

LAMPIRAN

Lampiran 1. Pembuatan Reagen

a. Larutan NaOH 0,1 N

$$N = (\text{gr} \times \text{valensi}) / (\text{Mr} \times \text{vol})$$

$$0,1 = (\text{gr} \times 1) / (40 \times 1)$$

$$\text{Gr} = 40 \times 0,1 = 4 \text{ gram}$$

Pembuatan Larutan NaOH

- 1) Ditimbang NaOH 4 gram, dimasukkan kedalam *beaker glass* 1000 mL.
- 2) Ditambahkan aquades dan dihomogenkan.
- 3) Ditambahkan aquadest sampai tanda batas.
- 4) Disimpan dalam botol reagen.

b. Pembuatan Larutan HCl 0,1 N sebanyak 250 mL

- 1) Dipipet sebanyak 2,09 mL HCl pekat.
- 2) Dimasukkan kedalam labu takar 250 mL.
- 3) Ditambah aquades dan digojog sampai homogen.
- 4) Ditambah aquades pada sampai tanda batas.
- 5) Disimpan dalam botol reagen.

c. Pembuatan Larutan NaOH 45%

- 1) Ditimbang 450gram NaOH, dimasukkan kedalam *beaker glass* 1000 mL.
- 2) Ditambahkan aquades dan dihomogenkan.
- 3) Ditambahkan aquadest sampai tanda batas.
- 4) Disimpan dalam botol reagen.

d. Pembuatan Larutan $\text{H}_2\text{C}_2\text{O}_4$ 0,1 N

$$N = 0,1 \text{ N}$$

$$V = 100 \text{ mL}$$

$$\text{Mr asam oksalat} = 126$$

$$\text{Be asam oksalat} = 126/2 = 63$$

$$\text{Perhitungan } \text{H}_2\text{C}_2\text{O}_4 \text{ 0,1 N}$$

$$N = g/\text{Be} \times 1000/V$$

$$0,1 = g/63 \times 1000/100$$

$$6,3 = g \times 10$$

$$g = 0,63$$

Berat wadah kosong (g)	Berat wadah + bahan (g)	Berat wadah + sisa (g)	Berat bahan (g)
0,0341	0,7023	0,0675	0,6348

Pembuatan Larutan $\text{H}_2\text{C}_2\text{O}_4$

- 1) Ditimbang $\text{H}_2\text{C}_2\text{O}_4$ 0,6348 gram.
- 2) Dimasukkan kedalam labu takar 100 mL.
- 3) Ditambahkan aquades dan digojog sampai homogen.
- 4) Ditambahkan aquadest sampai tanda batas.
- 5) Disimpan dalam botol reagen.

Lampiran 2. Data Perhitungan

a. Standarisasi

No	Nama Bahan	Volume Bahan (mL)	Nama Titran	Volume Titran (mL)
1	H ₂ C ₂ O ₄ 0,1 N	10	NaOH	10,30
2	H ₂ C ₂ O ₄ 0,1 N	10	NaOH	10,60
3	H ₂ C ₂ O ₄ 0,1 N	10	NaOH	10,40
	Rata – rata			$\frac{10,30 + 10,40}{2}$ $= 10,35$

Perhitungan Standarisasi

$$V \times N \text{ NaOH} = V \times N \text{ H}_2\text{C}_2\text{O}_4$$

$$10,35 \times N \text{ NaOH} = 10 \times 0,1$$

$$N \text{ NaOH} = \frac{10 \times 0,1}{10,35}$$

$$N \text{ NaOH} = 0,0966 \text{ N}$$

b. Data Titration Blanko

No	Nama Bahan	Volume Bahan (mL)	Nama Titran	Volume Titran (mL)
1	HCl 0,1 N	25	NaOH	24,70

c. Data Titration Sample

No	Nama Sampel	Ulangan	Berat Sampel (g)	Volume Titran (mL)
1	<i>Soy milk</i>	I	5,3464	8,20
		II	5,3482	8,30
2	Susu Biji Durian	I	5,2425	10,80
		II	5,2567	10,90
3	Seduhan Bunga Rosella	I	5,1072	17,10
		II	5,0993	17,00
4	<i>Soy milk</i> + Susu Biji Durian perbandingan (3:2)	I	5,3495	9,90
		II	5,3392	9,90
5	<i>Soy milk</i> + Seduhan Bunga Rosella perbandingan (4:1)	I	5,2105	12,70
		II	5,1957	12,60
6	<i>Soy milk</i> + Susu Biji Durian + Seduhan Bunga Rosella perbandingan (2:2:1)	I	5,2636	10,70
		II	5,2689	10,80

a. Perhitungan Sampel

1) *Soymilk* Murni

➤ Percobaan ke-1 sampel *soymilk* murni

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 8,20)}{5,3464 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,42\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,42\% \times 6,38$$

$$= 2,66\%$$

➤ Percobaan ke-2 sampel *soymilk* murni

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 8,30)}{5,3482 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,41\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,41\% \times 6,38$$

$$= 2,66\%$$

$$\text{Rata-rata} = \frac{2,66\% + 2,66\%}{2}$$

$$= 2,66\%$$

2) Susu Biji Durian

➤ Percobaan ke-1 sampel susu biji durian

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 10,80)}{5,2425 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,36\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,36\% \times 6,38$$

$$= 2,29\%$$

➤ Percobaan ke-2 sampel susu biji durian

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 10,90)}{5,2567 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,35\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,35\% \times 6,38$$

$$= 2,27\%$$

$$\text{Rata-rata} = \frac{2,29\% + 2,27\%}{2}$$

$$= 2,28\%$$

3) Seduhan Bunga Rosella

➤ Percobaan ke-1 seduhan bunga rosella

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 17,10)}{5,1072 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,20\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,20\% \times 6,25$$

$$= 1,26\%$$

➤ Percobaan ke-2 seduhan bunga rosella

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 17,00)}{5,0993 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,23\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,23\% \times 6,25$$

$$= 1,28\%$$

$$\text{Rata-rata} = \frac{1,26\% + 1,28\%}{2}$$

$$= 1,27\%$$

4) Soymilk + Susu Biji Durian

➤ Percobaan ke-1 sampel *soymilk* + susu biji durian

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 9,90)}{5,3495 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,37\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,37\% \times 6,38$$

$$= 2,39\%$$

➤ Percobaan ke-2 sampel *soymilk* + susu biji durian

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\% N = \frac{(24,70 - 9,90)}{5,3392 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,37\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,37\% \times 6,38$$

$$= 2,39\%$$

$$\text{Rata-rata} = \frac{2,39\% + 2,39\%}{2}$$

$$= 2,39\%$$

5) *Soymilk* + Seduhan Bunga Rosella

➤ Percobaan ke-1 sampel *soymilk* + seduhan bunga rosella

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\begin{aligned}\% N &= \frac{(24,70 - 12,70)}{5,2105 \times 1000} \times 0,0966 \times 14,008 \times 100\% \\ &= 0,31\%\end{aligned}$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,31\% \times 6,38$$

$$= 1,99\%$$

➤ Percobaan ke-2 sampel *soymilk* + seduhan bunga rosella

$$\% N = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times N \text{ NaOH} \times 14,008 \times 100\%$$

$$\begin{aligned}\% N &= \frac{(24,70 - 12,60)}{5,1957 \times 1000} \times 0,0966 \times 14,008 \times 100\% \\ &= 0,31\%\end{aligned}$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,31\% \times 6,38$$

$$= 2,01\%$$

$$\text{Rata - rata} = \frac{1,99\% + 2,01}{2}$$

$$= 2,00\%$$

6) *Soymilk* + Susu Durian + Seduhan Bunga Rosella

➤ Percobaan ke-1 *soymilk* + susu biji durian + seduhan bunga rosella

$$\% \text{ N} = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times \text{N NaOH} \times 14,008 \times 100\%$$

$$\% \text{ N} = \frac{(24,70 - 10,70)}{5,2636 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,35\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,35\% \times 6.38$$

$$= 2,29\%$$

➤ Percobaan ke-2 *soymilk* + susu durian + seduhan bunga rosella

$$\% \text{ N} = \frac{(\text{mL NaOH blanko} - \text{mL titran NaOH})}{\text{Berat sampel} \times 1000} \times \text{N NaOH} \times 14,008 \times 100\%$$

$$\% \text{ N} = \frac{(24,70 - 10,80)}{5,2689 \times 1000} \times 0,0966 \times 14,008 \times 100\%$$

$$= 0,35\%$$

$$\% \text{ protein} = \% \text{ Nitrogen} \times \text{FK}$$

$$= 0,35\% \times 6.38$$

$$= 2,27\%$$

$$\text{Rata - rata} = \frac{2,29\% + 2,27\%}{2}$$

$$= 2,28\%$$

Lampiran 3. Hasil Uji Organoleptis

a. Hasil Uji Organoleptis *Soymilk*

No	Nama Penelis	Rasa	Aroma	Keasaman	Kekentalan	Warna
1	Mr A	5	4	3	4	4
2	Mr B	5	5	3	2	3
3	Mrs C	4	5	4	4	4
4	Mr D	5	4	3	2	3
5	Mrs E	5	4	3	4	5
6	Mrs F	4	4	3	2	4
7	Mr G	4	4	3	5	4
8	Mr H	3	4	3	2	4
9	Mrs I	3	5	3	3	4
10	Mrs J	4	4	3	2	3
11	Mr K	3	5	4	3	4
12	Mrs L	5	4	3	3	5
13	Mr M	5	4	3	4	3
14	Mr N	4	5	3	5	4
15	Mr O	4	5	4	3	4
16	Mrs P	5	4	3	4	4
17	Mrs Q	5	4	4	4	3
18	Mrs R	4	3	3	5	4
19	Mr S	4	5	4	4	3
20	Mr T	4	4	3	5	3
21	Mrs U	5	4	4	4	4
22	Mr P	4	3	3	3	3
23	Mrs W	5	4	3	4	3
24	Mr X	4	3	4	5	3
25	Mrs Z	5	4	3	3	4

KETERANGAN:

1=Tidak Suka

2=Kurang Suka

3=Suka

4=Lebih Suka

5=Sangat Suka

b. Hasil Uji Organoleptis Susu Biji Durian

No	Nama Penelis	Rasa	Aroma	Keasaman	Kekentalan	Warna
1	Mr A	3	4	4	5	3
2	Mr B	4	5	2	2	4
3	Mrs C	3	3	4	3	5
4	Mr D	5	3	4	4	3
5	Mrs E	3	3	3	4	4
6	Mrs F	4	4	3	3	3
7	Mr G	4	3	3	2	3
8	Mr H	2	4	4	3	5
9	Mrs I	2	3	2	3	5
10	Mrs J	2	3	4	4	4
11	Mr K	3	3	3	3	4
12	Mrs L	3	3	3	4	3
13	Mr M	4	5	3	3	3
14	Mr N	3	4	3	3	4
15	Mr O	3	3	2	3	3
16	Mrs P	2	4	4	4	4
17	Mrs Q	5	4	4	4	3
18	Mrs R	4	3	3	3	3
19	Mr S	4	3	3	4	4
20	Mr T	3	3	3	3	3
21	Mrs U	5	3	4	5	3
22	Mr P	5	3	3	3	4
23	Mrs W	4	4	2	2	3
24	Mr X	4	3	4	3	3
25	Mrs Z	5	4	3	3	3

KETERANGAN:

1=Tidak Suka

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5=Sangat Suka

c. Hasil Uji Organoleptis *Soymilk* Tambahan Susu Biji Durian

No	Nama Penelis	Rasa	Aroma	Keasaman	Kekentalan	Warna
1	Mr A	3	4	3	2	4
2	Mr B	4	5	3	2	5
3	Mrs C	2	5	3	3	4
4	Mr D	2	4	3	5	4
5	Mrs E	3	4	3	4	3
6	Mrs F	3	4	2	3	4
7	Mr G	4	3	3	3	4
8	Mr H	2	5	4	4	3
9	Mrs I	2	3	3	3	4
10	Mrs J	4	4	4	4	3
11	Mr K	3	5	3	3	4
12	Mrs L	3	3	3	3	4
13	Mr M	4	4	3	3	3
14	Mr N	4	5	3	4	3
15	Mr O	3	5	2	3	3
16	Mrs P	4	4	3	3	4
17	Mrs Q	3	4	3	3	3
18	Mrs R	2	3	3	3	4
19	Mr S	3	3	3	3	3
20	Mr T	3	3	3	3	4
21	Mrs U	3	4	3	4	3
22	Mr P	3	3	3	4	3
23	Mrs W	4	4	3	3	3
24	Mr X	3	3	4	3	3
25	Mrs Z	2	4	2	3	3

KETERANGAN:

1=Tidak Suka

2=Kurang Suka

3=Suka

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5=Sangat Suka

d. Hasil Uji Organoleptis *Soymilk* Tambahan Seduhan Bunga Rosella

No	Nama Penelis	Rasa	Aroma	Keasaman	Kekentalan	Warna
1	Mr A	3	3	3	4	5
2	Mr B	3	4	4	5	5
3	Mrs C	3	3	5	3	4
4	Mr D	2	3	4	4	4
5	Mrs E	3	3	3	4	3
6	Mrs F	4	4	4	3	3
7	Mr G	3	3	3	3	2
8	Mr H	2	4	4	4	2
9	Mrs I	2	3	2	3	2
10	Mrs J	4	4	4	3	4
11	Mr K	4	3	2	3	4
12	Mrs L	3	3	2	3	5
13	Mr M	4	3	3	3	3
14	Mr N	3	4	3	4	4
15	Mr O	4	3	4	3	5
16	Mrs P	3	3	2	4	4
17	Mrs Q	3	4	4	3	5
18	Mrs R	3	3	3	4	4
19	Mr S	4	4	4	4	4
20	Mr T	3	3	3	3	3
21	Mrs U	4	4	3	3	3
22	Mr P	3	3	3	4	3
23	Mrs W	2	3	5	4	3
24	Mr X	3	3	4	2	2
25	Mrs Z	3	3	2	3	3

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5=Sangat Suka

e. Hasil Uji Organoleptis *Soymilk* Tambahan Susu Biji Durian Dan Seduhan Bunga Rosella

No	Nama Penelis	Rasa	Aroma	Keasaman	Kekentalan	Warna
1	Mr A	4	3	4	3	3
2	Mr B	3	4	3	3	5
3	Mrs C	3	4	3	3	3
4	Mr D	2	4	3	2	4
5	Mrs E	3	3	3	3	3
6	Mrs F	4	4	3	3	3
7	Mr G	3	4	3	2	4
8	Mr H	2	4	4	2	3
9	Mrs I	2	3	2	2	3
10	Mrs J	4	4	4	4	4
11	Mr K	3	4	3	3	4
12	Mrs L	3	3	3	3	3
13	Mr M	4	4	3	3	3
14	Mr N	3	4	3	3	3
15	Mr O	3	4	2	3	4
16	Mrs P	3	4	4	4	4
17	Mrs Q	3	4	4	4	3
18	Mrs R	4	3	3	3	4
19	Mr S	4	3	3	3	2
20	Mr T	3	3	3	3	4
21	Mrs U	2	3	4	4	3
22	Mr P	3	3	2	3	4
23	Mrs W	3	3	3	4	3
24	Mr X	3	3	4	4	3
25	Mrs Z	2	3	2	3	3

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Lampiran 4. Dokumentasi Penelitian



Penghalusan bahan baku



Perebusan soymilk



Perebusan susu biji durian



Penyeduhan bunga rosella



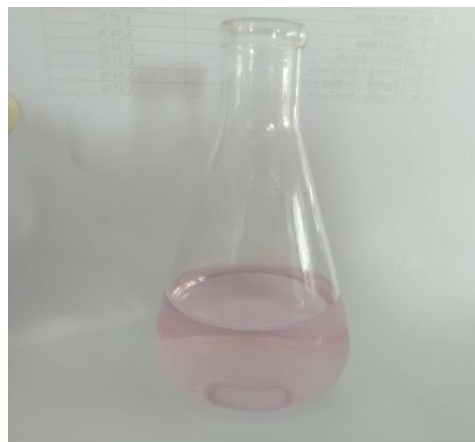
Sampel soymilk murni, seduhan bunga rosella, dan susu biji durian



Sampel dengan variasi



Proses Titrasi



Hasil titrasi blanko



Hasil titrasi standarisasi



Hasil destruksi



Proses destilasi



Hasil destilasi



Hasil titrasi sampel