

LAMPIRAN 1

HASIL PENGAMATAN

1. Hasil Pengamatan dan Analisis Produk

Tabel 1. Pengamatan sebelum hidrolisat dievaporasi

	Densitas (gr/ml)	Viskositas (cp)	Warna	Bau
Variabel I	1,0396	1,5594	Putih kehijauan	Jagung
Variabel II	1,0448	1,6508	Putih kehijauan	Jagung

Tabel 2. Hidrolisat sesudah evaporasi

	Waktu	Densitas (gr/ml)	Viskositas (cp)	Warna	Bau
Variabel I	60	1,0404	1,5710	Agak keruh	Jagung
I	75	1,0456	1,7775	Keruh	Jagung
Variabel II	60	1,0468	1,8004	Agak keruh	Jagung
II	75	1,0484	2,1806	keruh	Jagung

Tabel 3. Hasil Analisa produk

Sampel	pH		Kadar Xylose (mg/ml)
	Sebelum Evaporasi	Sesudah Evaporasi	
Percobaan 1	7	5	1,13
Percobaan 2	7	5	1,14
Percobaan 3	7	5	1,67
Percobaan 4	7	5	1,69

2. Perhitungan

2.1 Proses Persiapan Bahan

- a. Perhitungan volume pengenceran HCl 0,5% dari HCl 32%

$$(\text{Kadar} \times \text{volume})_1 = (\text{Kadar} \times \text{volume})_2$$

$$0,5\% \times 5000 \text{ ml} = 32\% \times (\text{volume})_2$$

- $(\text{volume})_2 = \frac{0.5\% \times 5000 \text{ ml}}{32\%} = 78,125 \text{ ml}$
 Volume aquadest = $(5000 - 78,125) \text{ ml}$
 = 4921,875 ml
- b. Perhitungan volume pengenceran HCl 1% dari HCl 32%
 $(\text{Kadar} \times \text{volume})_1 = (\text{Kadar} \times \text{volume})_2$
 $1\% \times 5000 \text{ ml} = 32\% \times (\text{volume})_2$
 $(\text{volume})_2 = \frac{1\% \times 5000 \text{ ml}}{32\%} = 156,25 \text{ ml}$
 Volume aquadest = $(5000 - 111,1) \text{ ml}$
 = 4843,75 ml
- c. Perhitungan massa jenis xylose hasil hidrolisa (HCl 0,5%)
 Massa piknometer kosong (a) = 15,91 gram
 Massa piknometer berisi hidrolisat (b) = 41,90 gram
 Volume piknometer (c) = 25 ml
 Massa Jenis xylose = $\frac{b-a}{c}$
 = $\frac{(41,90 - 15,91)g}{25 \text{ ml}}$
 = 1,0396 g/ml
- d. Perhitungan massa jenis xylose hasil hidrolisa (HCl 1%)
 Massa piknometer kosong (a) = 15,91 gram
 Massa piknometer berisi hidrolisat (b) = 42,03 gram
 Volume piknometer (c) = 25 ml
 Massa Jenis xylose = $\frac{b-a}{c}$
 = $\frac{(42,03 - 15,91)g}{25 \text{ ml}}$
 = 1,0448 g/ml
- e. Perhitungan viskositas xylose hasil hidrolisa (HCl 0,5%)
 $t_x = 2,64 \text{ detik}$
 $d_x = 1,0396 \text{ g/ml}$
 Viskositas xylose (μ_x) = $\frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0$
 = $\frac{2,64 \text{ s} \times 1,0396 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP}$
 = 1,5594 cP

f. Perhitungan viskositas xylose hasil hidrolisa (HCl 1%)

$$t_x = 1,58 \text{ detik}$$

$$d_x = 1,0448 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu x) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{1,58s \times 1,0448 \text{ g/ml}}{1s \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 1,6508 \text{ cP} \end{aligned}$$

2.2 Hasil Evaporasi dan Analisa Produk

a. Perhitungan massa jenis xylose hasil evaporasi (HCl 0,5% ; waktu 60 menit)

$$\text{Massa piknometer kosong (a)} = 15,91 \text{ gram}$$

$$\text{Massa piknometer berisi hidrolisat (b)} = 41,92 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned} \text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(41,92-15,91)g}{25 \text{ ml}} \\ &= 1,0404 \text{ g/ml} \end{aligned}$$

b. Perhitungan massa jenis xylose hasil hidrolisa (HCl 0,5% ; waktu 75 menit)

$$\text{Massa piknometer kosong (a)} = 15,91 \text{ gram}$$

$$\text{Massa piknometer berisi hidrolisat (b)} = 42,05 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned} \text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,05-15,91)g}{25 \text{ ml}} \\ &= 1,0456 \text{ g/ml} \end{aligned}$$

c. Perhitungan massa jenis xylose hasil hidrolisa (HCl 1% ; waktu 60 menit)

$$\text{Massa piknometer kosong (a)} = 15,91 \text{ gram}$$

$$\text{Massa piknometer berisi hidrolisat (b)} = 42,08 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned} \text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,08-15,91)g}{25 \text{ ml}} \\ &= 1,0468 \text{ g/ml} \end{aligned}$$

- d. Perhitungan massa jenis xylose hasil hidrolisa (HCl 1% ; waktu 75 menit)

$$\text{Massa piknometer kosong (a)} = 15,91 \text{ gram}$$

$$\text{Massa piknometer berisi hidrolisat (b)} = 42,13 \text{ gram}$$

$$\text{Volume piknometer (c)} = 25 \text{ ml}$$

$$\begin{aligned} \text{Massa Jenis xylose} &= \frac{b-a}{c} \\ &= \frac{(42,13-15,91)g}{25 \text{ ml}} \\ &= 1,0484 \text{ g/ml} \end{aligned}$$

- e. Perhitungan viskositas xylose hasil hidrolisa (HCl 0,5% ; waktu 60 menit)

$$t_x = 1,51 \text{ detik}$$

$$d_x = 1,0404 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu x) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{1,51 \text{ s} \times 1,0404 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 1,571 \text{ cP} \end{aligned}$$

- f. Perhitungan viskositas xylose hasil hidrolisa (HCl 0,5% ; waktu 75 menit)

$$t_x = 1,70 \text{ detik}$$

$$d_x = 1,0456 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu x) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{1,70 \text{ s} \times 1,0456 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 1,7775 \text{ cP} \end{aligned}$$

- g. Perhitungan viskositas xylose hasil hidrolisa (HCl 1% ; waktu 60 menit)

$$t_x = 1,72 \text{ detik}$$

$$d_x = 1,0468 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu x) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{1,72 \text{ s} \times 1,0468 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 1,8004 \text{ cP} \end{aligned}$$

h. Perhitungan viskositas xylose hasil hidrolisa (HCl 1% ; waktu 75 menit)

$$t_x = 2,08 \text{ detik}$$

$$d_x = 1,0484 \text{ g/ml}$$

$$\begin{aligned} \text{Viskositas xylose } (\mu\text{x}) &= \frac{t_x \times d_x}{t_0 \times d_0} \times \mu_0 \\ &= \frac{2,08 \text{ s} \times 1,0484 \text{ g/ml}}{1 \text{ s} \times 1 \text{ g/ml}} \times 1 \text{ cP} \\ &= 2,1806 \text{ cP} \end{aligned}$$

LAMPIRAN 2

FOTO

1. Alat Evaporator



2. Proses Hidrolisa



3. Produk

