aligned} dbK &= k - 1 \\ &= 10 - 1 \\ &= 9 \end{aligned}$$

$$\begin{aligned} dbG &= N - k \\ &= 250 - 10 \\ &= 240 \end{aligned}$$

$$\begin{aligned} dbT &= N - 1 \\ &= 250 - 1 \\ &= 249 \end{aligned}$$

$$\begin{aligned} JKK &= \frac{(\sum Yt)^2}{n} - \frac{(\sum Y)^2}{N} \\ &= \left(\frac{63^2}{25} + \frac{67^2}{25} + \frac{83^2}{25} + \frac{102^2}{25} + \frac{107^2}{25} + \frac{57^2}{25} + \frac{83^2}{25} + \frac{77^2}{25} + \frac{97^2}{25} + \frac{106^2}{25} \right) - \frac{842^2}{250} \\ &= 120,6240 \end{aligned}$$

$$\begin{aligned} JKT &= \sum Y^2 - \frac{(\sum Y)^2}{N} \\ &= 3110 - \left(\frac{842^2}{250} \right) \\ &= 274,1440 \end{aligned}$$

$$\begin{aligned} JKG &= JKT - JKK \\ &= 274,1440 - 120,6240 \\ &= 153,52 \end{aligned}$$

$$\begin{aligned} \text{KTK} &= \frac{\text{JKK}}{\text{dbK}} \\ &= \frac{120,6240}{9} \\ &= 13,4027 \end{aligned}$$

$$\begin{aligned} \text{KTG} &= \frac{\text{JKG}}{\text{dbG}} \\ &= \frac{153,52}{240} \\ &= 0,6397 \end{aligned}$$

$$\begin{aligned} F \text{ hitung} &= \frac{\text{KTK}}{\text{KTG}} \\ &= \frac{13,4027}{0,6397} \\ &= 20,95 \end{aligned}$$

F tabel = 1,92 (diperoleh dari tabel F, halaman 78)

F hitung > F tabel

Panelis	Perlakuan										ΣY	Nilai Kuadrat										ΣY^2
	A1	A2	A3	A4	A5	B1	B2	B3	B4	B5		A1 ²	A2 ²	A3 ²	A4 ²	A5 ²	B1 ²	B2 ²	B3 ²	B4 ²	B5 ²	
P1	3	1	2	2	4	3	4	3	4	5	31	9	1	4	4	16	9	16	9	16	25	109
P2	3	3	3	4	4	3	3	3	4	4	34	9	9	9	16	16	9	9	9	16	16	118
P3	2	2	2	4	5	3	3	3	3	4	31	4	4	4	16	25	9	9	9	9	16	105
P4	2	3	4	4	4	2	4	2	3	5	33	4	9	16	16	16	4	16	4	9	25	119
P5	2	2	4	3	5	3	3	3	4	3	32	4	4	16	9	25	9	9	9	16	9	110
P6	2	2	4	4	4	2	3	3	4	5	33	4	4	16	16	16	4	9	9	16	25	119
P7	3	3	4	5	5	2	4	4	4	4	38	9	9	16	25	25	4	16	16	16	16	152
P8	3	3	3	5	4	3	2	3	4	3	33	9	9	9	25	16	9	4	9	16	9	115
P9	4	4	5	5	5	2	4	4	4	4	41	16	16	25	25	25	4	16	16	16	16	175
P10	2	2	4	4	4	2	2	2	5	4	31	4	4	16	16	16	4	4	4	25	16	109
P11	3	2	2	3	3	3	3	2	3	5	29	9	4	4	9	9	9	9	4	9	25	91
P12	3	3	5	5	3	2	4	3	4	4	36	9	9	25	25	9	4	16	9	16	16	138
P13	2	3	3	5	5	2	2	2	3	4	31	4	9	9	25	25	4	4	4	9	16	109
P14	1	3	3	3	4	2	2	3	5	5	31	1	9	9	9	16	4	4	9	25	25	111
P15	2	2	2	3	4	2	3	4	5	3	30	4	4	4	9	16	4	9	16	25	9	100
P16	3	1	2	4	4	2	5	3	4	4	32	9	1	4	16	16	4	25	9	16	16	116
P17	2	3	3	4	4	2	4	3	3	5	33	4	9	9	16	16	4	16	9	9	25	117
P18	2	3	3	4	4	2	2	3	4	5	32	4	9	9	16	16	4	4	9	16	25	112
P19	1	2	3	4	4	2	5	4	4	5	34	1	4	9	16	16	4	25	16	16	25	132
P20	3	4	3	5	5	3	3	4	5	4	39	9	16	9	25	25	9	9	16	25	16	159
P21	3	5	4	4	5	2	4	4	3	3	37	9	25	16	16	25	4	16	16	9	9	145
P22	3	4	4	5	5	2	5	2	5	5	40	9	16	16	25	25	4	25	4	25	25	174
P23	3	3	4	4	4	1	2	2	3	4	30	9	9	16	16	16	1	4	4	9	16	100
P24	3	3	4	5	5	2	2	4	4	5	37	9	9	16	25	25	4	4	16	16	25	149
P25	3	1	3	4	4	3	5	4	3	4	34	9	1	9	16	16	9	25	16	9	16	126
ΣY_t	63	67	83	102	107	57	83	77	97	106	842	171	203	295	432	467	137	303	251	389	462	3110

