

LAMPIRAN B PERHITUNGAN

1. Perhitungan Hasil Analisis Bahan Baku Pelepah Pisang

Kadar Air (SNI 0441-2009)

$$\begin{aligned}\text{Berat sampel awal (a)} &= 2 \text{ gram} \\ \text{Berat kering (b)} &= 1,83 \text{ gram} \\ \% \text{ Kadar Air} &= \frac{(a)-(b)}{a} \times 100\% \\ &= \frac{(2 \text{ gr})-(1,83 \text{ gr})}{2 \text{ gr}} \times 100\% \\ &= 8,5\%\end{aligned}$$

Kadar Ash (SNI 0442-2009)

$$\begin{aligned}\text{Berat sampel awal (a)} &= 2 \text{ gram} \\ \text{Berat kering (b)} &= 0,116 \text{ gram} \\ \% \text{ Kadar Ash} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(0,116 \text{ gram})}{(2 \text{ gram})} \times 100\% \\ &= 5,8\%\end{aligned}$$

Kadar Selulosa (SNI 0444-2009)

$$\begin{aligned}\text{Berat sampel (a)} &= 3 \text{ gram} \\ \text{Berat endapan selulosa (b)} &= 1,971 \text{ gram} \\ \% \text{ Kadar Selulosa} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(1,971 \text{ gram})}{(3 \text{ gram})} \times 100\% \\ &= 65,7\%\end{aligned}$$

Kadar Lignin (SNI 0445-2009)

$$\begin{aligned}\text{Berat sampel (a)} &= 2 \text{ gram} \\ \text{Berat endapan lignin (b)} &= 0,4 \text{ gram}\end{aligned}$$

$$\begin{aligned}
 \% \text{ Kadar Lignin} &= \frac{(b)}{(a)} \times 100\% \\
 &= \frac{(0,4 \text{ gram})}{(2 \text{ gram})} \times 100\% \\
 &= 20\%
 \end{aligned}$$

2. Perhitungan Hasil Analisis Produk Pulp

a. Rendemen Pulp

- Temperatur pemasakan 80 °C

Berat bahan baku (a) = 400 gram

Berat pulp kering (b) = 306,42 gram

$$\begin{aligned}
 \% \text{ Rendemen} &= \frac{(b)}{(a)} \times 100\% \\
 &= \frac{(306,42 \text{ gram})}{(400 \text{ gram})} \times 100\% \\
 &= 76,605\%
 \end{aligned}$$

- Temperatur pemasakan 90 °C

Berat bahan baku (a) = 400 gram

Berat pulp kering (b) = 256,35 gram

$$\begin{aligned}
 \% \text{ Rendemen} &= \frac{(b)}{(a)} \times 100\% \\
 &= \frac{(256,35 \text{ gram})}{(400 \text{ gram})} \times 100\% \\
 &= 64,0875\%
 \end{aligned}$$

- Temperatur pemasakan 100 °C

Berat bahan baku (a) = 400 gram

Berat pulp kering (b) = 242,56 gram

$$\begin{aligned}
 \% \text{ Rendemen} &= \frac{(b)}{(a)} \times 100\% \\
 &= \frac{(242,56 \text{ gram})}{(400 \text{ gram})} \times 100\% \\
 &= 60,64\%
 \end{aligned}$$

- Temperatur pemasakan 110 °C

Berat bahan baku (a) = 400 gram

Berat pulp kering (b) = 233,22 gram

$$\begin{aligned} \% \text{ Rendemen} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(233,22 \text{ gram})}{(400 \text{ gram})} \times 100\% \\ &= 58,305\% \end{aligned}$$

- Temperatur pemasakan 120 °C

Berat bahan baku (a) = 400 gram

Berat pulp kering (b) = 217,96 gram

$$\begin{aligned} \% \text{ Rendemen} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(217,96 \text{ gram})}{(400 \text{ gram})} \times 100\% \\ &= 54,49\% \end{aligned}$$

b. Kadar Air

- Temperatur pemasakan 80 °C

Berat sampel awal (a) = 2 gram

Berat kering (b) = 1,64 gram

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(a)-(b)}{a} \times 100\% \\ &= \frac{(2 \text{ gr})-(1,64 \text{ gr})}{2 \text{ gr}} \times 100\% \\ &= 18\% \end{aligned}$$

- Temperatur pemasakan 90 °C

Berat sampel awal (a) = 2 gram

Berat kering (b) = 1,68 gram

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(a)-(b)}{a} \times 100\% \\ &= \frac{(2 \text{ gr})-(1,68 \text{ gr})}{2 \text{ gr}} \times 100\% \\ &= 16\% \end{aligned}$$

- Temperatur pemasakan 100 °C

Berat sampel awal (a) = 2 gram

Berat kering (b) = 1,71 gram

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(a)-(b)}{a} \times 100\% \\ &= \frac{(2 \text{ gr})-(1,71 \text{ gr})}{2 \text{ gr}} \times 100\% \\ &= 14,5\% \end{aligned}$$

- Temperatur pemasakan 110°C

Berat sampel awal (a) = 2 gram

Berat kering (b) = 1,77 gram

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(a)-(b)}{a} \times 100\% \\ &= \frac{(2 \text{ gr})-(1,77 \text{ gr})}{2 \text{ gr}} \times 100\% \\ &= 11,5\% \end{aligned}$$

- Temperatur pemasakan 120°C

Berat sampel awal (a) = 2 gram

Berat kering (b) = 1,78 gram

$$\begin{aligned} \% \text{ Kadar Air} &= \frac{(a)-(b)}{a} \times 100\% \\ &= \frac{(2 \text{ gr})-(1,78 \text{ gr})}{2 \text{ gr}} \times 100\% \\ &= 11\% \end{aligned}$$

c. Kadar Ash

- Temperatur pemasakan 80 °C

Berat sampel awal (a) = 2 gram

Berat kering (b) = 0,08 gram

$$\begin{aligned} \% \text{ Kadar Ash} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(0,08 \text{ gram})}{(2 \text{ gram})} \times 100\% \\ &= 4\% \end{aligned}$$

- Temperatur pemasakan 90 °C
 Berat sampel awal (a) = 2 gram
 Berat kering (b) = 0,05 gram
 % Kadar *Ash* = $\frac{(b)}{(a)} \times 100\%$
 = $\frac{(0,05 \text{ gram})}{(2 \text{ gram})} \times 100\%$
 = 2,5%

- Temperatur pemasakan 100 °C
 Berat sampel awal (a) = 2 gram
 Berat kering (b) = 0,109 gram
 % Kadar *Ash* = $\frac{(b)}{(a)} \times 100\%$
 = $\frac{(0,109 \text{ gram})}{(2 \text{ gram})} \times 100\%$
 = 5,45%

- Temperatur pemasakan 110 °C
 Berat sampel awal (a) = 2 gram
 Berat kering (b) = 0,145 gram
 % Kadar *Ash* = $\frac{(b)}{(a)} \times 100\%$
 = $\frac{(0,145 \text{ gram})}{(2 \text{ gram})} \times 100\%$
 = 7,25%

- Temperatur pemasakan 120 °C
 Berat sampel awal (a) = 2 gram
 Berat kering (b) = 0,16 gram
 % Kadar *Ash* = $\frac{(b)}{(a)} \times 100\%$
 = $\frac{(0,16 \text{ gram})}{(2 \text{ gram})} \times 100\%$
 = 8%

d. Kadar Selulosa

- Temperatur pemasakan 80 °C

$$\text{Berat sampel (a)} = 3 \text{ gram}$$

$$\text{Berat endapan selulosa (b)} = 2,1512 \text{ gram}$$

$$\begin{aligned} \% \text{ Kadar Selulosa} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(2,1512 \text{ gram})}{(3 \text{ gram})} \times 100\% \\ &= 71,7\% \end{aligned}$$

- Temperatur pemasakan 90 °C

$$\text{Berat sampel (a)} = 3 \text{ gram}$$

$$\text{Berat endapan selulosa (b)} = 2,1902 \text{ gram}$$

$$\begin{aligned} \% \text{ Kadar Selulosa} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(2,1902 \text{ gram})}{(3 \text{ gram})} \times 100\% \\ &= 73\% \end{aligned}$$

- Temperatur pemasakan 100 °C

$$\text{Berat sampel (a)} = 3 \text{ gram}$$

$$\text{Berat endapan selulosa (b)} = 2,2712 \text{ gram}$$

$$\begin{aligned} \% \text{ Kadar Selulosa} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(2,2712 \text{ gram})}{(3 \text{ gram})} \times 100\% \\ &= 75,7\% \end{aligned}$$

- Temperatur pemasakan 110 °C

$$\text{Berat sampel (a)} = 3 \text{ gram}$$

$$\text{Berat endapan selulosa (b)} = 2,3312 \text{ gram}$$

$$\begin{aligned} \% \text{ Kadar Selulosa} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(2,3312 \text{ gram})}{(3 \text{ gram})} \times 100\% \\ &= 77,7\% \end{aligned}$$

- Temperatur pemasakan 120 °C

Berat sampel (a) = 3 gram

Berat endapan selulosa (b) = 2,0612 gram

$$\begin{aligned} \% \text{ Kadar Selulosa} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(2,0612 \text{ gram})}{(3 \text{ gram})} \times 100\% \\ &= 68,7\% \end{aligned}$$

e. Kadar Lignin

- Temperatur pemasakan 80 °C

Berat sampel (a) = 2 gram

Berat endapan lignin (b) = 0,21 gram

$$\begin{aligned} \% \text{ Kadar Lignin} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(0,21 \text{ gram})}{(2 \text{ gram})} \times 100\% \\ &= 10,5\% \end{aligned}$$

- Temperatur pemasakan 90 °C

Berat sampel (a) = 2 gram

Berat endapan lignin (b) = 0,17 gram

$$\begin{aligned} \% \text{ Kadar Lignin} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(0,17 \text{ gram})}{(2 \text{ gram})} \times 100\% \\ &= 8,5\% \end{aligned}$$

- Temperatur pemasakan 100 °C

Berat sampel (a) = 2 gram

Berat endapan lignin (b) = 0,27 gram

$$\begin{aligned} \% \text{ Kadar Lignin} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(0,27 \text{ gram})}{(2 \text{ gram})} \times 100\% \\ &= 13,5\% \end{aligned}$$

- Temperatur pemasakan 110 °C

Berat sampel (a) = 2 gram

Berat endapan lignin (b) = 0,3 gram

$$\begin{aligned}\% \text{ Kadar Lignin} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(0,3 \text{ gram})}{(2 \text{ gram})} \times 100\% \\ &= 15\%\end{aligned}$$

- Temperatur pemasakan 120 °C

Berat sampel (a) = 2 gram

Berat endapan lignin (b) = 0,36 gram

$$\begin{aligned}\% \text{ Kadar Lignin} &= \frac{(b)}{(a)} \times 100\% \\ &= \frac{(0,36 \text{ gram})}{(2 \text{ gram})} \times 100\% \\ &= 18\%\end{aligned}$$