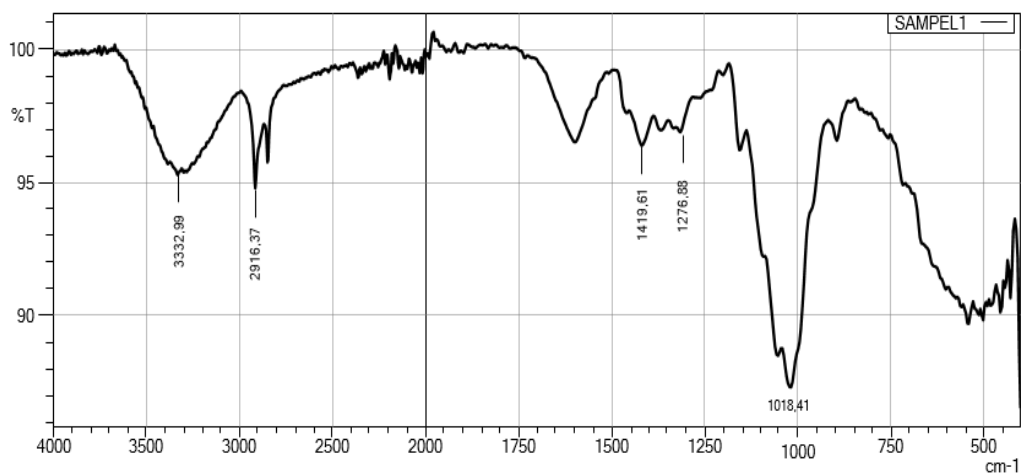
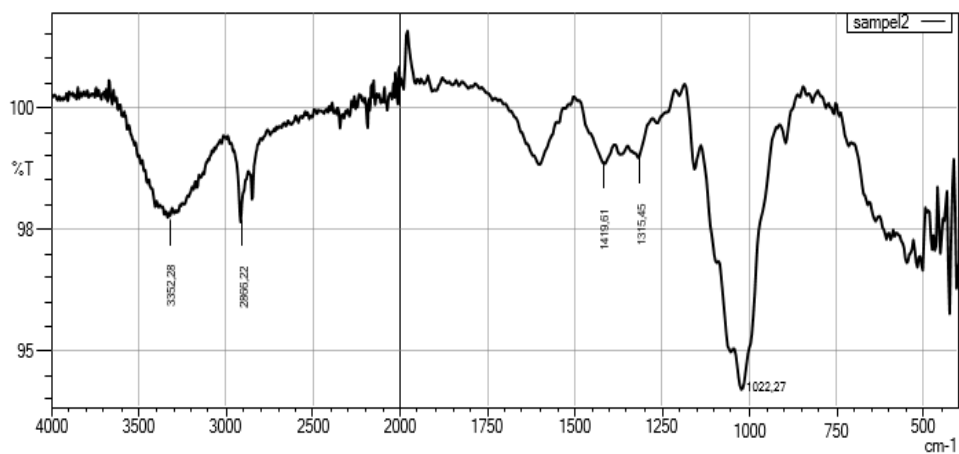


## LAMPIRAN

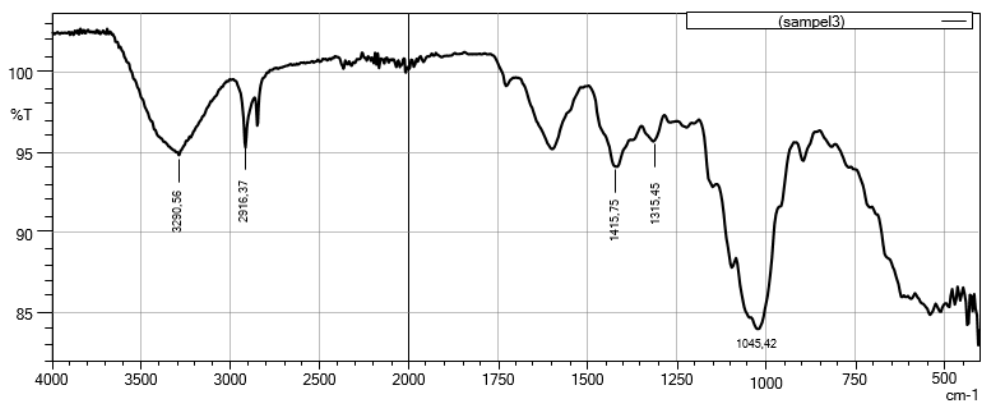
### Lampiran 1. Hasil Spektrum FTIR Selulosa Tanaman Lidah Mertua



Selulosa Tanaman Lidah Mertua Pada Variasi Suhu 45°C



Selulosa Tanaman Lidah Mertua Pada Variasi Suhu 60°C



Selulosa Tanaman Lidah Mertua Pada Variasi Suhu 75°C

## Lampiran 2. Dokumentasi Pembuatan Simplisia Lidah Mertua (*Sansevieria trifasciata*)

Pembersihan dan pemotongan tanaman lidah mertua



Pengovenan tanaman lidah mertua dengan suhu 45°C

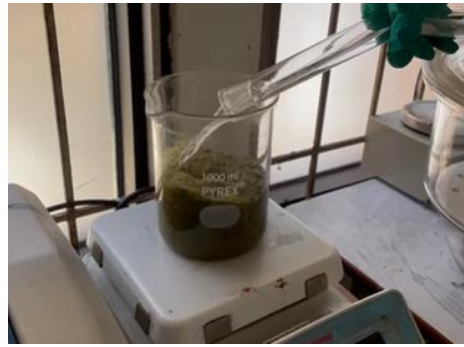


Tanaman lidah mertua setelah di oven

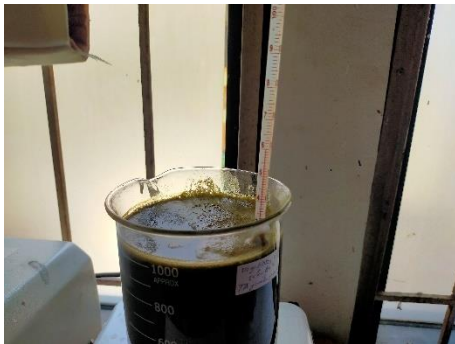
### Lampiran 3. Proses Isolasi Serat Lidah Mertua



Penimbangan simplisia lidah mertua



Penambahan larutan  $\text{HNO}_3$



Pengadukan



Penyaringan



Penambahan larutan  $\text{NaOCl}$



Pengukuran pH



Hasil tahapan *bleaching*



Penambahan larutan  $\text{H}_2\text{O}_2$



Hasil tahapan pemurnian



Pengovenan hasil isolasi suhu 45°C

**Lampiran 4.** Pengamplikasian Alat Pendeteksi CO pada Asap Rokok



Membran Selulosa Asetat dari Serat Selulosa Lidah Mertua



Tempat membran pada alat pendeteksi CO



Pengujian efektivitas alat pendeteksi CO pada asap rokok



Tampilan hasil dari alat pendeteksi CO

## Lampiran 5. Perhitungan Efektivitas

$$\% \text{ Efektivitas} = \frac{C_1 - C_2}{C_1} \times 100$$

Keterangan :

$C_1$  : Kadar emisi gas awal (*input*)

$C_2$  : Kadar gas setelah melalui filter (*output*)

### 1. Efektivitas alat pendeteksi CO dengan membran selulosa asetat PEG 2

#### a. Menit 3

$$\begin{aligned} \% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{59,5 - 21,9}{59,5} \times 100 \\ &= 63,19\% \end{aligned}$$

#### b. Menit 6

$$\begin{aligned} \% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{59,4 - 22,45}{59,4} \times 100 \\ &= 62,20\% \end{aligned}$$

#### c. Menit 9

$$\begin{aligned} \% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{62,5 - 23,8}{62,5} \times 100 \\ &= 61,84\% \end{aligned}$$

#### d. Menit 12

$$\begin{aligned} \% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{66,6 - 23,4}{66,6} \times 100 \\ &= 64,89\% \end{aligned}$$

#### e. Menit 15

$$\begin{aligned} \% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{66,8 - 22,1}{66,8} \times 100 \\ &= 66,86\% \end{aligned}$$

#### f. Menit 18

$$\% \text{ Efektivitas} = \frac{C_1 - C_2}{C_1} \times 100$$

$$= \frac{63,1-23,5}{63,1} \times 100$$

$$= 62,72\%$$

g. Menit 21

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{71,5-21,9}{71,5} \times 100$$

$$= 69,37\%$$

h. Menit 24

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{59,3-25,1}{59,3} \times 100$$

$$= 57,62\%$$

i. Menit 27

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{66,5-24,8}{66,5} \times 100$$

$$= 62,73\%$$

j. Menit 30

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{65,1-23,5}{65,1} \times 100$$

$$= 63,84\%$$

k. Menit 33

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{60,6-25,1}{60,6} \times 100$$

$$= 58,53\%$$

l. Menit 36

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{65,8-25,5}{63,8} \times 100$$

$$= 61,19\%$$

m. Menit 39

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{66,6-24,9}{66,6} \times 100 \\ &= 62,53\%\end{aligned}$$

n. Menit 42

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{65,3-23,1}{65,3} \times 100 \\ &= 64,57\%\end{aligned}$$

o. Menit 45

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{65,8-25,6}{65,8} \times 100 \\ &= 61,04\%\end{aligned}$$

p. Menit 48

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{67,3-27,3}{67,3} \times 100 \\ &= 59,39\%\end{aligned}$$

q. Menit 51

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{63,9-27}{63,9} \times 100 \\ &= 57,77\%\end{aligned}$$

r. Menit 54

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{71,2-25,5}{71,2} \times 100 \\ &= 64,18\%\end{aligned}$$

s. Menit 57

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$



$$= \frac{66,5-26,3}{66,5} \times 100$$

$$= 60,37\%$$

t. Menit 60

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{66,1-26,4}{66,1} \times 100$$

$$= 59,95\%$$

## 2. Efektivitas alat pendeteksi CO dengan membran selulosa asetat PEG 4

a. Menit 3

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{59-27}{59} \times 100$$

$$= 54,23\%$$

b. Menit 6

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{57,5-25,5}{57,5} \times 100$$

$$= 55,65\%$$

c. Menit 9

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{61,9-28,5}{61,9} \times 100$$

$$= 53,95\%$$

d. Menit 12

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{61,8-29}{61,8} \times 100$$

$$= 53,07\%$$

e. Menit 15

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{68,7-30}{68,7} \times 100$$

$$= 56,33\%$$

f. Menit 18

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{67-29}{67} \times 100 \\ &= 56,71\%\end{aligned}$$

g. Menit 21

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{64,6-28,5}{64,6} \times 100 \\ &= 55,88\%\end{aligned}$$

h. Menit 24

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{61,2-26,8}{61,2} \times 100 \\ &= 56,12\%\end{aligned}$$

i. Menit 27

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{60,9-27}{60,9} \times 100 \\ &= 55,70\%\end{aligned}$$

j. Menit 30

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{62,3-23,1}{62,3} \times 100 \\ &= 62,95\%\end{aligned}$$

k. Menit 33

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{64,1-27}{64,1} \times 100 \\ &= 57,91\%\end{aligned}$$

l. Menit 36

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{64,6-30,5}{64,6} \times 100$$
$$= 52,74\%$$

m. Menit 39

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{69,8-29,3}{69,8} \times 100$$
$$= 57,98\%$$

n. Menit 42

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{66,6-29,5}{66,6} \times 100$$
$$= 55,73\%$$

o. Menit 45

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{68,3-29,4}{68,3} \times 100$$
$$= 56,88\%$$

p. Menit 48

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{66,3-31,8}{66,3} \times 100$$
$$= 52,03\%$$

q. Menit 51

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{67,4-33}{67,4} \times 100$$
$$= 51,03\%$$

r. Menit 54

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{64-29,5}{64} \times 100$$
$$= 53,90\%$$

s. Menit 57

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{63,9 - 29,1}{63,9} \times 100 \\ &= 54,41\%\end{aligned}$$

t. Menit 60

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{61,8 - 27,5}{61,8} \times 100 \\ &= 55,53\%\end{aligned}$$

3. Efektivitas alat pendeteksi CO dengan membran selulosa asetat PEG 6

a. Menit 3

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{57 - 36}{57} \times 100 \\ &= 36,84\%\end{aligned}$$

b. Menit 6

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{58,4 - 37,5}{58,4} \times 100 \\ &= 35,78\%\end{aligned}$$

c. Menit 9

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{59,5 - 37,5}{59,5} \times 100 \\ &= 36,97\%\end{aligned}$$

d. Menit 12

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C_1 - C_2}{C_1} \times 100 \\ &= \frac{61,8 - 38}{61,8} \times 100 \\ &= 38,51\%\end{aligned}$$

e. Menit 15

$$\% \text{ Efektivitas} = \frac{C_1 - C_2}{C_1} \times 100$$

$$= \frac{64-44}{64} \times 100$$
$$= 31,25\%$$

f. Menit 18

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{60,9-39,5}{60,9} \times 100$$
$$= 35,13\%$$

g. Menit 21

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{61,5-39,9}{61,5} \times 100$$
$$= 35,12\%$$

h. Menit 24

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{59-38,9}{59} \times 100$$
$$= 34,06\%$$

i. Menit 27

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{57-36,8}{57} \times 100$$
$$= 35,43\%$$

j. Menit 30

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{58,1-37,3}{58,1} \times 100$$
$$= 35,80\%$$

k. Menit 33

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$
$$= \frac{60,4-39,5}{60,4} \times 100$$
$$= 34,60\%$$

l. Menit 36

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{67,5-44,5}{67,5} \times 100 \\ &= 44,5\%\end{aligned}$$

m. Menit 39

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{69,5-48}{69,5} \times 100 \\ &= 30,93\%\end{aligned}$$

n. Menit 42

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{67,1-46,7}{67,1} \times 100 \\ &= 30,40\%\end{aligned}$$

o. Menit 45

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{65,5-44,7}{65,5} \times 100 \\ &= 31,73\%\end{aligned}$$

p. Menit 48

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{64-45,1}{64} \times 100 \\ &= 29,53\%\end{aligned}$$

q. Menit 51

$$\begin{aligned}\% \text{ Efektivitas} &= \frac{C1-C2}{C1} \times 100 \\ &= \frac{66,5-44,9}{66,5} \times 100 \\ &= 32,48\%\end{aligned}$$

r. Menit 54

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{64-46}{64} \times 100$$

$$= 28,12\%$$

s. Menit 57

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{64,1-47,5}{64,1} \times 100$$

$$= 25,76\%$$

t. Menit 60

$$\% \text{ Efektivitas} = \frac{C1-C2}{C1} \times 100$$

$$= \frac{60,8-46,65}{60,8} \times 100$$

$$= 46,65\%$$

## BIODATA PENULIS



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SD	SD Negeri Gumilir 02 Cilacap	-	2005 – 2011
SMP	SMP Islam Al-Azhar 15 Cilacap	-	2011 – 2014
SMA	SMA Al-Irsyad Cilacap	IPA	2014 – 2017
Perguruan Tinggi	Politeknik Negeri Cilacap	D4 Teknik Pengendalian Pencemaran Lingkungan	2018 - 2022