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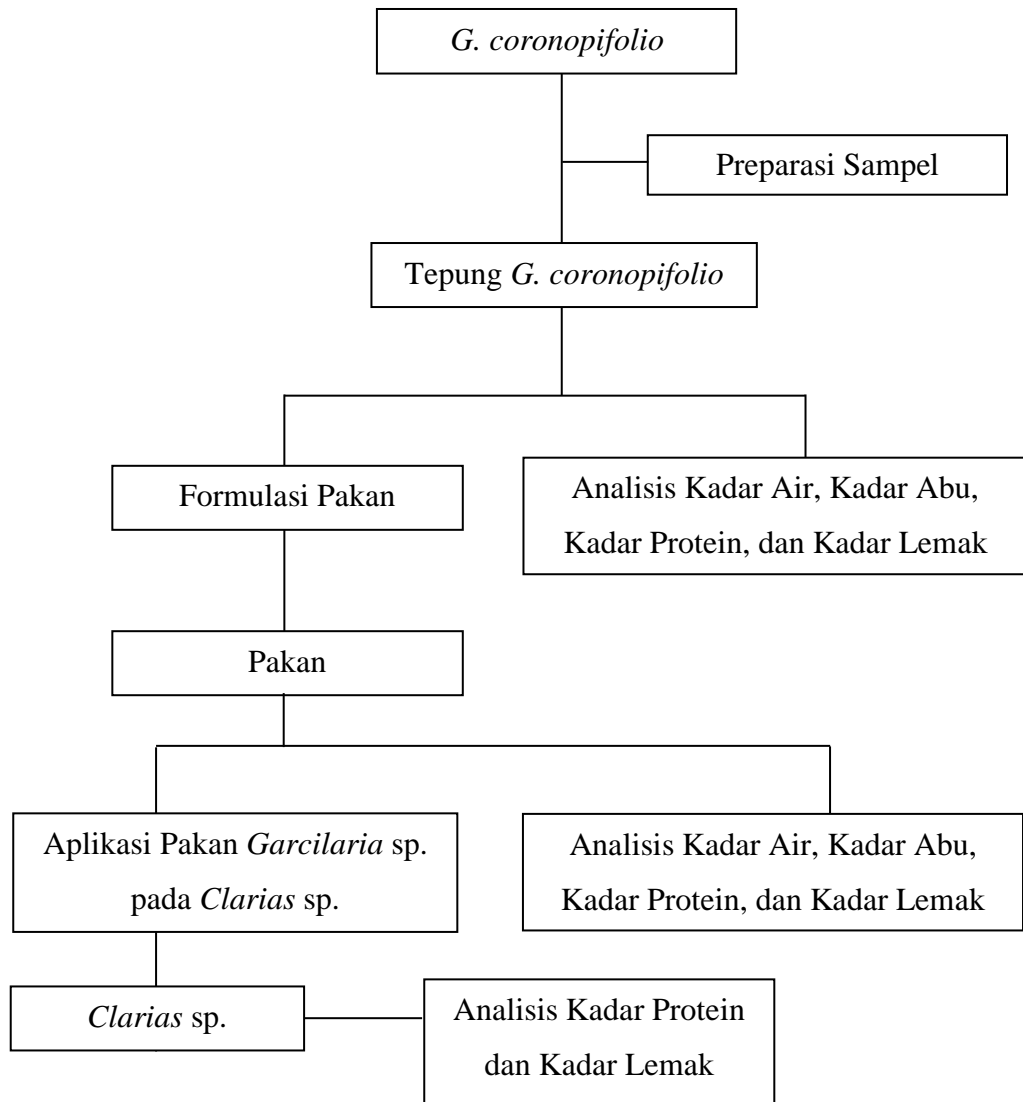
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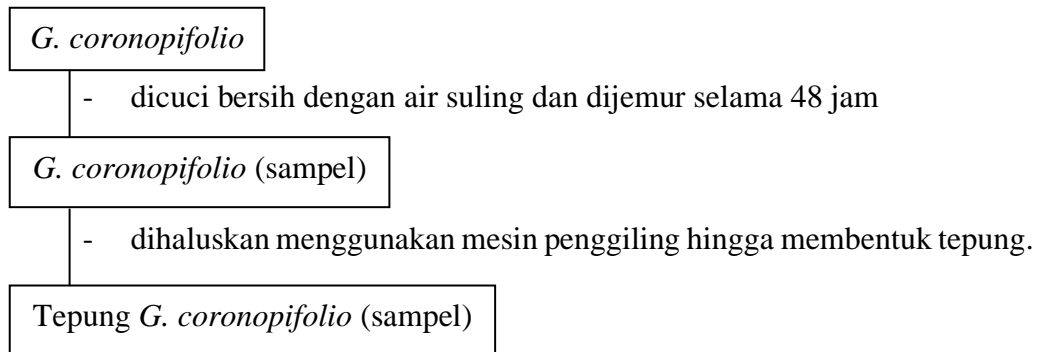
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Lampiran 1. Diagram Alir

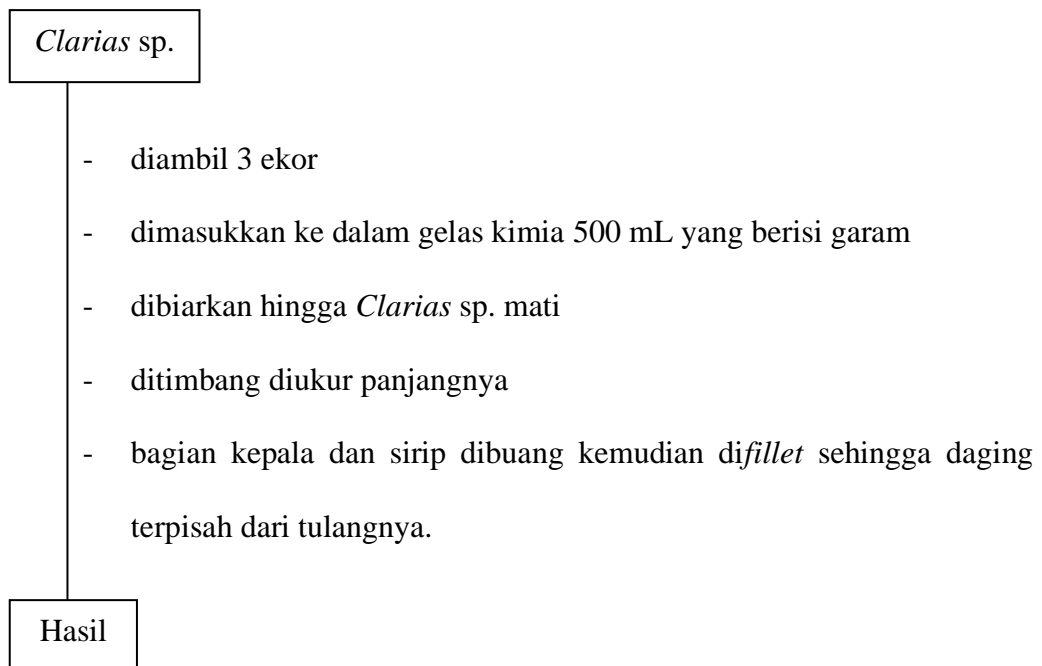


Lampiran 2. Bagan Kerja

1. Preparasi Sampel *Glacilaria sp.*



2. Preparasi Sampel *Clarias sp.*



3. Pengukuran Kadar Air

Tepung *G. coronopifolio*

- ditimbang sebanyak 2 g ke dalam cawan petri yang telah diketahui bobotnya
- dikeringkan dalam oven pada suhu 105 °C
- didinginkan dalam desikator
- ditimbang
- dikeringkan kembali dan ditimbang sampai bobot konstan.

Hasil

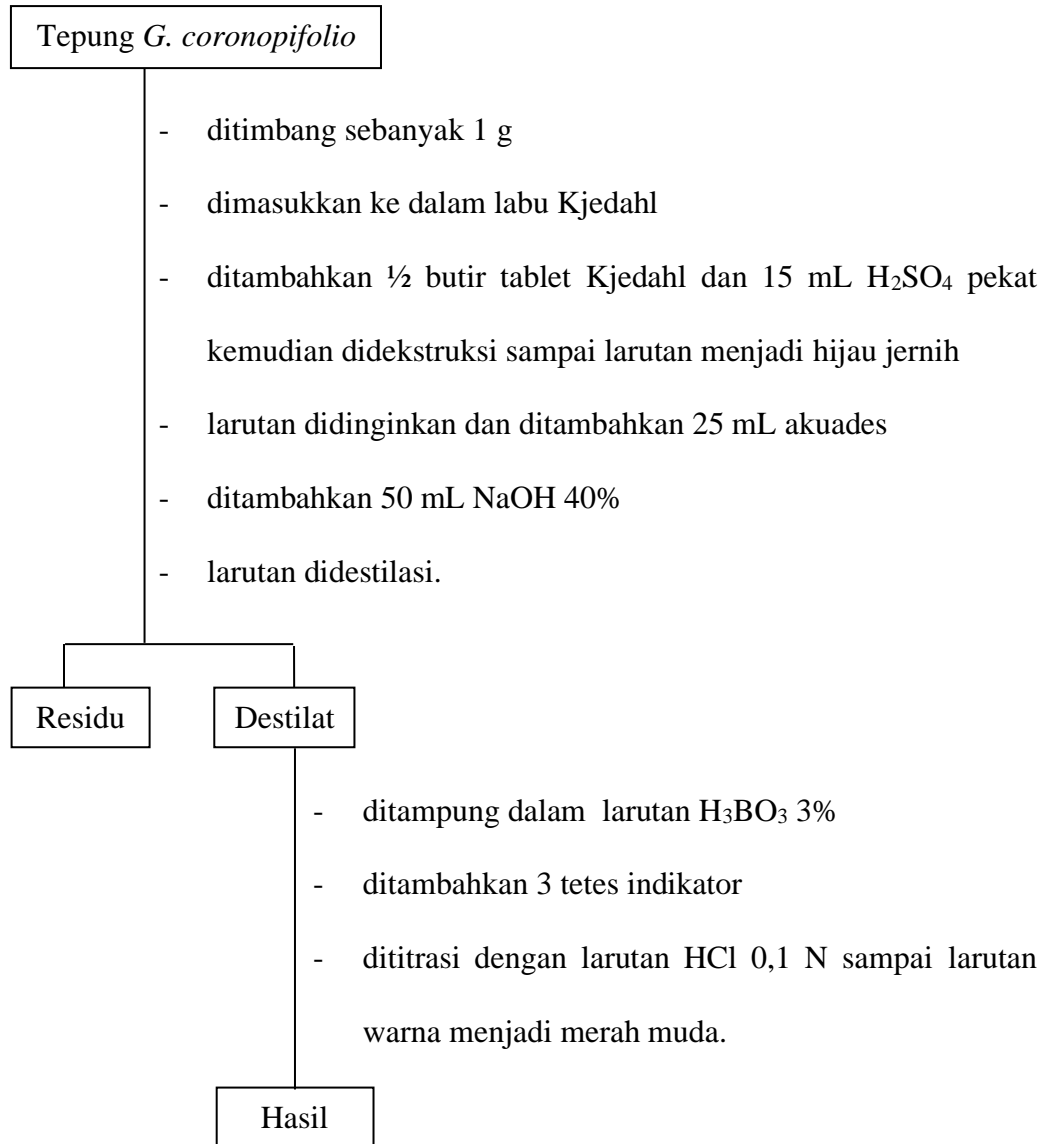
4. Pengukuran Kadar Abu

Tepung *G. coronopifolio*

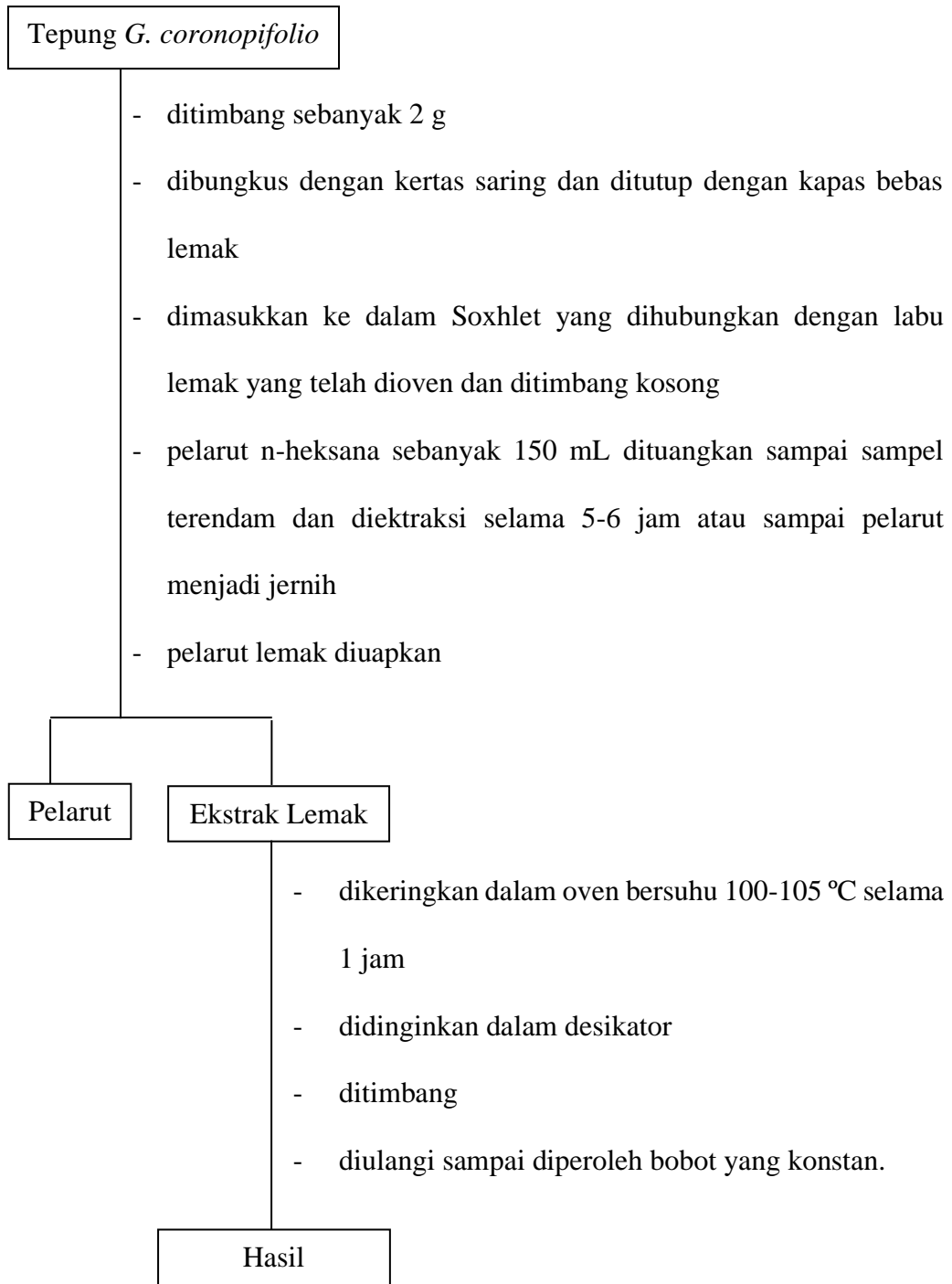
- ditimbang sebanyak 2 g ke dalam cawan yang telah diketahui bobotnya
- diarsangkan diatas *hotplate*
- diabukan dalam tanur pada suhu 600 °C
- didinginkan dalam desikator
- ditimbang
- diabukan kembali dan ditimbang sampai bobot konstan

Hasil

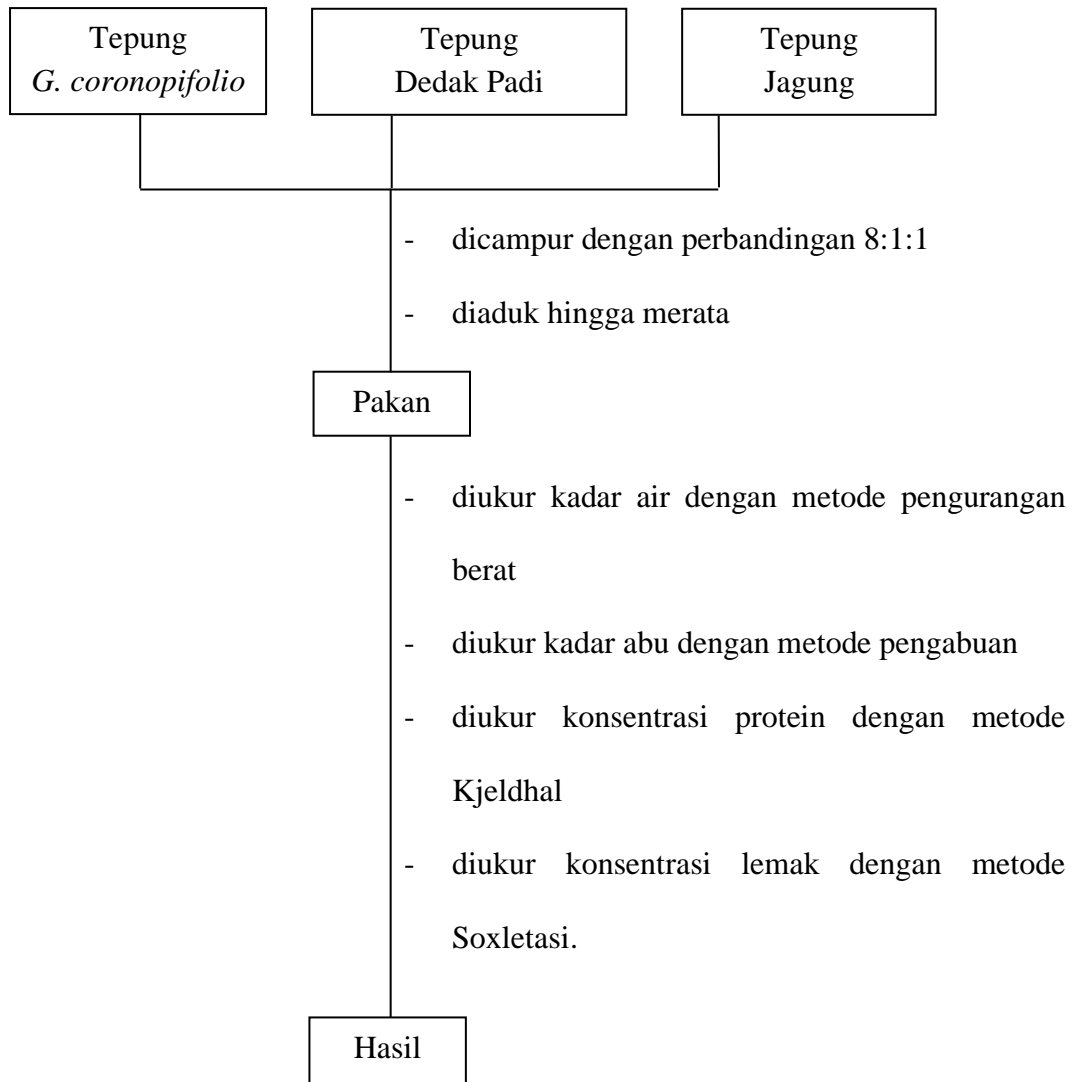
5. Pengukuran Kadar Protein



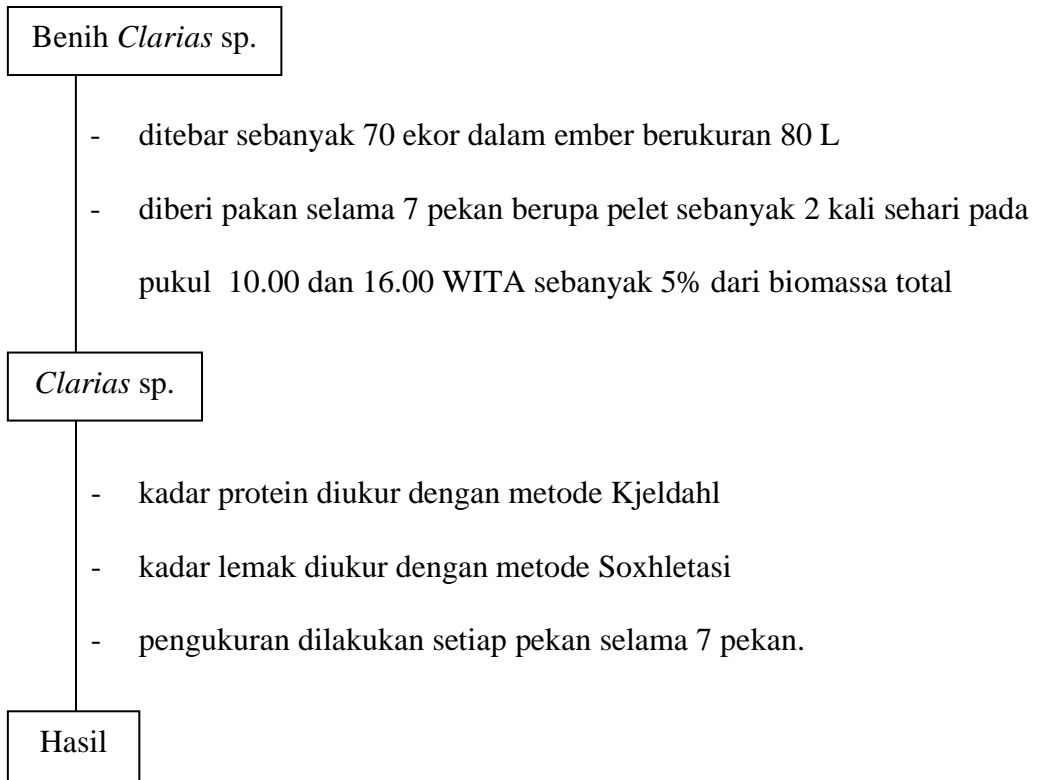
6. Pengukuran Kadar Lemak



7. Pembuatan dan Analisis Potensi Pakan *G. coronopifolio*



8. Aplikasi Pakan *G. coronopifolio*



Lampiran 3. Dokumentasi Penelitian



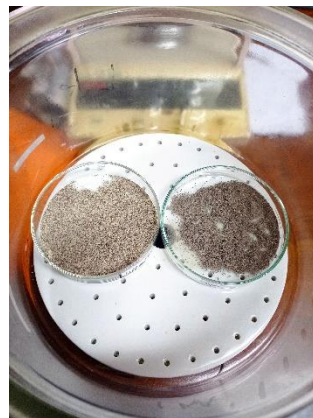
Proses Pengeringan sampel *G. coronopifolio*



Sampel *G. coronopifolio* kering



Tepung *G. Coronopifolio*



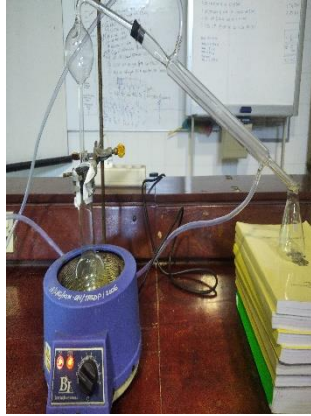
Analisis kadar air



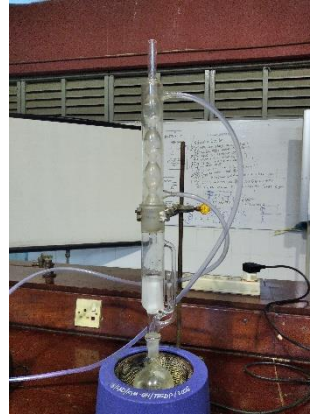
Analisis kadar abu



Proses destruksi (Analisis kadar protein metode Kjeldhal)



Proses destilasi (Analisis kadar protein metode *Kjeldhal*)



Proses soxletasi (Analisis kadar lemak metode *Soxhlet*)



Penimbangan *Clarias* sp.



Pengukuran Panjang *Clarias* sp.



Clarias sp. pakan VITE FF-999 pekan ke-1



Clarias sp. pakan *G. coronopifolio* pekan ke-1



Clarias sp. pakan VITE FF-999
pekan ke-2



Clarias sp. pakan *G. coronopifolio*
pekan ke-2



Clarias sp. pakan VITE FF-999
pekan ke-3



Clarias sp. pakan *G. coronopifolio*
pekan ke-3



Clarias sp. pakan VITE FF-999
pekan ke-4



Clarias sp. pakan *G. coronopifolio*
pekan ke-4



Clarias sp. pakan VITE FF-999
pekan ke-5



Clarias sp. pakan *G. coronopifolio*
pekan ke-5



Clarias sp. pakan VITE FF-999
pekan ke-6



Clarias sp. pakan *G. coronopifolio*
pekan ke-6



Clarias sp. pakan VITE FF-999
pekan ke-7



Clarias sp. pakan *G. coronopifolio*
pekan ke-7

Lampiran 4. Perhitungan

1. Pembuatan Larutan

1.1 Pembuatan NaOH 40% dalam 100 mL

$$\% = \frac{\text{massa NaOH}}{V} \times 100\%$$

$$40\% = \frac{\text{massa NaOH}}{100 \text{ mL}} \times 100\%$$

$$m = \frac{4000}{100}$$

$$m = 40 \text{ g}$$

1.2 Pembuatan H₃BO₃ 3% dalam 100 mL

$$\% = \frac{\text{massa H}_3\text{BO}_3}{V} \times 100\%$$

$$3\% = \frac{\text{massa H}_3\text{BO}_3}{100 \text{ mL}} \times 100\%$$

$$m = \frac{300}{100}$$

$$m = 3 \text{ g}$$

1.3 Pembuatan Larutan HCl 0,1 N dari HCl Pekat 37%

$$\text{Normalitas} = \frac{\% \times \text{BJ} \times 1000}{\text{BE}}$$

$$\text{Normalitas} = \frac{37/100 \times 1,19 \text{ g/mL} \times 1000 \text{ mL/L}}{36,5 \text{ g/ek}}$$

$$\text{Normalitas} = 12,06 \text{ ek/L}$$

$$V_1 C_1 = V_2 \cdot C_2$$

$$V_1 \cdot 12,06 \text{ N} = 500 \text{ mL} \cdot 0,1 \text{ N}$$

$$V_1 = 4,14 \text{ mL}$$

1.4 Standarisasi HCl 0,1 N dengan Na₂CO₃

$$\text{Normalitas} = \frac{\text{bobot Na}_2\text{CO}_3}{\text{volume} \times \text{BE}}$$

$$0,1 \text{ N} = \frac{\text{bobot Na}_2\text{CO}_3}{0,1 \text{ L} \times 53 \text{ g/ek}}$$

$$\text{Bobot Na}_2\text{CO}_3 = 0,53 \text{ gram}$$

$$\text{Normalitas Na}_2\text{CO}_3 = \frac{0,532 \text{ gram}}{0,1 \text{ L} \times 53 \text{ g/ek}}$$

$$\text{Normalitas Na}_2\text{CO}_3 = 0,1003 \text{ N}$$

a. Konsentrasi HCl 0,12 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$8,3 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{8,3 \text{ mL}}$$

$$N \text{ HCl} = 0,1044 \text{ N}$$

b. Konsentrasi HCl 0,1 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$10,3 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{10,3 \text{ mL}}$$

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

c. Konsentrasi HCl 0,09 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$11,1 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{11,1 \text{ mL}}$$

$$N \text{ HCl} = 0,09 \text{ N}$$

d. Konsentrasi HCl 0,1003 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$10 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{10 \text{ mL}}$$

$$N \text{ HCl} = 0,1003 \text{ N}$$

e. Konsentrasi HCl 0,1005 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$9,9 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{9,9 \text{ mL}}$$

$$N \text{ HCl} = 0,1005 \text{ N}$$

e. Konsentrasi HCl 0,1002 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$10,1 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{10,1 \text{ mL}}$$

$$N \text{ HCl} = 0,1002 \text{ N}$$

f. Konsentrasi HCl 0,1019 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$9,8 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{9,8 \text{ mL}}$$

$$N \text{ HCl} = 0,1019 \text{ N}$$

g. Konsentrasi HCl 0,1012 N

$$V \text{ HCl} \times N \text{ HCl} = V \text{ Na}_2\text{CO}_3 \times N \text{ Na}_2\text{CO}_3$$

$$9,9 \text{ mL} \times N \text{ HCl} = 10 \text{ mL} \times 0,1003 \text{ N}$$

$$N \text{ HCl} = \frac{1,003 \text{ N}}{9,9 \text{ mL}}$$

$$N \text{ HCl} = 0,1012 \text{ N}$$

1.5 Larutan Indikator BCG 0,1%

$$\% \frac{b}{v} = \frac{g}{\text{mL}} \times 100\%$$

$$\% \frac{b}{v} = \frac{\text{massa BCG (g)}}{\text{volume larutan (mL)}} \times 100\%$$

$$0,1\% = \frac{\text{massa BCG}}{10 \text{ mL}} \times 100\%$$

$$m = 0,01 \text{ gram}$$

1.6 Larutan Indikator MM 0,1%

$$\% \frac{b}{v} = \frac{g}{\text{mL}} \times 100\%$$

$$\% \frac{b}{v} = \frac{\text{massa MM (g)}}{\text{volume larutan (mL)}} \times 100\%$$

$$0,1\% = \frac{\text{massa MM}}{5 \text{ mL}} \times 100\%$$

$$m = 0,005 \text{ gram}$$

2. Kadar Air

2.1 Sampel *G. coronopifolio*

Bobot cawan petri kosong (A) = 38,2680 g

Bobot cawan petri + sampel tetap (C) = 40,0842 g

Berat sampel awal (B) = 2,0004 g

$$\text{Kadar air (\%)} = \frac{B - (C - A)}{B} \times 100\%$$

$$\begin{aligned} \text{Kadar air (\%)} &= \frac{2,0004 - (40,0842 - 38,2680)}{2,0004} \times 100\% \\ &= 9,2\% \end{aligned}$$

2.2 Pakan *G. coronopifolio*

$$\text{Bobot cawan petri kosong (A)} = 36,7483 \text{ g}$$

$$\text{Bobot cawan petri + sampel tetap (C)} = 38,5520 \text{ g}$$

$$\text{Berat sampel awal (B)} = 2,0003 \text{ g}$$

$$\text{Kadar air (\%)} = \frac{B - (C - A)}{B} \times 100\%$$

$$\begin{aligned} \text{Kadar air (\%)} &= \frac{2,0003 - (38,5520 - 36,7483)}{2,0003} \times 100\% \\ &= 9,82\% \end{aligned}$$

2.3 Pakan VITE FF-999

$$\text{Bobot cawan petri kosong (A)} = 48,9852 \text{ g}$$

$$\text{Bobot cawan petri + sampel tetap (C)} = 50,7751 \text{ g}$$

$$\text{Berat sampel awal (B)} = 2,0017 \text{ g}$$

$$\text{Kadar air (\%)} = \frac{B - (C - A)}{B} \times 100\%$$

$$\begin{aligned} \text{Kadar air (\%)} &= \frac{2,0017 - (50,7751 - 48,9852)}{2,0017} \times 100\% \\ &= 10,53\% \end{aligned}$$

3. Kadar Abu

3.1 Sampel *G. coronopifolio*

$$\text{Bobot cawan porselin kosong (A)} = 20,4187 \text{ g}$$

$$\text{Bobot cawan porselin + sampel awal (B)} = 22,4189 \text{ g}$$

Bobot cawan porselin + sampel tetap (C) = 20,9821 g

$$\text{Kadar abu (\%)} = \frac{C - A}{B - A} \times 100\%$$

$$\begin{aligned} \text{Kadar abu (\%)} &= \frac{20,9821 - 20,4187}{22,4189 - 20,4187} \times 100\% \\ &= 28,17\% \end{aligned}$$

3.2 Pakan *G. coronopifolio*

Bobot cawan porselin kosong (A) = 16,5251 g

Bobot cawan porselin + sampel awal (B) = 18,5252 g

Bobot cawan porselin + sampel tetap (C) = 16,9502 g

$$\text{Kadar abu (\%)} = \frac{C - A}{B - A} \times 100\%$$

$$\begin{aligned} \text{Kadar abu (\%)} &= \frac{16,9502 - 16,5251}{18,5252 - 16,5251} \times 100\% \\ &= 21,25\% \end{aligned}$$

3.3 Pakan VITE FF-999

Bobot cawan porselin kosong (A) = 21,1004 g

Bobot cawan porselin + sampel awal (B) = 23,1007 g

Bobot cawan porselin + sampel tetap (C) = 21,3311 g

$$\text{Kadar abu (\%)} = \frac{C - A}{B - A} \times 100\%$$

$$\begin{aligned} \text{Kadar abu (\%)} &= \frac{21,3311 - 21,1004}{23,1007 - 21,1004} \times 100\% \\ &= 11,53\% \end{aligned}$$

4. Kadar Protein

4.1 Sampel *G. coronopifolio*

Berat Sampel (W) = 1,0000 g

Volume Titration (V) = 20,6 mL
 Concentration HCl (N) = 0,12 mek/mL
 BE Nitrogen = 14,007 mg/mek
 Conversion factor protein (Fk) = 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\begin{aligned} \text{Kadar protein (\%)} &= \frac{20,6 \text{ mL} \times 0,12 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0000 \times 1000 \text{ mg}} \times 100\% \\ &= 21,63\% \end{aligned}$$

4.2 Pakan *G. coronopifolio*

Weight Sample (W) = 1,0000 g
 Volume Titration (V) = 13,5 mL
 Concentration HCl (N) = 0,1 mek/mL
 BE Nitrogen = 14,007 mg/mek
 Conversion factor protein (Fk) = 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\begin{aligned} \text{Kadar protein (\%)} &= \frac{13,5 \text{ mL} \times 0,1 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0000 \times 1000 \text{ mg}} \times 100\% \\ &= 11,88\% \end{aligned}$$

4.3 Pakan VITE FF-999

Weight Sample (W) = 1,0000 g
 Volume Titration (V) = 44,8 mL
 Concentration HCl (N) = 0,09 mek/mL
 BE Nitrogen = 14,007 mg/mek

Faktor konversi protein (Fk) = 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\begin{aligned} \text{Kadar protein (\%)} &= \frac{44,8 \text{ mL} \times 0,09 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0000 \times 1000 \text{ mg}} \times 100\% \\ &= 35,31\% \end{aligned}$$

4.4 *Clarias* sp. Yang diberi pakan VITE-999

4.4.1 Pekan 0

Berat Sampel (W) = 1,048 g

Volume Titration (V) = 17,4 mL

Konsentrasi HCl (N) = 0,1019 mek/mL

BE Nitrogen = 14,007 mg/mek

Faktor konversi protein (Fk) = 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{17,4 \text{ mL} \times 0,1019 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,048 \times 1000 \text{ mg}} \times 100\%$$

Kadar protein (%) = 14,81%

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{14,81\%}{3} \\ &= 4,94\% \end{aligned}$$

4.4.2 Pekan 1

Berat Sampel (W) = 1,0135 g

Volume Titration (V) = 17,7 mL

Konsentrasi HCl (N) = 0,1103 mek/mL

BE Nitrogen = 14,007 mg/mek

Faktor konversi protein (Fk) = 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{17,7 \text{ mL} \times 0,1103 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0135 \times 1000 \text{ mg}} \times 100\%$$

Kadar protein (%) = 16,86%

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{16,86\%}{3} \\ &= 5,62\% \end{aligned}$$

4.4.3 Pekan 2

Berat Sampel (W) = 1,0012 g

Volume Titration (V) = 21,3 mL

Konsentrasi HCl (N) = 0,1008 mek/mL

BE Nitrogen = 14,007 mg/mek

Faktor konversi protein (Fk) = 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{21,3 \text{ mL} \times 0,1008 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0012 \times 1000 \text{ mg}} \times 100\%$$

Kadar protein (%) = 18,77%

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{18,77\%}{3} \\ &= 6,25\% \end{aligned}$$

4.4.4 Pekan 3

Berat Sampel (W) = 1,0102 g

Volume Titration (V) = 23 mL

Konsentrasi HCl (N) = 0,1005 mek/mL

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{23 \text{ mL} \times 0,1005 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0102 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 20,03\%$$

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{20,04\%}{3} \\ &= 6,67\% \end{aligned}$$

4.4.5 Pekan 4

$$\text{Berat Sampel (W)} = 1,0123 \text{ g}$$

$$\text{Volume Titration (V)} = 24 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,1002 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{24 \text{ mL} \times 0,1002 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0123 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 20,79\%$$

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{20,79\%}{3} \\ &= 6,93\% \end{aligned}$$

4.4.6 Pekan 5

$$\text{Berat Sampel (W)} = 1,0151 \text{ g}$$

$$\text{Volume Titration (V)} = 25 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,0996 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{25 \text{ mL} \times 0,0996 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0151 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 21,47\%$$

$$\text{Kadar protein rata-rata} = \frac{21,47\%}{3}$$

$$= 7,15\%$$

4.4.7 Pekan 6

$$\text{Berat Sampel (W)} = 1,0130 \text{ g}$$

$$\text{Volume Titiasi (V)} = 29,3 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,0996 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{29,3 \text{ mL} \times 0,0996 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0130 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 25,22\%$$

$$\text{Kadar protein rata-rata} = \frac{25,22\%}{3}$$

$$= 8,41\%$$

4.4.8 Pekan 7

Berat Sampel (W)	= 1,0518 g
Volume Titration (V)	= 33,6 mL
Konsentrasi HCl (N)	= 0,1003 mek/mL
BE Nitrogen	= 14,007 mg/mek
Faktor konversi protein (Fk)	= 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{33,6 \text{ mL} \times 0,1003 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0518 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 28,05\%$$

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{28,05\%}{3} \\ &= 9,35\% \end{aligned}$$

4.5 *Clarias* sp. yang diberi pakan *G. coronopifolio*

4.5.1 Pekan 0

Berat Sampel (W)	= 1,048 g
Volume Titration (V)	= 17,4 mL
Konsentrasi HCl (N)	= 0,1019 mek/mL
BE Nitrogen	= 14,007 mg/mek
Faktor konversi protein (Fk)	= 6,25

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{17,4 \text{ mL} \times 0,1019 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,048 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 14,81\%$$

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{14,81\%}{3} \\ &= 4,94\% \end{aligned}$$

4.5.2 Pekan 1

$$\begin{aligned} \text{Berat Sampel (W)} &= 1,0023 \text{ g} \\ \text{Volume Titrasi (V)} &= 17,7 \text{ mL} \\ \text{Konsentrasi HCl (N)} &= 0,0996 \text{ mek/mL} \\ \text{BE Nitrogen} &= 14,007 \text{ mg/mek} \\ \text{Faktor konversi protein (Fk)} &= 6,25 \end{aligned}$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{17,4 \text{ mL} \times 0,0996 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0023 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 15,39\%$$

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{15,39\%}{3} \\ &= 5,13\% \end{aligned}$$

4.5.3 Pekan 2

$$\begin{aligned} \text{Berat Sampel (W)} &= 1,0103 \text{ g} \\ \text{Volume Titrasi (V)} &= 18,4 \text{ mL} \\ \text{Konsentrasi HCl (N)} &= 0,1012 \text{ mek/mL} \\ \text{BE Nitrogen} &= 14,007 \text{ mg/mek} \\ \text{Faktor konversi protein (Fk)} &= 6,25 \end{aligned}$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{18,4 \text{ mL} \times 0,1012 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0103 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 16,17\%$$

$$\begin{aligned}\text{Kadar protein rata-rata} &= \frac{16,17\%}{3} \\ &= 5,39\%\end{aligned}$$

4.5.4 Pekan 3

$$\text{Berat Sampel (W)} = 1,0015 \text{ g}$$

$$\text{Volume Titrasi (V)} = 19,3 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,0997 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{19,3 \text{ mL} \times 0,0997 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0015 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 16,83\%$$

$$\begin{aligned}\text{Kadar protein rata-rata} &= \frac{16,83\%}{3} \\ &= 5,61\%\end{aligned}$$

4.5.5 Pekan 4

$$\text{Berat Sampel (W)} = 1,0103 \text{ g}$$

$$\text{Volume Titrasi (V)} = 19,8 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,1012 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{19,8 \text{ mL} \times 0,1012 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0103 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 17,36\%$$

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{17,36\%}{3} \\ &= 5,78\% \end{aligned}$$

4.5.6 Pekan 5

$$\text{Berat Sampel (W)} = 1,0003 \text{ g}$$

$$\text{Volume Titration (V)} = 20,5 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,0996 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{20,5 \text{ mL} \times 0,0996 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0003 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 17,86\%$$

$$\begin{aligned} \text{Kadar protein rata-rata} &= \frac{17,86\%}{3} \\ &= 5,95\% \end{aligned}$$

4.5.7 Pekan 6

$$\text{Berat Sampel (W)} = 1,0038 \text{ g}$$

$$\text{Volume Titration (V)} = 21 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,1015 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{21 \text{ mL} \times 0,1015 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0038 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 18,6\%$$

$$\text{Kadar protein rata-rata} = \frac{18,6\%}{3}$$

$$= 6,20\%$$

4.5.8 Pekan 7

$$\text{Berat Sampel (W)} = 1,0123 \text{ g}$$

$$\text{Volume Titrasi (V)} = 23,2 \text{ mL}$$

$$\text{Konsentrasi HCl (N)} = 0,0995 \text{ mek/mL}$$

$$\text{BE Nitrogen} = 14,007 \text{ mg/mek}$$

$$\text{Faktor konversi protein (Fk)} = 6,25$$

$$\text{Kadar protein (\%)} = \frac{V \times N \text{ HCl} \times \text{BE Nitrogen} \times \text{Fk}}{W \times 1000} \times 100 \%$$

$$\text{Kadar protein (\%)} = \frac{23,2 \text{ mL} \times 0,0995 \frac{\text{mek}}{\text{mL}} \times 14,007 \frac{\text{mg}}{\text{mek}} \times 6,25}{1,0123 \times 1000 \text{ mg}} \times 100\%$$

$$\text{Kadar protein (\%)} = 19,96\%$$

$$\text{Kadar protein rata-rata} = \frac{19,96\%}{3}$$

$$= 6,65\%$$

5. Kadar Lemak

5.1 Sampel *G. coronopifolio*

$$\text{Bobot labu lemak kosong + batu didih (A)} = 129,5916 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 129,6247 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0001 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\begin{aligned} \text{Kadar lemak (\%)} &= \frac{129,6247 - 129,5916}{2,0001} \times 100\% \\ &= 1,7\% \end{aligned}$$

5.2 Pakan *G. coronopifolio*

$$\text{Bobot labu lemak kosong + batu didih (A)} = 129,6235 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 129,5743 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0002 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\begin{aligned} \text{Kadar lemak (\%)} &= \frac{129,5743 - 129,6235}{2,0002} \times 100\% \\ &= 2,46\% \end{aligned}$$

5.3 Pakan VITE FF-999

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,1368 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,232 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0012 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\begin{aligned} \text{Kadar lemak (\%)} &= \frac{105,232 - 105,1368}{2,0012} \times 100\% \\ &= 4,76\% \end{aligned}$$

5.4 *Clarias* sp. yang diberi pakan VITE-999

5.4.1 Pekan 0

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,0612 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,0792 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0105 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,0792 - 128,0612}{2,0013} \times 100\%$$

$$\text{Kadar lemak (\%)} = 0,9\%$$

$$\text{Lemak Rata-rata} = \frac{0,9\%}{3}$$

$$= 0,3\%$$

5.4.2 Pekan 1

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,1677 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,1954 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0137 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,1954 - 105,1677}{2,0137} \times 100\%$$

$$\text{Kadar lemak (\%)} = 1,38\%$$

$$\text{Lemak Rata-rata} = \frac{1,38\%}{3}$$

$$= 0,46\%$$

5.4.3 Pekan 2

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,1768 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,2173 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0181 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,2173-105,1768}{2,0181} \times 100\%$$

$$\text{Kadar lemak (\%)} = 2,01\%$$

$$\begin{aligned}\text{Lemak Rata-rata} &= \frac{2,01\%}{3} \\ &= 0,67\%\end{aligned}$$

5.4.4 Pekan 3

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,0935 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,1471 \text{ g}$$

$$\text{Berat sampel (C)} = 2,1022 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,1471-128,0935}{2,1022} \times 100\%$$

$$\text{Kadar lemak (\%)} = 2,55\%$$

$$\begin{aligned}\text{Lemak Rata-rata} &= \frac{2,55\%}{3} \\ &= 0,85\%\end{aligned}$$

5.4.5 Pekan 4

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,2084 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,2774 \text{ g}$$

$$\text{Berat sampel (C)} = 2,1109 \text{ g}$$

$$\% \text{ Kadar lemak} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,2774-105,2084}{2,1109} \times 100\%$$

$$\text{Kadar lemak (\%)} = 3,27\%$$

$$\begin{aligned} \text{Kadar lemak (\%)} &= \frac{3,27\%}{3} \\ &= 1,09\% \end{aligned}$$

5.4.6 Pekan 5

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,1406 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,2185 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0952 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,2185 - 128,1406}{2,0952} \times 100\%$$

$$\text{Kadar lemak (\%)} = 3,72\%$$

$$\text{Lemak Rata-rata} = \frac{3,72\%}{3}$$

$$= 1,24\%$$

5.4.7 Pekan 6

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,1318 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,2153 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0046 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,2153 - 128,1318}{2,0046} \times 100\%$$

$$\text{Kadar lemak (\%)} = 4,17\%$$

$$\text{Lemak Rata-rata} = \frac{4,17\%}{3}$$

$$= 1,39\%$$

5.4.8 Pekan 7

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,1232 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,2097 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0172 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,2097 - 128,1232}{2,0172} \times 100\%$$

$$\text{Kadar lemak (\%)} = 4,29\%$$

$$\begin{aligned} \text{Lemak Rata-rata} &= \frac{4,29\%}{3} \\ &= 1,43\% \end{aligned}$$

5.5 *Clarias* sp. yang diberi pakan *G. coronopifolio*

5.5.1 Pekan 0

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,0612 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,0792 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0105 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,0792 - 128,0612}{2,0013} \times 100\%$$

$$\text{Kadar lemak (\%)} = 0,9\%$$

$$\begin{aligned} \text{Lemak Rata-rata} &= \frac{0,9\%}{3} \\ &= 0,3\% \end{aligned}$$

5.5.2 Pekan 1

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,4752 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,4980 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0009 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,4980 - 105,4752}{2,0009} \times 100\%$$

$$\text{Kadar lemak (\%)} = 1,14\%$$

$$\text{Lemak Rata-rata} = \frac{1,14\%}{3}$$

$$= 0,38\%$$

5.5.3 Pekan 2

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,5248 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,556 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0008 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,5560 - 105,5248}{2,0008} \times 100\%$$

$$\text{Kadar lemak (\%)} = 1,56\%$$

$$\text{Lemak Rata-rata} = \frac{1,56\%}{3}$$

$$= 0,52\%$$

5.5.4 Pekan 3

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,5146 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,5610 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0107 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,5610 - 105,5146}{2,0107} \times 100\%$$

$$\text{Kadar lemak (\%)} = 2,31\%$$

$$\begin{aligned} \text{Lemak Rata-rata} &= \frac{2,31\%}{3} \\ &= 0,77\% \end{aligned}$$

5.5.5 Pekan 4

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,0230 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,0785 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0132 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,0785 - 128,0230}{2,0132} \times 100\%$$

$$\text{Kadar lemak (\%)} = 2,76\%$$

$$\begin{aligned} \text{Lemak Rata-rata} &= \frac{2,76\%}{3} \\ &= 0,92\% \end{aligned}$$

5.5.6 Pekan 5

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,4846 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,5526 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0085 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,5526 - 105,4846}{2,0085} \times 100\%$$

$$\text{Kadar lemak (\%)} = 3,39\%$$

$$\begin{aligned}\text{Lemak Rata-rata} &= \frac{3,39\%}{3} \\ &= 1,13\%\end{aligned}$$

5.5.7 Pekan 6

$$\text{Bobot labu lemak kosong + batu didih (A)} = 105,4452 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 105,5226 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0178 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{105,5226 - 105,4452}{2,0178} \times 100\%$$

$$\text{Kadar lemak (\%)} = 3,84\%$$

$$\begin{aligned}\text{Lemak Rata-rata} &= \frac{3,84\%}{3} \\ &= 1,28\%\end{aligned}$$

5.5.8 Pekan 7

$$\text{Bobot labu lemak kosong + batu didih (A)} = 128,1318 \text{ g}$$

$$\text{Bobot labu lemak + sampel (B)} = 128,2135 \text{ g}$$

$$\text{Berat sampel (C)} = 2,0039 \text{ g}$$

$$\text{Kadar lemak (\%)} = \frac{B - A}{C} \times 100\%$$

$$\text{Kadar lemak (\%)} = \frac{128,2135 - 128,1318}{2,0039} \times 100\%$$

$$\text{Kadar lemak (\%)} = 4,08\%$$

$$\begin{aligned}\text{Lemak Rata-rata} &= \frac{4,08\%}{3} \\ &= 1,36\%\end{aligned}$$

6. Perhitungan Panjang Rata-rata *Clarias* sp.

6.1 *Clarias* sp. yang diberi Pakan VITE FF-999

$$\begin{aligned}\text{Panjang Pekan 0} &= (6,8 + 6,5 + 6,7) \text{ cm} = \frac{20}{3} \times 100\% \\ &= 6,67 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Panjang Pekan 1} &= (6,9 + 7,3 + 6,9) \text{ cm} = \frac{21,1}{3} \times 100\% \\ &= 7,03 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Panjang Pekan 2} &= (8,4 + 7,9 + 7,8) \text{ cm} = \frac{24,1}{3} \times 100\% \\ &= 8,03 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Panjang Pekan 3} &= (10,3 + 9,2 + 9,5) \text{ cm} = \frac{29}{3} \times 100\% \\ &= 9,67 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Panjang Pekan 4} &= (11,2 + 11 + 9,5) \text{ cm} = \frac{32,7}{3} \times 100\% \\ &= 10,9 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Panjang Pekan 5} &= (12,1 + 10,6 + 10,7) \text{ cm} = \frac{33,4}{3} \times 100\% \\ &= 11,13 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Panjang Pekan 6} &= (11,3 + 12,4 + 11,5) \text{ cm} = \frac{35,2}{3} \times 100\% \\ &= 11,73 \text{ cm}\end{aligned}$$

$$\begin{aligned}\text{Panjang Pekan 7} &= (15 + 12,5 + 13,6) \text{ cm} = \frac{41,1}{3} \times 100\% \\ &= 13,7 \text{ cm}\end{aligned}$$

6.2 *Clarias* sp. yang diberi Pakan *G. coronopifolio*

$$\begin{aligned}\text{Panjang Pekan 0} &= (6,8 + 6,5 + 6,7) \text{ cm} = \frac{20}{3} \times 100\% \\ &= 6,67 \text{ cm}\end{aligned}$$

$$\text{Panjang Pekan 1} = (7,3 + 7 + 7) \text{ cm} = \frac{21,3}{3} \times 100\%$$

$$= 7,1 \text{ cm}$$

$$\begin{aligned} \text{Panjang Pekan 2} &= (7,7 + 8 + 7) \text{ cm} = \frac{22,7}{3} \times 100\% \\ &= 7,57 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Panjang Pekan 3} &= (7,9 + 8,1 + 7,2) \text{ cm} = \frac{23,2}{3} \times 100\% \\ &= 7,73 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Panjang Pekan 4} &= (8,5 + 8,4 + 8,7) \text{ cm} = \frac{25,6}{3} \times 100\% \\ &= 8,53 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Panjang Pekan 5} &= (8,9 + 9 + 9) \text{ cm} = \frac{26,9}{3} \times 100\% \\ &= 8,97 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Panjang Pekan 6} &= (9,3 + 9 + 9,5) \text{ cm} = \frac{27,8}{3} \times 100\% \\ &= 9,27 \text{ cm} \end{aligned}$$

$$\begin{aligned} \text{Panjang Pekan 7} &= (11 + 10,2 + 10,5) \text{ cm} = \frac{31,7}{3} \times 100\% \\ &= 10,57 \text{ cm} \end{aligned}$$

7. Perhitungan Bobot Rata-rata *Clarias* sp.

7.1 *Clarias* sp. yang diberi Pakan VITE FF-999

$$\begin{aligned} \text{Bobot Pekan 0} &= (2,17 + 2,17 + 2,13) \text{ g} = \frac{6,47}{3} \times 100\% \\ &= 2,15 \text{ g} \end{aligned}$$

$$\begin{aligned} \text{Bobot Pekan 1} &= (1,73 + 2,49 + 2,35) \text{ g} = \frac{6,63}{3} \times 100\% \\ &= 2,21 \text{ g} \end{aligned}$$

$$\begin{aligned} \text{Bobot Pekan 2} &= (3,68 + 4,25 + 3,36) \text{ g} = \frac{11,24}{3} \times 100\% \\ &= 3,74 \text{ g} \end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 3} &= (6,66 + 5,10 + 5,52) \text{ g} = \frac{17,28}{3} \times 100\% \\ &= 5,76 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 4} &= (5,62 + 8,45 + 7,37) \text{ g} = \frac{21,44}{3} \times 100\% \\ &= 7,14 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 5} &= (8,24 + 7,86 + 10,17) \text{ g} = \frac{26,27}{3} \times 100\% \\ &= 8,76 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 6} &= (9,17 + 13,74 + 10,12) \text{ g} = \frac{33,03}{3} \times 100\% \\ &= 11,01 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 7} &= (14,41 + 17,37 + 20,23) \text{ g} = \frac{52,01}{3} \times 100\% \\ &= 17,33 \text{ g}\end{aligned}$$

7.2 *Clarias* sp. yang diberi Pakan *G. coronopifolio*

$$\begin{aligned}\text{Bobot Pekan 0} &= (2,17 + 2,17 + 2,13) \text{ g} = \frac{6,47}{3} \times 100\% \\ &= 2,15 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 1} &= (2,38 + 2,49 + 2,61) \text{ g} = \frac{7,48}{3} \times 100\% \\ &= 2,49 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 2} &= (3,26 + 2,68 + 3,02) \text{ g} = \frac{8,96}{3} \times 100\% \\ &= 2,99 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 3} &= (3,19 + 3,38 + 3,12) \text{ g} = \frac{9,69}{3} \times 100\% \\ &= 3,23 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 4} &= (3,73 + 4,01 + 4,10) \text{ g} = \frac{11,84}{3} \times 100\% \\ &= 3,95 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 5} &= (4,36 + 4,52 + 5) \text{ g} = \frac{13,88}{3} \times 100\% \\ &= 4,62 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 6} &= (4,79 + 4,92 + 5,21) \text{ g} = \frac{14,92}{3} \times 100\% \\ &= 4,97 \text{ g}\end{aligned}$$

$$\begin{aligned}\text{Bobot Pekan 7} &= (7,97 + 7,12 + 7,13) \text{ g} = \frac{22,22}{3} \times 100\% \\ &= 7,41 \text{ g}\end{aligned}$$

8. Perhitungan Perhitungan Persentase Kenaikan

8.1 Perhitungan Persentase Kenaikan Kadar Protein

8.1.1 *Clarias* sp. Yang Diberi Pakan VITE-999

$$\begin{aligned}\text{Persentase kenaikan protein 1} &= \frac{(5,62 - 4,94)\%}{4,94\%} \times 100\% \\ &= 13,76\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 2} &= \frac{(6,25 - 5,62)\%}{5,62\%} \times 100\% \\ &= 11,2\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 3} &= \frac{(6,67 - 6,25)\%}{6,25\%} \times 100\% \\ &= 6,72\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 4} &= \frac{(6,93 - 6,67)\%}{6,67\%} \times 100\% \\ &= 3,89\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 5} &= \frac{(7,15 - 6,93)\%}{6,93\%} \times 100\% \\ &= 3,17\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 6} &= \frac{(8,41 - 7,15)\%}{7,15\%} \times 100\% \\ &= 17,62\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 7} &= \frac{(9,35 - 8,41)\%}{8,41\%} \times 100\%\end{aligned}$$

$$= 11,17\%$$

8.1.2 *Clarias* sp. Yang Diberi Pakan *G. coronopifolio*

$$\begin{aligned}\text{Persentase kenaikan protein 1} &= \frac{(5,13 - 4,92)\%}{4,92\%} \times 100\% \\ &= 4,26\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 2} &= \frac{(5,39 - 5,13)\%}{5,13\%} \times 100\% \\ &= 5,06\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 3} &= \frac{(5,61 - 5,39)\%}{5,39\%} \times 100\% \\ &= 4,08\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 4} &= \frac{(5,78 - 5,61)\%}{5,61\%} \times 100\% \\ &= 3,03\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 5} &= \frac{(5,95 - 5,78)\%}{5,78\%} \times 100\% \\ &= 2,94\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 6} &= \frac{(6,20 - 5,95)\%}{5,95\%} \times 100\% \\ &= 4,20\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan protein 7} &= \frac{(6,65 - 6,20)\%}{6,20\%} \times 100\% \\ &= 7,25\%\end{aligned}$$

8.2 Perhitungan Persentase Kenaikan Kadar Lemak

8.2.1 *Clarias* sp. Yang Diberi Pakan VITE-999

$$\begin{aligned}\text{Persentase kenaikan lemak 1} &= \frac{(0,46 - 0,3)\%}{0,3\%} \times 100\% \\ &= 53,33\%\end{aligned}$$

$$\begin{aligned}\text{Persentase kenaikan lemak 2} &= \frac{(0,67 - 0,46)\%}{0,46\%} \times 100\% \\ &= 45,62\%\end{aligned}$$

$$\text{Persentase kenaikan lemak 3} = \frac{(0,85 - 0,67)\%}{0,67\%} \times 100\%$$

$$= 26,86\%$$

$$\text{Persentase kenaikan lemak 4} = \frac{(1,09 - 0,85)\%}{0,85\%} \times 100\%$$

$$= 28,23\%$$

$$\text{Persentase kenaikan lemak 5} = \frac{(1,24 - 1,09)\%}{1,09\%} \times 100\%$$

$$= 13,76\%$$

$$\text{Persentase kenaikan lemak 6} = \frac{(1,39 - 1,24)\%}{1,24\%} \times 100\%$$

$$= 12,09\%$$

$$\text{Persentase kenaikan lemak 7} = \frac{(1,43 - 1,39)\%}{1,39\%} \times 100\%$$

$$= 2,87\%$$

8.2.2 *Clarias* sp. Yang Diberi Pakan *G. coronopifolio*

$$\text{Persentase kenaikan lemak 1} = \frac{(0,38 - 0,3)\%}{0,3\%} \times 100\%$$

$$= 26,67\%$$

$$\text{Persentase kenaikan lemak 2} = \frac{(0,52 - 0,38)\%}{0,38\%} \times 100\%$$

$$= 36,84\%$$

$$\text{Persentase kenaikan lemak 3} = \frac{(0,77 - 0,52)\%}{0,52\%} \times 100\%$$

$$= 48,07\%$$

$$\text{Persentase kenaikan lemak 4} = \frac{(0,92 - 0,77)\%}{0,77\%} \times 100\%$$

$$= 19,48\%$$

$$\text{Persentase kenaikan lemak 5} = \frac{(1,13 - 0,92)\%}{0,92\%} \times 100\%$$

$$= 22,82\%$$

$$\text{Persentase kenaikan lemak 6} = \frac{(1,28 - 1,13)\%}{1,13\%} \times 100\%$$

$$= 13,27\%$$

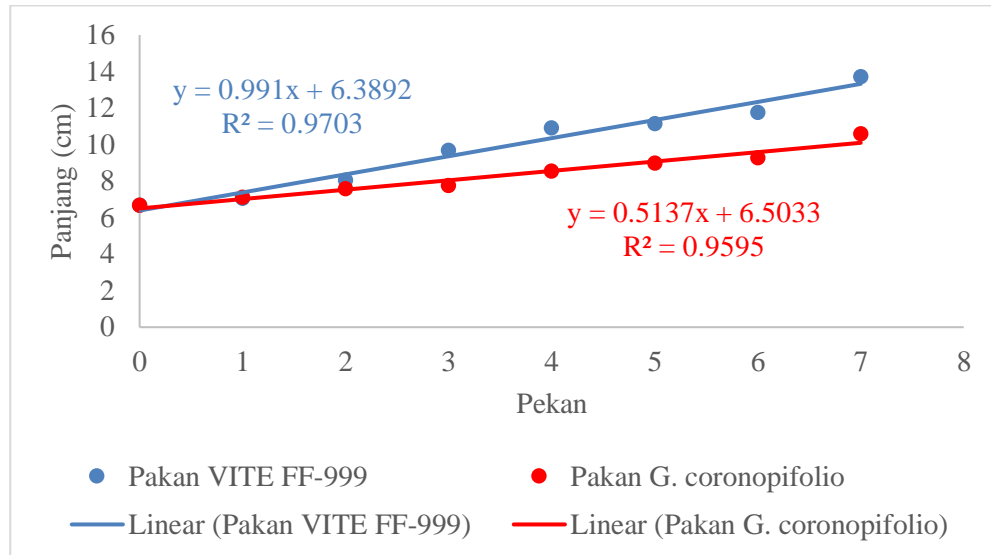
$$\text{Persentase kenaikan lemak 7} = \frac{(1,36 - 1,28)\%}{1,28\%} \times 100\%$$

$$= 6,25\%$$

9. Prediksi Kenaikan Panjang, Bobot, Kadar Protein, dan Kadar Lemak

Clarias sp.

9.1 Prediksi Panjang Rata-rata *Clarias sp.*



9.1.1 *Clarias sp.* Yang Diberi Pakan VITE FF-999

a. Pekan 8

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(8) + 6,3892 \\ y &= 14,32 \text{ cm}\end{aligned}$$

b. Pekan ke-9

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(9) + 6,3892 \\ y &= 15,31 \text{ cm}\end{aligned}$$

c. Pekan ke-10

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(10) + 6,3892 \\ y &= 16,30 \text{ cm}\end{aligned}$$

d. Pekan ke-11

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(11) + 6,3892 \\ y &= 17,29 \text{ cm}\end{aligned}$$

e. Pekan ke-12

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(12) + 6,3892 \\ y &= 18,28 \text{ cm}\end{aligned}$$

f. Pekan ke-13

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(13) + 6,3892 \\ y &= 19,27 \text{ cm}\end{aligned}$$

g. Pekan ke-14

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(14) + 6,3892 \\ y &= 20,26 \text{ cm}\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 0,991x + 6,3892 \\ &= 0,991(15) + 6,3892 \\ y &= 21,25 \text{ cm}\end{aligned}$$

9.1.2 *Clarias* sp. Yang Diberi Pakan *G. coronopifolio*

a. Pekan 8

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(8) + 6,5033 \\ y &= 10,61 \text{ cm}\end{aligned}$$

e. Pekan ke-12

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(12) + 6,5033 \\ y &= 12,67 \text{ cm}\end{aligned}$$

b. Pekan ke-9

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(9) + 6,5033 \\ y &= 11,13 \text{ cm}\end{aligned}$$

f. Pekan ke-13

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(13) + 6,5033 \\ y &= 13,18 \text{ cm}\end{aligned}$$

c. Pekan ke-10

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(10) + 6,5033 \\ y &= 11,64 \text{ cm}\end{aligned}$$

g. Pekan ke-14

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(14) + 6,5033 \\ y &= 13,70 \text{ cm}\end{aligned}$$

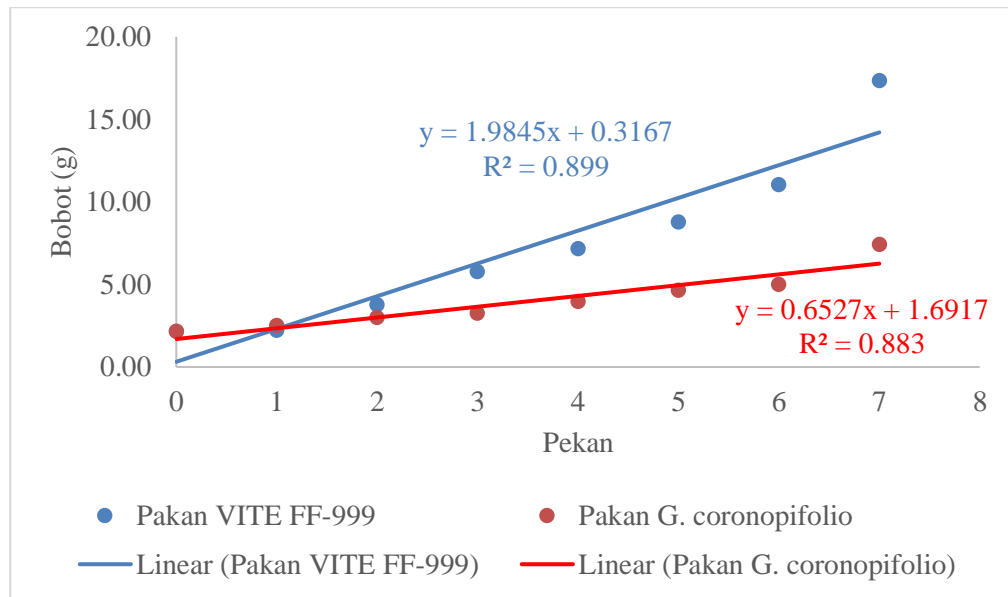
d. Pekan ke-11

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(11) + 6,5033 \\ y &= 12,15 \text{ cm}\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 0,5137x + 6,5033 \\ &= 0,5137(15) + 6,5033 \\ y &= 14,21 \text{ cm}\end{aligned}$$

9.2 Prediksi Bobot Rata-rata *Clarias* sp.



9.2.1 *Clarias* sp. Yang Diberi Pakan VITE FF-999

a. Pekan 8

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(8) + 0,3167 \\ y &= 16,19 \text{ g}\end{aligned}$$

b. Pekan ke-9

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(9) + 0,3167 \\ y &= 18,18 \text{ g}\end{aligned}$$

c. Pekan ke-10

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(10) + 0,3167 \\ y &= 20,16 \text{ g}\end{aligned}$$

d. Pekan ke-11

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(11) + 0,3167 \\ y &= 22,15 \text{ g}\end{aligned}$$

e. Pekan ke-12

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(12) + 0,3167 \\ y &= 24,13 \text{ g}\end{aligned}$$

f. Pekan ke-13

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(13) + 0,3167 \\ y &= 26,12 \text{ g}\end{aligned}$$

g. Pekan ke-14

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(14) + 0,3167 \\ y &= 28,10 \text{ g}\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 1,9845x + 0,3167 \\ &= 0,9845(15) + 0,3167 \\ y &= 30,08 \text{ g}\end{aligned}$$

9.2.2 *Clarias* sp. Yang Diberi Pakan *G. coronopifolio*

a. Pekan 8

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(8) + 1,6917 \\ y &= 6,91 \text{ g}\end{aligned}$$

e. Pekan ke-12

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(12) + 1,6917 \\ y &= 9,52 \text{ g}\end{aligned}$$

b. Pekan ke-9

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(9) + 1,6917 \\ y &= 7,57 \text{ g}\end{aligned}$$

f. Pekan ke-13

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(13) + 1,6917 \\ y &= 10,18 \text{ g}\end{aligned}$$

c. Pekan ke-10

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(10) + 1,6917 \\ y &= 8,22 \text{ g}\end{aligned}$$

g. Pekan ke-14

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(14) + 1,6917 \\ y &= 10,83 \text{ g}\end{aligned}$$

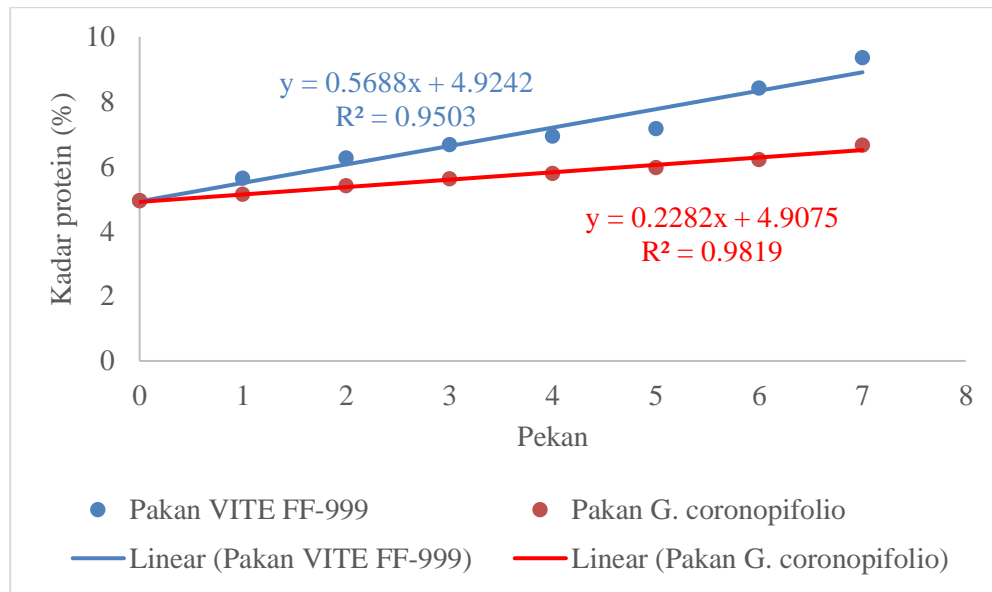
d. Pekan ke-11

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(11) + 1,6917 \\ y &= 8,87 \text{ g}\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 0,6527x + 1,6917 \\ &= 0,6527(15) + 1,6917 \\ y &= 11,48 \text{ g}\end{aligned}$$

9.3 Prediksi Kadar Protein Rata-rata *Clarias* sp.



9.3.1 *Clarias* sp. Yang Diberi Pakan VITE FF-999

a. Pekan 8

$$y = 0,5688x + 4,9242$$

$$= 0,5688(8) + 4,9242$$

$$y = 9,47\%$$

b. Pekan ke-9

$$y = 0,5688x + 4,9242$$

$$= 0,5688(9) + 4,9242$$

$$y = 10,04\%$$

c. Pekan ke-10

$$y = 0,5688x + 4,9242$$

$$= 0,5688(10) + 4,9242$$

$$y = 10,61\%$$

d. Pekan ke-11

$$y = 0,5688x + 4,9242$$

$$= 0,5688(11) + 4,9242$$

$$y = 11,18\%$$

e. Pekan ke-12

$$y = 0,5688x + 4,9242$$

$$= 0,5688(12) + 4,9242$$

$$y = 11,75\%$$

f. Pekan ke-13

$$y = 0,5688x + 4,9242$$

$$= 0,5688(13) + 4,9242$$

$$y = 12,32\%$$

g. Pekan ke-14

$$\begin{aligned}y &= 0,5688x + 4,9242 \\ &= 0,5688(14) + 4,9242 \\ y &= 12,89\%\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 0,5688x + 4,9242 \\ &= 0,5688(15) + 4,9242 \\ y &= 13,46\%\end{aligned}$$

9.3.2 *Clarias* sp. Yang Diberi Pakan *G. coronopifolio*

a. Pekan 8

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(8) + 4,9075 \\ y &= 6,73\%\end{aligned}$$

d. Pekan ke-11

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(11) + 4,9075 \\ y &= 7,42\%\end{aligned}$$

b. Pekan ke-9

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(9) + 4,9075 \\ y &= 6,96\%\end{aligned}$$

e. Pekan ke-12

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(12) + 4,9075 \\ y &= 7,65\%\end{aligned}$$

c. Pekan ke-10

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(10) + 4,9075 \\ y &= 7,19\%\end{aligned}$$

f. Pekan ke-13

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(13) + 4,9075 \\ y &= 7,87\%\end{aligned}$$

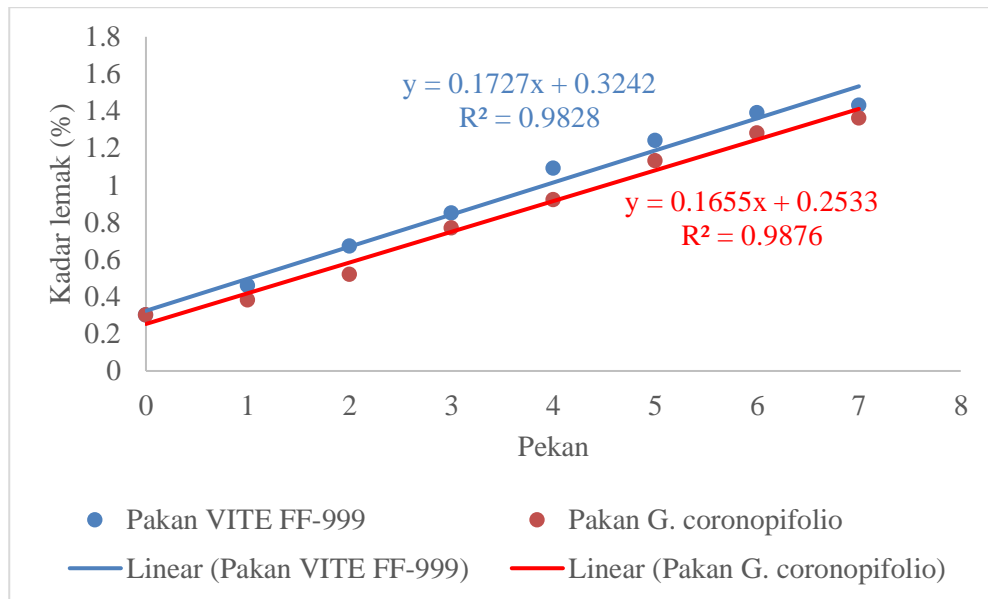
g. Pekan ke-14

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(14) + 4,9075 \\ y &= 8,10\%\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 0,2282x + 4,9075 \\ &= 0,2282(15) + 4,9075 \\ y &= 8,33\%\end{aligned}$$

9.4 Prediksi Kadar Lemak Rata-rata *Clarias* sp.



9.4.1 *Clarias* sp. Yang Diberi Pakan VITE FF-99

a. Pekan 8

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(8) + 0,3242 \\ y &= 1,71\%\end{aligned}$$

b. Pekan ke-9

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(9) + 0,3242 \\ y &= 1,88\%\end{aligned}$$

c. Pekan ke-10

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(10) + 0,3242 \\ y &= 2,05\%\end{aligned}$$

d. Pekan ke-11

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(11) + 0,3242 \\ y &= 2,22\%\end{aligned}$$

e. Pekan ke-12

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(12) + 0,3242 \\ y &= 2,40\%\end{aligned}$$

f. Pekan ke-13

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(13) + 0,3242 \\ y &= 2,57\%\end{aligned}$$

g. Pekan ke-14

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(14) + 0,3242 \\ y &= 2,74\%\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 0,1727x + 0,3242 \\ &= 0,1727(15) + 0,3242 \\ y &= 2,91\%\end{aligned}$$

9.4.1 *Clarias* sp. Yang Diberi Pakan *G. coronopifolio*

a. Pekan 8

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(8) + 0,2533 \\ y &= 1,58\%\end{aligned}$$

d. Pekan ke-11

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(11) + 0,2533 \\ y &= 2,07\%\end{aligned}$$

b. Pekan ke-9

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(9) + 0,2533 \\ y &= 1,74\%\end{aligned}$$

e. Pekan ke-12

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(12) + 0,2533 \\ y &= 2,24\%\end{aligned}$$

c. Pekan ke-10

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(10) + 0,2533 \\ y &= 1,91\%\end{aligned}$$

f. Pekan ke-13

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(13) + 0,2533 \\ y &= 2,40\%\end{aligned}$$

g. Pekan ke-14

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(14) + 0,2533 \\ y &= 2,57\%\end{aligned}$$

h. Pekan ke-15

$$\begin{aligned}y &= 0,1655x + 0,2533 \\ &= 0,1655(15) + 0,2533 \\ y &= 2,74\%\end{aligned}$$

Lampiran 5. Tabel

Tabel 1. Hasil analisis sebelum aplikasi

Sampel	(%)			
	Kadar air	Kadar abu	Kadar protein	Kadar lemak
<i>G. coronopifolio</i>	9,20	28,17	21,63	1,70
Pakan <i>G. coronopifolio</i>	9,82	21,25	11,88	2,46
Pakan VITE FF-999	10,51	10,40	35,31	4,76

Tabel 2. Data prediksi kenaikan panjang, bobot, kadar protein, dan kadar lemak *Clarias sp.*

Pekan	Panjang <i>Clarias sp.</i> (cm)		Bobot <i>Clarias sp.</i> (g)	
	Pakan VITE FF-999	Pakan <i>G. coronopifolio</i>	Pakan VITE FF-999	Pakan <i>G. coronopifolio</i>
8	14,32	10,61	16,19	6,91
9	15,31	11,13	18,18	7,57
10	16,30	11,64	20,16	8,22
11	17,29	12,15	22,15	8,87
12	18,28	12,67	24,13	9,52
13	19,27	13,18	26,12	10,18
14	20,26	13,70	28,10	10,83
15	21,25	14,21	30,08	11,48

Pekan	Kadar protein <i>Clarias sp.</i> (%)		Kadar lemak <i>Clarias sp.</i> (%)	
	Pakan VITE FF-999	Pakan <i>G. coronopifolio</i>	Pakan VITE FF-999	Pakan <i>G. coronopifolio</i>
8	9,47	6,73	1,71	1,58
9	10,04	6,96	1,88	1,74
10	10,61	7,19	2,05	1,91
11	11,18	7,42	2,22	2,07
12	11,75	7,65	2,40	2,24
13	12,32	7,87	2,57	2,40
14	12,89	8,10	2,74	2,57
15	13,46	8,33	2,91	2,74