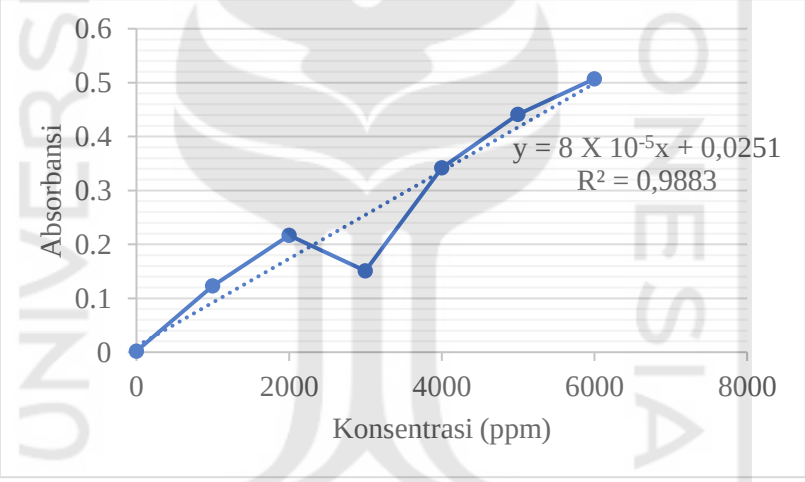
Lampiran 5. Perhitungan Kadar Karbohidrat

- **Hasil Pengukuran Absorbansi Standar Glukosa**

Konsentrasi (ppm)	Absorbansi
0	0,002
1000	0,123
2000	0,217
3000	0,251
4000	0,342
5000	0,441
6000	0,507

- **Kurva Standar Glukosa**



- **Pembuatan Larutan Standar**

1. Pembuatan Larutan Standar 6000 ppm

$$\frac{6000\ mg}{1000\ mL} = \frac{x}{100\ mL}$$

$$X = \frac{6000\ mg\ x\ 100\ mL}{1000\ mL}$$

$$X = 60\ mg$$

2. Larutan Induk Glukosa 5000 ppm

$$\frac{5000\ mg}{1000\ mL} = \frac{x}{100\ mL}$$

$$X = \frac{5000\ mg\ x\ 100\ mL}{1000\ mL}$$

$$X = 50\ mg$$

3. Larutan Standar Glukosa 4000 ppm

$$V1\ x\ M1 = V2\ x\ M2$$

$$V1\ x\ 5000\ ppm = 50\ mL\ x\ 4000\ ppm$$

$$V1 = \frac{50\ mL\ x\ 4000\ ppm}{5000\ mL}$$

$$V1 = 40\ mL$$

4. Larutan Standar Glukosa 3000 ppm

$$V1\ x\ M1 = V2\ x\ M2$$

$$V1\ x\ 5000\ ppm = 50\ mL\ x\ 3000\ ppm$$

$$V1 = \frac{50\ mL\ x\ 3000\ ppm}{5000\ mL}$$

$$V1 = 30\ mL$$

5. Larutan Standar Glukosa 2000 ppm

$$V1\ x\ M1 = V2\ x\ M2$$

$$V1\ x\ 5000\ ppm = 50\ mL\ x\ 2000\ ppm$$

$$V1 = \frac{50\ mL\ x\ 2000\ ppm}{5000\ mL}$$

$$V1 = 20\ mL$$

6. Larutan Standar Glukosa 1000 ppm

$$V1\ x\ M1 = V2\ x\ M2$$

$$V1\ x\ 5000\ ppm = 50\ mL\ x\ 1000\ ppm$$

$$V1 = \frac{50\ mL\ x\ 1000\ ppm}{5000\ mL}$$

$$V1 = 10\ mL$$

- **Hasil Data Perhitungan Konsentrasi Karbohidrat**

Sampel	Absorbansi	Intercept	Slope	Rata-Rata
TP 1	0,476	0,0251	8×10^{-05}	
TP2	0,476	0,0251	8×10^{-05}	5636,25
24 Jam 1	0,363	0,0251	8×10^{-05}	
24 Jam 2	0,361	0,0251	8×10^{-05}	4211,25
36 Jam 1	0,336	0,0251	8×10^{-05}	
36 Jam 2	0,337	0,0251	8×10^{-05}	3892,50
48 Jam 1	0,321	0,0251	8×10^{-05}	
48 Jam 2	0,322	0,0251	8×10^{-05}	3705,00

a. Tanpa Perlakuan

$$Y = 8 \times 10^{-5} x + 0{,}0251$$

$$0{,}476 = 8 \times 10^{-5} x + 0{,}0251$$

$$x = \frac{0{,}476 - 0{,}0251}{8 \times 10^{-5}}$$

$$x = 5636{,}25$$

$$Y = 8 \times 10^{-5} x + 0{,}0251$$

$$0{,}476 = 8 \times 10^{-5} x + 0{,}0251$$

$$x = \frac{0{,}476 - 0{,}0251}{8 \times 10^{-5}}$$

$$x = 5636{,}25$$

$$Rata - rata = \frac{5636{,}25 + 5636{,}25}{2}$$

$$= 5636{,}25$$

$$Konsentrasi = Rata\text{-}rata \; x \; Fp$$

$$= 5636{,}25 \times 100$$

$$= 563625 \text{ ppm}$$

$$\%\, Karbohidrat = \frac{563625}{10.000}$$

$$= 56{,}36\%$$

b. Fermentasi 24 Jam

$$Y = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$0{,}363 = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$x = \frac{0{,}363 - 0{,}0251}{8 \text{ x } 10^{-5}}$$

$$x = 4223{,}75$$

$$Y = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$0{,}361 = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$x = \frac{0{,}361 - 0{,}0251}{8 \text{ x } 10^{-5}}$$

$$x = 4198{,}75$$

$$Rata - rata = \frac{4223{,}75 + 4198{,}75}{2}$$

$$= 4211{,}25$$

$$Konsentrasi = Rata\text{-}rata \text{ x } Fp$$

$$= 4211{,}25 \text{ x } 100$$

$$= 421125 \text{ ppm}$$

$$\% Karbohidrat = \frac{421125}{10.000}$$

$$= 42{,}11\%$$

c. Fermentasi 36 Jam

$$Y = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$0{,}336 = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$x = \frac{0{,}336 - 0{,}0251}{8 \text{ x } 10^{-5}}$$

$$x = 3886{,}25$$

$$Y = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$0{,}337 = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$x = \frac{0{,}337 - 0{,}0251}{8 \text{ x } 10^{-5}}$$

$$x = 3898{,}75$$

$$Rata - rata = \frac{3886{,}25 + 3898{,}75}{2}$$

$$= 3892{,}5$$

$$Konsentrasi = Rata\text{-}rata \text{ x } Fp$$

$$= 3892{,}5 \text{ x } 100$$

$$= 389250 \text{ ppm}$$

$$\% Karbohidrat = \frac{389250}{10.000}$$

$$= 38{,}92\%$$

d. Fermentasi 48 Jam

$$Y = 8 \text{ x } 10^{-5} x + 0{,}0251 \qquad Y = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$0{,}321 = 8 \text{ x } 10^{-5} x + 0{,}0251 \qquad 0{,}322 = 8 \text{ x } 10^{-5} x + 0{,}0251$$

$$x = \frac{0{,}321 - 0{,}0251}{8 \text{ x } 10^{-5}} \qquad x = \frac{0{,}322 - 0{,}0251}{8 \text{ x } 10^{-5}}$$

$$x = 3698{,}75 \qquad x = 3711{,}25$$

$$Rata - rata = \frac{3698{,}75 + 3711{,}25}{2}$$

$$= 3705$$

$$Konsentrasi = Rata\text{-}rata \; x \; Fp$$

$$= 3705 \text{ x } 100$$

$$= 375000 \text{ ppm}$$

$$\% \; Karbohidrat = \frac{389250}{10.000}$$

$$= 37{,}50\%$$

Hasil Perhitungan Kadar Karbohidrat

Sampel	Kadar Karbohidrat (%)
Tanpa Perlakuan (0) Jam	56,36
24 Jam	42,11
36 Jam	38,92
48 Jam	37,50