Amino acids:

- **Butea monosperma** Lam- (Palas)

  The amino acids content of leaves was 0.62mg/gm in summer, 0.56mg/gm in winter, and 0.52mg/gm in monsoon. Higher being observed during summer i.e. 0.62mg/gm. The range of amino acids content of bark 0.45mg/gm to 0.49mg/gm. Maximum concentration of amino acids was noted during summer 0.49mg/gm. The range of amino acid content of wood was from 0.23mg/gm to 0.37mg/gm. It was comparatively lower than winter (0.32mg/gm) and monsoon (0.23mg/gm), it show higher in summer 0.37mg/gm respectively.

  Generally, the concentration of amino acids were found to be in increasing order of wood<bark< leaf. (Table 10a and Graph 6a)

- **Madhuca indica** Gmel – (Mahua)

  The amino acids content of leaves ranged from 0.64 to 0.94mg/gm. The monsoon show higher 0.94mg/gm as compared to winter 0.64mg/gm and summer 0.849mg/gm. The amino acids content of bark ranges from 0.42mg/gm to 0.64mg/gm. The summer show higher 0.64mg/gm than winter 0.562mg/gm and monsoon 0.42mg/gm respectively. The wood show amino acids low as compared to leaves and bark. It ranges from 0.45mg/gm to 0.54mg/gm. The summer show higher 0.54mg/gm than winter 0.53mg/gm and monsoon 0.45mg/gm.

  The percentage of amino acids content was found to be in increasing order wood<bark< leaves. (Table 10b and Graph 6b)

- **Syzygium cumini** Linn (Jambul)

  The amino acids content of leaves from 0.68mg/gm to 0.89mg/gm. The summer show higher 0.89mg/gm. As compared to winter 0.75mg/gm and monsoon 0.68mg/gm. The wood show amino acids ranged from 0.40mg/gm to 0.471mg/gm summer showing higher 0.471mg/gm as compared to winter 0.43 mg/gm and monsoon 0.40mg/gm. While in Bark show low amino acids as comparatively leaves and bark in summer show higher (0.37mg/gm) than winter and monsoon show similar (i.e. 0.37mg/gm).

  The percentage of amino acids content was found is in increasing order Bark< Wood< leaves. (Table 10c and Graph 6c)
**Mimusops elengi Linn (Bakul)**

The amino acid content of leaves ranged from 0.74mg/gm to 0.88mg/gm. The summer showed 0.88mg/gm higher as compared to winter 0.76mg/gm and monsoon 0.74mg/gm. The range of amino acids in bark from 0.64mg/gm to 0.77mg/gm. Higher during summer 0.77mg/gm than winter 0.749mg/gm and monsoon 0.64mg/gm. The range of amino acids content wood was from 0.41mg/gm to 0.51mg/gm. The summer showed higher 0.51mg/gm as compared to winter 0.46mg/gm and monsoon 0.41mg/gm.

Generally, the concentration of amino acid were found to be increasing order to wood < bark < leaves. (Table 10d and Graph 6d)
Table No. – 10a

Seasonal variation of some organic constituent’s level of different plants parts of *Butea monosperma*

<table>
<thead>
<tr>
<th>Plant parts</th>
<th>Season</th>
<th>Protein (mg/g dry wt)</th>
<th>Amino acid (mg/g dry wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 year</td>
<td>2year</td>
</tr>
<tr>
<td>Leaves</td>
<td>Summer</td>
<td>2.091</td>
<td>2.194</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>1.929</td>
<td>1.738</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>2.04</td>
<td>2.067</td>
</tr>
<tr>
<td>Wood</td>
<td>Summer</td>
<td>1.354</td>
<td>1.311</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>1.329</td>
<td>1.128</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>1.263</td>
<td>1.109</td>
</tr>
<tr>
<td>Bark</td>
<td>Summer</td>
<td>1.683</td>
<td>1.636</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>1.421</td>
<td>1.418</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>1.607</td>
<td>1.596</td>
</tr>
</tbody>
</table>
Protein and Amino acid of *Butea monosperma*

- **Leaves**
  - Protein: 2.5 mg/g dry wt.
  - Amino acid: 0.5 mg/g dry wt.
- **Wood**
  - Protein: 2.0 mg/g dry wt.
  - Amino acid: 0.5 mg/g dry wt.
- **Bark**
  - Protein: 1.5 mg/g dry wt.
  - Amino acid: 0.5 mg/g dry wt.
Detail for the sample comparison and test of significance: - *Butea monosperma*

**Protein**

**Leaves**

L, S, is significantly different from L, M, at 5% level based on ‘t’ test
L, W, is significantly different from L, M, at 10% level based on ‘t’ test
L, S, is significantly different from L, W, at non significant level based on ‘t’ test

**Wood**

Wd, S, is significantly different from Wd, W, at 10% level based on ‘t’ test
Wd, M, is significantly different from Wd, W, at non significant level based on ‘t’ test
Wd, S, is significantly different from Wd, M, at non significant level based on ‘t’ test

**Bark**

B, S, is significantly different from B, M, at 1% level based on ‘t’ test
B, W, is significantly different from B, M, at 0.1% level based on ‘t’ test
B, S, is significantly different from B, W, at 10% level based on ‘t’ test

**Amino acid**

**Leaves**

L, S, is significantly different from L, M, at 5% level based on ‘t’ test
L, W, is significantly different from L, M, at non significant level based on ‘t’ test
L, S, is significantly different from L, W, at 10% level based on ‘t’ test
Wood

Wd, S, is significantly different from Wd, M, 5 % at level based on ‘t’ test
Wd, W, is significantly different from Wd, M, 5 % at level based on ‘t’ test
Wd, S, is significantly different from Wd, W, at 10 % level based on ‘t’ test

Bark

B, S, is significantly different from B, M, at 10 % level based on ‘t’ test
B, W, is significantly different from B, M, at non significant level based on ‘t’ test
B, S, is significantly different from B, W, at 10% level based on ‘t’ test
## Table No. – 10b

Seasonal variation of some organic constituent’s level of different plants parts of *Madhuca indica*

<table>
<thead>
<tr>
<th>Plant parts</th>
<th>Season</th>
<th>Protein (mg/g dry wt)</th>
<th>Amino acid (mg/g dry wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 year</td>
<td>2 year</td>
</tr>
<tr>
<td>Leaves</td>
<td>Summer</td>
<td>7.82</td>
<td>7.669</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>7.416</td>
<td>7.211</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>7.723</td>
<td>7.729</td>
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<tr>
<td>Wood</td>
<td>Summer</td>
<td>5.982</td>
<td>5.158</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>5.811</td>
<td>5.995</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>5.962</td>
<td>5.679</td>
</tr>
<tr>
<td>Bark</td>
<td>Summer</td>
<td>7.002</td>
<td>7.268</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>6.829</td>
<td>6.455</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>6.971</td>
<td>7.13</td>
</tr>
</tbody>
</table>
Graph No. - 6b

Protein and Amino acid of *Madhuca indica*

<table>
<thead>
<tr>
<th>Season</th>
<th>Plant Part</th>
<th>Protein (mg/gm dry wt)</th>
<th>Amino acid (mg/gm dry wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summer</td>
<td>Leaves</td>
<td>8</td>
<td>1</td>
</tr>
<tr>
<td>Monsoon</td>
<td>Leaves</td>
<td>7</td>
<td>2</td>
</tr>
<tr>
<td>Winter</td>
<td>Leaves</td>
<td>6</td>
<td>3</td>
</tr>
<tr>
<td>Summer</td>
<td>Wood</td>
<td>5</td>
<td>4</td>
</tr>
<tr>
<td>Monsoon</td>
<td>Wood</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>Winter</td>
<td>Wood</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Summer</td>
<td>Bark</td>
<td>2</td>
<td>7</td>
</tr>
<tr>
<td>Monsoon</td>
<td>Bark</td>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>Winter</td>
<td>Bark</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>
Detail for the sample comparison and test of significance: *Madhuca indica*

**Protein**

**Leaves**
- L, S, is significantly different from L, M, at 5% level based on ‘t’ test
- L, W, is significantly different from L, M, at 5% level based on ‘t’ test
- L, S, is significantly different from L, W, at non significant level based on ‘t’ test

**Wood**
- Wd, M, is significantly different from Wd, S, at non significant level based on ‘t’ test
- Wd, W, is significantly different from Wd, W, at non significant level based on ‘t’ test
- Wd, M, is significantly different from Wd, W, at non significant level based on ‘t’ test

**Bark**
- B, S, is significantly different from B, M, at 10% level based on ‘t’ test
- B, W, is significantly different from B, M, at 10% level based on ‘t’ test
- B, S, is significantly different from B, W, at non significant level based on ‘t’ test
Amino acid
Leaves
L, S, is significantly different from L, W, at 1 % level based on ‘t’ test
L, M, is significantly different from L, W, at 1 % level based on ‘t’ test
L, M, is significantly different from L, S, at 1 % level based on ‘t’ test

Wood
Wd, S, is significantly different from Wd, M, at 5 % level based on ‘t’ test
Wd, W, is significantly different from Wd, M, at 5 % level based on ‘t’ test
Wd, S, is significantly different from Wd, W, at non significant level based on ‘t’ test

Bark
B, S, is significantly different from B, M, at 1 % level based on ‘t’ test
B, W, is significantly different from B, M, at 5 % level based on ‘t’ test
B, S, is significantly different from B, W, at 5 % level based on ‘t’
Table No. – 10c

Seasonal variation of some organic constituent’s level of different plants parts of *Syzygium cumini*

<table>
<thead>
<tr>
<th>Plant parts</th>
<th>Season</th>
<th>Protein (mg/g dry wt)</th>
<th>Amino acid (mg/g dry wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 year</td>
<td>2 year</td>
</tr>
<tr>
<td>Leaves</td>
<td>Summer</td>
<td>2.824</td>
<td>2.926</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>2.559</td>
<td>2.486</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>2.631</td>
<td>2.545</td>
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<tr>
<td>Wood</td>
<td>Summer</td>
<td>2.605</td>
<td>2.961</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>2.46</td>
<td>2.453</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>2.606</td>
<td>2.783</td>
</tr>
<tr>
<td>Bark</td>
<td>Summer</td>
<td>3.821</td>
<td>3.813</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>3.084</td>
<td>3.377</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>3.854</td>
<td>3.646</td>
</tr>
</tbody>
</table>
Graph No. - 6c

Protein and Amino acid of *Syzygium cumini*

Season and plant parts

- Summer
- Monsoon
- Winter

Protein and Amino acid (mg/g dry wt) mean
Detail for the sample comparison and test of significance: *Syzygium cumini*

**Protein**

**Leaves**
- L, S, is significantly different from L, M, at 5% level based on ‘t’ test
- L, W, is significantly different from L, M, at non significant level based on ‘t’ test
- L, S, is significantly different from L, W, at 5% level based on ‘t’ test

**Wood**
- Wd, S, is significantly different from Wd, M, at 10% level based on ‘t’ test
- Wd, W, is significantly different from Wd, M, at 5% level based on ‘t’ test
- Wd, S, is significantly different from Wd, W, at non significant level based on ‘t’ test

**Bark**
- B, S, is significantly different from B, M, at 5% level based on ‘t’ test
- B, W, is significantly different from B, M, at 5% level based on ‘t’ test
- B, S, is significantly different from B, W, at non significant level based on ‘t’ test
Amino acid

Leaves
L, S, is significantly different from L, S, at 5% level based on ‘t’ test
L, W, is significantly different from L, M, at 5% level based on ‘t’ test
L, S, is significantly different from L, W, at 10% level based on ‘t’ test

Wood
Wd, S, significantly different from Wd, M, at 5% level based on ‘t’ test
Wd, W, is significantly different from Wd, M, at non significant level based on ‘t’ test
Wd, S is significantly different from Wd, W, non significant at level based on ‘t’ test

Bark
B, S, is significantly different from B, W, at non significant level based on ‘t’ test
B, M, is significantly different from B, W, at non significant level based on ‘t’ test
B, S, is significantly different from B, M at non significant level based on ‘t’ test
Table No. – 10d

Seasonal variation of some organic constituent’s level of different plants parts of *Mimusops elengi*

<table>
<thead>
<tr>
<th>Plant parts</th>
<th>Season</th>
<th>Protein (mg/g dry wt)</th>
<th>Amino acid (mg/g dry wt)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>1 year</td>
<td>2year</td>
</tr>
<tr>
<td>Leaves</td>
<td>Summer</td>
<td>4.152</td>
<td>4.285</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>3.797</td>
<td>3.877</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>3.494</td>
<td>3.555</td>
</tr>
<tr>
<td>Wood</td>
<td>Summer</td>
<td>2.872</td>
<td>2.802</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>2.66</td>
<td>2.70</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>2.801</td>
<td>2.89</td>
</tr>
<tr>
<td>Bark</td>
<td>Summer</td>
<td>5.101</td>
<td>4.777</td>
</tr>
<tr>
<td></td>
<td>Monsoon</td>
<td>4.852</td>
<td>4.607</td>
</tr>
<tr>
<td></td>
<td>Winter</td>
<td>4.851</td>
<td>4.644</td>
</tr>
</tbody>
</table>
Graph No. – 6d

Protein and Amino acid of *Mimusops elengi*

Protein mg/gm dry wt  Amino acid (mg/g dry wt)

Season and plant parts

- Summer
- Monsoon
- Winter
- Summer
- Monsoon
- Winter
- Summer
- Monsoon
- Winter

Season:
- Summer
- Monsoon
- Winter

Plant parts:
- Leaves
- Wood
- Bark
Detail for the sample comparison and test of significance:

*Mimusops elengi*

**Protein**

**Leaves**
- L, S is significantly different from L, W, at 1% level based on 't' test
- L, M, is significantly different from L, W, at 1% level based on 't' test
- L, S, is significantly different from L, M, at 5% level based on 't' test

**Wood**
- Wd, S, is significantly different from Wd, M at 5% level based on 't' test
- Wd, W, is significantly different from Wd, M, at 1% level based on 't' test
- Wd, S, is significantly different from Wd, W, at non significant level based on 't' test

**Bark**
- B, S, is significantly different from B, M, at non significant level based on 't' test
- B, W, is significantly different from B, M, at non significant level based on 't' test
- B, S, is significantly different from B, W, at non significant level based on 't' test
Amino acid

Leaves

L, S, is significantly different from L, M, at 5% level based on ‘t’ test
L, W, is significantly different from L, M, at non significant level based on ‘t’ test
L, S, is significantly different from L, W, at 0.1% level based on ‘t’ test

Wood

Wd, S, is significantly different from Wd, M, at 1% level based on ‘t’ test
Wd, W, is significantly different from Wd, M, at 10% level based on ‘t’ test
Wd, S, is significantly different from Wd, W, at 10% level based on ‘t’ test

Bark

B, S, is significantly different from B, M, at 5% level based on ‘t’ test
B, W, is significantly different from B, M, at 5% level based on ‘t’ test
B, S, is significantly different from B, S, at non significant level based on ‘t’ test