Lampiran 1 Contoh perhitungan analisis proksimat

a. Kadar air

<table>
<thead>
<tr>
<th>No</th>
<th>Ulangan</th>
<th>B. Cawan</th>
<th>B. Sample</th>
<th>B. sebelum di oven</th>
<th>B. setelah di oven</th>
<th>Hasil(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Daging</td>
<td>1</td>
<td>25.1765</td>
<td>1.0009</td>
<td>26.1774</td>
<td>26.0710</td>
</tr>
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<td></td>
<td></td>
<td>2</td>
<td>24.8328</td>
<td>1.0004</td>
<td>25.8332</td>
<td>25.7276</td>
</tr>
<tr>
<td></td>
<td>Jeroan</td>
<td>1</td>
<td>24.7865</td>
<td>0.8126</td>
<td>25.5991</td>
<td>25.5541</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>24.8206</td>
<td>0.8383</td>
<td>25.6589</td>
<td>25.6104</td>
</tr>
</tbody>
</table>

\[
\text{kadar air daging} = \frac{B - C}{B - A} \times 100\%
\]

\[
= \frac{26.1774 - 26.071}{26.1774 - 25.1765} \times 100\%
\]

\[= 10.63\%*
\]

\[
\text{kadar air jeroan} = \frac{B - C}{B - A} \times 100\%
\]

\[
= \frac{25.5991 - 25.5541}{25.5991 - 24.7865} \times 100\%
\]

\[= 5.54\%
\]

Keterangan:

A = Berat cawan kosong (gram)

B = Berat cawan dengan daging lintah (gram)

C = Berat cawan dengan daging lintah setelah dikeringkan (gram).

b. Kadar abu

<table>
<thead>
<tr>
<th>No</th>
<th>Ulangan</th>
<th>B. Cawan</th>
<th>B. Sample</th>
<th>B. setelah di tanur</th>
<th>Hasil(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daging</td>
<td>1</td>
<td>24.01</td>
<td>5.1</td>
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</tr>
<tr>
<td></td>
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<td>23.93</td>
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<tr>
<td>2</td>
<td>Jeroan</td>
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<td>19.72</td>
<td>5.03</td>
<td>20.83</td>
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<tr>
<td></td>
<td></td>
<td>2</td>
<td>19.90</td>
<td>5.01</td>
<td>21.04</td>
</tr>
</tbody>
</table>
Kadar abu daging (%) = \( \frac{\text{Berat abu}}{\text{Berat sampel}} \times 100 \% \)
\[ = \frac{24.4-24.01}{5.1} \times 100\% \]
\[ = 7.65\% \]

Kadar abu jeroan (%) = \( \frac{20.83-19.72}{5.03} \times 100\% \)
\[ = 22.06\% \]

Kadar abu tidak larut asam

<table>
<thead>
<tr>
<th>No</th>
<th>Ulangan</th>
<th>Bobot sampel</th>
<th>B.cawan</th>
<th>B.setelah di tanur</th>
<th>Hasil(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daging</td>
<td>1</td>
<td>5.1</td>
<td>23.76</td>
<td>23.77</td>
</tr>
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<td>5.18</td>
<td>20.79</td>
<td>20.81</td>
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<tr>
<td>2</td>
<td>Jeroan</td>
<td>1</td>
<td>5.03</td>
<td>16.04</td>
<td>16.36</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>5.01</td>
<td>19.89</td>
<td>20.22</td>
</tr>
</tbody>
</table>

Kadar abu tidak larut asam daging (%) = \( \frac{\text{Berat abu tidak larut asam (g)}}{\text{Berat sampel awal (g)}} \times 100\% \)
\[ = \frac{0.01}{5.1} \times 100\% \]
\[ = 0.19\% \]

Kadar abu tidak larut asam jeroan (%) = \( \frac{0.32}{5.01} \times 100\% \)
\[ = 6.36\% \]

Kadar lemak

<table>
<thead>
<tr>
<th>No</th>
<th>Ulangan</th>
<th>B.sampel</th>
<th>B.labu lemak</th>
<th>B.setelah di oven</th>
<th>Hasil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daging</td>
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<td>2.0062</td>
<td>38.6140</td>
<td>38.6601</td>
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<td></td>
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<td>2.0009</td>
<td>39.0148</td>
<td>39.0564</td>
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<tr>
<td>2</td>
<td>Jeroan</td>
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<td>39.0304</td>
<td>39.1388</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2</td>
<td>2.0010</td>
<td>38.2601</td>
<td>38.3748</td>
</tr>
</tbody>
</table>
Kadar Lemak daging (%)  = \( \frac{W_3 - W_2}{W_1} \times 100\% \)

\( = \frac{38,6601 - 38,6140}{2,0062} \times 100\% \)

\( = 2,30\% \)

Kadar lemak jeroan (%)  = \( \frac{39,1388 - 39,0304}{2,0004} \times 100\% \)

\( = 5,42\% \)

Keterangan :
1 = Berat sampel lintah (gram)
2 = Berat labu lemak tanpa lemak (gram)
3 = Berat labu lemak dengan lemak (gram)

Kadar protein

<table>
<thead>
<tr>
<th>No</th>
<th>Kode</th>
<th>Ulangan</th>
<th>B.sample</th>
<th>Titrasi dengan HCl</th>
<th>N HCl</th>
<th>Hasil</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Daging</td>
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<td>17,95</td>
<td>0,09</td>
<td>54,06</td>
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<tr>
<td></td>
<td></td>
<td>2</td>
<td>0,1031</td>
<td>17,75</td>
<td>0,09</td>
<td>54,23</td>
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<td>2</td>
<td>Jeroan</td>
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<td></td>
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<td>0,1021</td>
<td>13,50</td>
<td>0,09</td>
<td>41,65</td>
</tr>
</tbody>
</table>

Nitrogen daging (%)  = \( \frac{(\text{ml} \text{ HCl sampel} - \text{ml} \text{ HCl blanko}) \times N \text{ HCl} \times 14}{\text{mg} \text{ daging lintah laut}} \) \times 100\%

\( = \frac{17,95 \times 0,09 \times 14}{104,6} \times 100\% \)

\( = 8,65\% \)

Kadar protein daging  = 8,65\% x 6,25

\( = 54,07\% \)

Nitrogen jeroan (%)  = \( \frac{13,45 \times 0,09 \times 14}{101,6} \times 100\% \)

\( = 6,67\% \)

Kadar protein jeroan  = 6,67\% x 6,25

\( = 41,7\% \)
f. Kadar karbohidrat

Karbohidrat daging (%) = 100 % - ( % air + % abu+ % lemak + % protein + % serat kasar)
= 100 % - (10,63% + 7,65% + 2,30% + 54,06% + 1,1 %)
= 24,25%

Karbohidrat jeroan (%) = 100 % - ( % air + % abu+ % lemak + % protein + % serat kasar)
= 100% - (5,54% + 22,06% + 5,42% + 41,7%)
= 25,28%
Lampiran 2 Prosedur analisis asam amino

Penimbangan sampel 0,1 g

Penambahan HCl 6 N sebanyak 10 ml

Pemanasan dalam oven 100 °C selama 24 jam

Penyaringan dengan kertas saring milipore

Pencampuran 30 µl contoh dengan 30 µl larutan pengering

Penambahan 30 µl larutan derivatisasi

Pendiaman selama 20 menit

Penambahan natrium asetat 1 M 20 ml

Penginjekan ke HPLC
Lampiran 3 Prosedur analisis taurin

Penimbangan sampel 0,5 g

- Penimbangan sampel 0,5 g
- Penambahan air suling sebanyak 80 ml
- Penambahan pereaksi carrez sebanyak 1 ml
- Pengocokan
- Pengenceran sampai tanda tera
- Pengocokan
- Penyaringan dengan kertas saring whatman
- Penyimpanan di tempat yang gelap
- Pemipetan 1 ml sampel
- Penambahan 1 ml natrium karbonat dan 1 ml dansil
- Penyimpanan selama 2 jam
- Pengocokan
- Penambah 0,5 metilamin hidroklorida
- Pengocokan
- Penginjeksian ke HPLC
Lampiran 4 Berat molekul asam amino dan nilai retention time masing-masing asam amino

<table>
<thead>
<tr>
<th>No</th>
<th>Jenis asam amino</th>
<th>Bobot molekul</th>
<th>Nilai retention time sampel</th>
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</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>I</td>
</tr>
<tr>
<td>1</td>
<td>Asam Aspartat</td>
<td>133,1</td>
<td>3,05</td>
</tr>
<tr>
<td>2</td>
<td>Asam Glutamat</td>
<td>147,2</td>
<td>4,395</td>
</tr>
<tr>
<td>3</td>
<td>Serin</td>
<td>105</td>
<td>5,63</td>
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<tr>
<td>4</td>
<td>Glisin</td>
<td>75</td>
<td>6,795</td>
</tr>
<tr>
<td>5</td>
<td>Histidin</td>
<td>155,1</td>
<td>8,4</td>
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<td>Arginin</td>
<td>174,2</td>
<td>9,697</td>
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<tr>
<td>7</td>
<td>Treonin</td>
<td>119,1</td>
<td>11,075</td>
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<td>Alanin</td>
<td>89</td>
<td>12,188</td>
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<td>115,1</td>
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<td>Tiroisin</td>
<td>181,1</td>
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<td>Valin</td>
<td>117,1</td>
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<td>Metionin</td>
<td>149,2</td>
<td>17,165</td>
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<td>Sistein</td>
<td>120,1</td>
<td>18,575</td>
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<td>14</td>
<td>Isoleusin</td>
<td>131,1</td>
<td>20,072</td>
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<td>15</td>
<td>Leusin</td>
<td>131,1</td>
<td>21,745</td>
</tr>
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<td>165,1</td>
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<td>Lisin</td>
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<td>Luas area standar</td>
<td>Luas area sampel</td>
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<tr>
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<td>-----------------</td>
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<td>-----------------</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Daging</td>
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<tr>
<td></td>
<td></td>
<td></td>
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<td>242172</td>
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<td>3</td>
<td>Serin</td>
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<td>57633</td>
</tr>
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<td>4</td>
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<td>150063</td>
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<td>Prolin</td>
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<td>60306</td>
</tr>
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<td>Tirosin</td>
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<td>170180</td>
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<td>Fenilalanin</td>
<td>1588880</td>
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<td>Lisin</td>
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<tr>
<td>18</td>
<td>Taurin</td>
<td>556026</td>
<td>166565</td>
</tr>
</tbody>
</table>
Lampiran 6 Contoh perhitungan asam amino

Daging lintah laut, ulangan 1

A. amino asam aspartat (%) = \frac{\text{luas area sampel} \times C \times fp \times BM}{\text{luas area standar} \times \text{bobot sampel}} \times 100\%

= \frac{103768 \times 5 \, \mu\text{mol} \times 20 \, \text{ml} \times 133,1 \times 100\%}{1241379 \times 100125 \, \text{mg}}

= 1,11\%

Jeroan lintah laut, ulangan 1

Asam amino asam aspartat = \frac{\text{luas area sampel} \times C \times fp \times BM}{\text{luas area standar} \times \text{bobot sampel}} \times 100\%

= \frac{111617 \times 5 \, \mu\text{mol} \times 20 \, \text{ml} \times 133,1 \times 100\%}{1241379 \times 100016 \, \text{mg}}

= 1,97\%
Lampiran 7 Contoh perhitungan taurin

Taurin (%) = \( \frac{\text{Luas area sampel}}{\text{luas are standar}} \times C \times \frac{\text{faktor pengenceran}}{\text{bobot sampel (g)}} \)

\[
\begin{align*}
\text{Taurin} & = \frac{166565}{556026} \times 0,1 \% \times \frac{5 \text{ ml}}{0,5365 \text{ g}} \\
& = 0,28\%
\end{align*}
\]

\[
\begin{align*}
\text{Taurin} & = \frac{152492}{556026} \times 0,1 \% \times \frac{5 \text{ ml}}{0,5116 \text{ g}} \\
& = 0,27\%
\end{align*}
\]
Lampiran 8 Kandungan Asam Amino pada Daging Lintah Laut

<table>
<thead>
<tr>
<th>No.</th>
<th>Jenis Asam Amino</th>
<th>Hasil (%)</th>
<th>Rata-rata</th>
<th>Standar deviasi</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>1</td>
<td>Asam Aspartat</td>
<td>1,11</td>
<td>1,07</td>
<td>1,20</td>
</tr>
<tr>
<td>2</td>
<td>Asam Glutamat</td>
<td>2,59</td>
<td>2,52</td>
<td>2,59</td>
</tr>
<tr>
<td>3</td>
<td>Serin</td>
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<td>0,51</td>
<td>0,48</td>
</tr>
<tr>
<td>4</td>
<td>Glisin</td>
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<td>1,08</td>
<td>1,17</td>
</tr>
<tr>
<td>5</td>
<td>Histidin</td>
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<td>0,63</td>
<td>0,64</td>
</tr>
<tr>
<td>6</td>
<td>Arginin</td>
<td>0,48</td>
<td>0,48</td>
<td>0,48</td>
</tr>
<tr>
<td>7</td>
<td>Treonin</td>
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<td>0,57</td>
<td>0,58</td>
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<tr>
<td>8</td>
<td>Alanin</td>
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<td>1,15</td>
<td>1,16</td>
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<tr>
<td>9</td>
<td>Prolin</td>
<td>0,49</td>
<td>0,48</td>
<td>0,50</td>
</tr>
<tr>
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<td>Tirosin</td>
<td>0,49</td>
<td>0,49</td>
<td>0,53</td>
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<td>0,97</td>
<td>0,99</td>
</tr>
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<td>Sistein</td>
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<td>0,32</td>
<td>0,34</td>
</tr>
<tr>
<td>14</td>
<td>Isoleusin</td>
<td>0,61</td>
<td>0,61</td>
<td>0,62</td>
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<tr>
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<td>Leusin</td>
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<td>1,42</td>
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<td>Phenilalanin</td>
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<td>0,46</td>
<td>0,47</td>
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<tr>
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<td>Lisin</td>
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<td>1,05</td>
<td>1,02</td>
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<td>Taurin</td>
<td>0,28</td>
<td>0,28</td>
<td>0,28</td>
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</tbody>
</table>
### Lampiran 9 Kandungan Asam Amino pada Jeroan Lintah Laut

<table>
<thead>
<tr>
<th>No.</th>
<th>Jenis Asam Amino</th>
<th>Hasil (%)</th>
<th>Rata-rata</th>
<th>Standar deviasi</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>I</td>
<td>II</td>
<td>III</td>
</tr>
<tr>
<td>1</td>
<td>Asam Aspartat</td>
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<td>1,29</td>
<td>1,28</td>
</tr>
<tr>
<td>2</td>
<td>Asam Glutamat</td>
<td>2,70</td>
<td>2,67</td>
<td>2,68</td>
</tr>
<tr>
<td>3</td>
<td>Serin</td>
<td>0,49</td>
<td>0,49</td>
<td>0,48</td>
</tr>
<tr>
<td>4</td>
<td>Glisin</td>
<td>1,17</td>
<td>1,16</td>
<td>1,18</td>
</tr>
<tr>
<td>5</td>
<td>Histidin</td>
<td>0,64</td>
<td>0,56</td>
<td>0,53</td>
</tr>
<tr>
<td>6</td>
<td>Arginin</td>
<td>0,48</td>
<td>0,50</td>
<td>0,50</td>
</tr>
<tr>
<td>7</td>
<td>Treonin</td>
<td>0,50</td>
<td>0,54</td>
<td>0,55</td>
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Lampiran 10 Dokumentasi Kegiatan

- Analisis kadar air
- Analisis kadar abu
- Analisis kadar abu tidak larut asam
- Analisis kadar lemak
- Analisis kadar protein
- High Performance Liquid Chromatography
- Rekorder