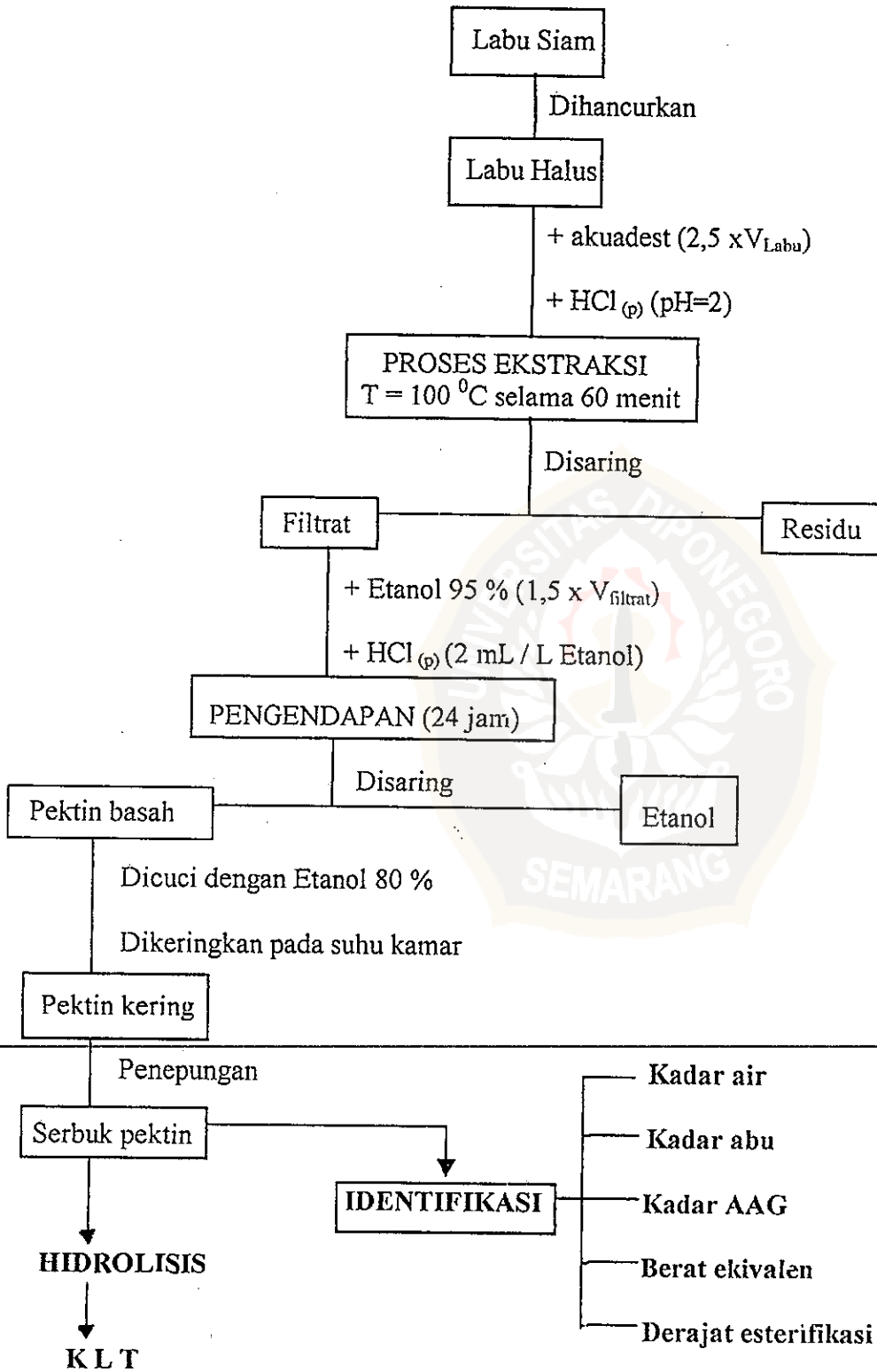


LAMPIRAN 1.

Diagram Alur Isolasi dan Identifikasi Pektin dari Labu Siam



LAMPIRAN 2.

Perhitungan

1. Kadar pektin dalam labu siam

$$\text{Berat labu} = 731,15 \text{ g}$$

$$\text{Kadar air labu} = 89,9 \%$$

$$\text{Berat labu bebas air} = 731,15 \text{ g} - (89,9 \% \times 731,15) \text{ g} = 73,84615 \text{ g}$$

A. Berdasarkan berat basah

$$\text{Kadar pektin} = \frac{\text{Berat pektin (g)}}{\text{Berat labu (g)}} \times 100 \% = \frac{16,9298 \text{ g}}{731,15 \text{ g}} \times 100 \% = 2,316 \%$$

B. Berdasarkan berat kering

$$\text{Kadar pektin} = \frac{\text{Berat pektin (g)}}{\text{Berat labu bebas air (g)}} \times 100 \% = \frac{16,9298 \text{ g}}{73,84615 \text{ g}} \times 100 \% = 22,926 \%$$

2. Kadar air pektin

$$\text{Berat pektin} = 0,5 \text{ g}$$

$$\text{Berat pektin bebas air} = 0,4541 \text{ g}$$

$$\text{Berat air} = 0,5 \text{ g} - 0,4541 \text{ g} = 0,0459 \text{ g}$$

$$\text{Kadar air} = \frac{\text{Berat air pektin (g)}}{\text{Berat pektin (g)}} \times 100 \% = \frac{0,0459 \text{ g}}{0,5 \text{ g}} \times 100 \% = 9,180 \%$$

3. Kadar abu pektin

$$\text{Berat pektin} = 0,5 \text{ g}$$

$$\text{Berat abu} = 0,00525 \text{ g}$$

$$\text{Kadar abu} = \frac{\text{Berat abu (g)}}{\text{Berat pektin (g)}} \times 100 \% = \frac{0,00525 \text{ g}}{0,5 \text{ g}} \times 100 \% = 1,050 \%$$

4. Ekuivalen titrasi abu

Titran : NaOH 0,1 N

Volume titran = 21,2 mL

$$\begin{aligned} \text{m. ek. titrasi abu} &= \text{Volume titran (mL)} \times \text{Normalitas titran} \\ &= 21,2 \text{ mL} \times 0,1 \text{ N} \\ &= 2,12 \text{ mek} \end{aligned}$$

5. Kadar metoksil pektin

Berat pektin = 0,5 g

Berat molekul metoksil = 31

Titran : NaOH 0,1 N

Volume titran = 1,7 mL

$$\begin{aligned} \text{m. ek. alkali saponifikasi} &= \text{Volume titran (mL)} \times \text{Normalitas titran} \\ &= 1,7 \text{ mL} \times 0,1 \text{ N} \\ &= 0,17 \text{ mek} \end{aligned}$$

$$\begin{aligned} \text{KM} &= \frac{\text{Volume alkali (mL)} \times \text{Normalitas alkali} \times \text{BM metoksil}}{\text{Berat pektin (mg)}} \times 100 \% \\ &= \frac{1,7 \text{ mL} \times 0,1 \text{ N} \times 31}{500 \text{ mg}} \times 100 \% \\ &= 1,054 \% \end{aligned}$$

6. Berat ekuivalen pektin

Berat pektin = 0,5 g

Titran : NaOH 0,1 N

Volume titran = 0,5 mL

$$\begin{aligned} \text{m. ek. alkali AAG bebas} &= \text{Volume titran (mL)} \times \text{Normalitas titran} \\ &= 0,5 \text{ mL} \times 0,1 \text{ N} \\ &= 0,05 \text{ meq} \end{aligned}$$

$$\text{BE} = \frac{\text{Berat pektin (g)} \times 1000}{\text{Volume alkali (mL)} \times \text{Normalitas alkali}} = \frac{0,5 \text{ g} \times 1000}{0,5 \text{ mL} \times 0,1 \text{ N}} = 10000$$

7. Kadar asam anhidroglakturonat (AAG)

$$\text{Berat molekul AAG} = 176$$

$$\text{m.ek. alkali titrasi abu} = 2,12 \text{ meq}$$

$$\text{m.ek. alkali AAG bebas} = 0,17 \text{ meq}$$

$$\text{m.ek. alkali saponifikasi} = 0,05 \text{ meq}$$

$$\text{Berat pektin rata-rata} = 500 \text{ mg}$$

$$\begin{aligned} \text{Kadar AAG} &= \frac{\sum \text{m.ek. alkali asam bebas, saponifikasi, titrasi abu} \times \text{BM AAG}}{\text{Berat pektin rata - rata}} \times 100 \% \\ &= \frac{(2,12 + 0,17 + 0,05) \text{ meq} \times 176}{500 \text{ mg}} \times 100 \% \\ &= 82,368 \% \end{aligned}$$

8. Derajat esterifikasi pektin

$$\text{Kadar metoksil} = 1,054 \%$$

$$\text{Kadar AAG} = 82,368 \%$$

$$\text{Berat molekul metoksil} = 31 \text{ dan berat molekul AAG} = 176$$

$$\begin{aligned} \text{DE} &= \frac{\text{Kadar metoksil} \times \text{BM AAG}}{\text{Kadar AAG} \times \text{BM metoksil}} \times 100 \% \\ &= \frac{1,054 \% \times 176}{82,368 \% \times 31} \times 100 \% \\ &= 7,265 \% \end{aligned}$$

LAMPIRAN 3.

Hasil Identifikasi Pektin Dari Labu Siam (*Sechium edule* S W)

No.	Karakteristik	Hasil
1.	Rendemen	2,3 %
2.	Kadar air	9,18 %
3.	Kadar abu	1,05 %
4.	Berat ekivalen	10000
5.	Kadar metoksil	1,054 %
6.	Kadar asam anhidrogalakturonat	82,368 %
7.	Derajat esterifikasi	7,265 %



LAMPIRAN 4.

Nilai Standar Kualitas Pektin Berdasarkan Food Chemical Codex 1981

No.	Karakteristik	Nilai standar
1.	Kadar abu	< 10 %
	Kadar abu (Jepang)	3 %
	Kadar abu (Amerika)	1,77 %
2.	Kadar asam anhidrogalakturonat	> 70 %
3.	Derajat esterifikasi	< 50 %

