CHAPTER 3

STUDIES ON EFFECT OF *Lemna paucicostata* EXTRACTS ON QUALITY OF WHEAT YIELD.
STUDIES ON EFFECT OF
*Lemna paucicostata* EXTRACTS ON
QUALITY OF WHEAT YIELD

Observations on response of wheat var. "Shekhar/K 7410" plants raised after pre-soaking seed treatment with *Lemna paucicostata* extracts on total nitrogen and protein contents in seeds were made. The studies on certain chemical constituents were also made and the quantitative estimation of phosphorus and potassium was made from the treated seeds of wheat var. "Shekhar /K-7410". Treatment with 5 percent water and 5 percent ether extract for 6, 12 and 24 hrs was given to the seeds of wheat var. "Shekhar/K 7410" prior to germination and sowing. Results of influence observed are described here in this chapter.

INFLUENCE OF 6 HRS PRE-SOAKING SEED TREATMENT ON
NITROGEN CONTENT IN WHEAT:

Effect on Root Constituent:

A perusal of results Table-13 and Graph-12 show that treatment with 5 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of root over control. However, the effect of former is more
pronounced than that of later. A comparison of effect of 6, 12, and 24 hrs treatment shows that application of 6 hrs is more effective.

Statistical analysis of data showed that observed increases with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Stem Constituent:**

An examination of data given in Table-13 and Graph-13 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of stem over control. However, 5 percent water extract is comparatively more stimulatory than 5 percent ether extract.

Statistical analysis of data shows that observed effect with 5 percent water and 5 percent ether extract are significant at 5 percent error probability.

**Effect on Leaf Constituent:**

Observation given in Table-13 and Graph-13 shows that treatments with 5 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of leaf over control. However, 5 percent water extract is more effective than ether extract.
### TABLE -13 :  EFFECT OF *Lemna paucicostata* EXTRACTS ON NITROGEN PERCENTAGE OF WHEAT.

<table>
<thead>
<tr>
<th>SOAKING PERIOD</th>
<th>ROOT</th>
<th>STEM</th>
<th>LEAF</th>
<th>GRAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 HRS</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
</tr>
<tr>
<td></td>
<td>0.51 0.68 0.72</td>
<td>0.38 0.54 0.68</td>
<td>0.45 0.68 0.70</td>
<td>2.07 2.44 2.63</td>
</tr>
<tr>
<td>12 HRS</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
</tr>
<tr>
<td></td>
<td>0.31 0.49 0.58</td>
<td>0.36 0.53 0.63</td>
<td>0.35 0.60 0.63</td>
<td>2.03 2.41 2.58</td>
</tr>
<tr>
<td>24 HRS</td>
<td>C 5% EW 2% W</td>
<td>C 5% EW 2% W</td>
<td>C 5% EW 2% W</td>
<td>C 5% EW 2% W</td>
</tr>
<tr>
<td></td>
<td>0.30 0.45 0.48</td>
<td>0.34 0.49 0.58</td>
<td>0.31 0.49 0.52</td>
<td>2.00 2.20 2.39</td>
</tr>
</tbody>
</table>

| C.D. = 0.10 | C.D. = 0.05 | C.D. = 0.07 | C.D. = 0.17 |
| DIFFERENCE: 6 HRS | DIFFERENCE: 6 HRS | DIFFERENCE: 6 HRS | DIFFERENCE: 6 HRS |
| 5% W-C = 0.21 | 5% W-C = 0.30 | 5% W-C = 0.25 | 5% W-C = 0.56 |
| 5% EW-C = 0.17 | 5% EW-C = 0.16 | 5% EW-C = 0.23 | 5% EW-C = 0.37 |
| DIFFERENCE: 12 HRS | DIFFERENCE: 12 HRS | DIFFERENCE: 12 HRS | DIFFERENCE: 12 HRS |
| 5% W-C = 0.27 | 5% W-C = 0.27 | 5% W-C = 0.25 | 5% W-C = 0.55 |
| 5% EW-C = 0.18 | 5% EW-C = 0.17 | 5% EW-C = 0.28 | 5% EW-C = 0.38 |
| DIFFERENCE: 24 HRS | DIFFERENCE: 24 HRS | DIFFERENCE: 24 HRS | DIFFERENCE: 24 HRS |
| 2% W-C = 0.15 | 2% W-C = 0.24 | 2% W-C = 0.21 | 2% W-C = 0.38 |
| 5% EW-C = 0.18 | 5% EW-C = 0.15 | 5% EW-C = 0.18 | 5% EW-C = 0.19 |

**ABBREVIATIONS USED :** C- Control, EW- Ether-Water extract, W- Water extract and C.D. - Critical Difference.
Results were statistically analysed following analysis of variance method and observed increases with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Grain Constituent:**

A perusal of Table-13 and Graph-13 show that nitrogen percentage in grain is higher under treatments with both 5 percent water and 5 percent ether extracts. However, 5 percent water extract is more pronounced than 5 percent ether extract.

Results were statistically analysed following analysis of variance method as observed increases with 5 percent water and 5 percent ether extract are significant at 5 percent error probability.

**INFLUENCE OF 12 HRS PRE-SOAKING SEED TREATMENT ON NITROGEN CONTENT IN WHEAT:**

**Effect on Root Constituent:**

An examination of data exhibit in Table-13 and Graph-13 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of root over control. However, 5 percent water extract is comparatively more beneficial than 5 percent ether extract.
Results were statistically analysed following analysis of variance method and observed increases with 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Stem Constituent:**

Observations given in Table-13 and Graph-13 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of stem over control. However, 5 percent water extract is comparatively more effective than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with 5 percent water and 5 percent ether extracts significant at 5 percent error probability.

**Effect on Leaf Constituent:**

An examination of Table-13 and Graph-13 exhibit that treatments with 5 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of leaf over control. However, 5 percent water extract is more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increase with both
5 percent water and ether extracts are significant at 5 percent error probability.

**Effect on Grain Constituent:**

An examination of Table-13 and Graph-13 show that treatments with both 5 percent water and ether extracts exercise increase in nitrogen percentage of grain over control. However, 5 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**INFLUENCE OF 24 HRS PRE-SOAKING SEED TREATMENT ON NITROGEN CONTENT IN WHEAT:**

**Effect on Root Constituent:**

An examination of data given in Table-13 and Graph-13 exhibit that treatments with both 2 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of root over control. However, 2 percent water extract is comparatively more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 2
percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Stem Constituent:**

The results of data given in Table-13 and Graph-13 show that treatments with 2 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of stem over control. However, 2 percent water extract is comparatively more effective than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 2 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Leaf Constituent:**

Observation of Table-13 and Graph-13 exhibit that treatments with both 2 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of leaf over control. However, 2 percent water extract is more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 2 percent water and 5 percent ether extracts are significant at 5 percent error probability.
Effect on Grain Constituent:

A perusal of Table-13 and Graph-13 show that treatments with both 2 percent water and 5 percent ether extracts exercise increase in nitrogen percentage of grain over control. However, 2 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 2 percent water and 5 percent ether extracts are significant at 5 percent error probability.
INFLUENCE OF 6 HRS PRE-SOAKING SEED TREATMENT ON PROTEIN CONTENT IN WHEAT:

Effect on Root Constituent:

An examination of data given in Table-14 and Graph-14 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in protein percentage of root over control. However, 5 percent water extract is comparatively more beneficial than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with 5 percent water extract is significant at 5 percent error probability.

Effect on Stem Constituent:

An examination of data entered in Table-14 and Graph-14 exhibit that treatments with 5 percent water and 5 percent ether extracts exercise increase in protein percentage of root over control. However, 5 percent water extract is more stimulatory than 5 percent ether extract.

Statistical analysis of data shows that observed effect with 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

Effect on Leaf Constituent:

Observation given in Table-14 and Graph-14 exhibit
that treatments with both 5 percent water and 5 percent ether extracts exercise increase in protein percentage of leaf over control. However, 5 percent water extract is more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Grain Constituent:**

Observation of data given in Table-14 and Graph-14 show that protein percentage is higher under treatments with both 5 percent water and 5 percent ether extracts. However, 5 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**INFLUENCE OF 12 HRS PRE-SOAKING SEED TREATMENT ON PROTEIN CONTENT IN WHEAT:**

**Effect on Root Constituent:**

An examination of data given in Table-14 and Graph-14 exhibit that treatments with both 5 percent water and
# TABLE - 14 : EFFECT OF *Lemna paucicostata* EXTRACTS ON PROTEIN PERCENTAGE OF WHEAT.

<table>
<thead>
<tr>
<th>SOAKING PERIOD</th>
<th>ROOT</th>
<th>STEM</th>
<th>LEAF</th>
<th>GRAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
</tr>
<tr>
<td>6 HRS</td>
<td>2.18 2.50 3.56</td>
<td>2.26 3.31 3.75</td>
<td>2.98 3.69 4.56</td>
<td>13.14 14.63 15.27</td>
</tr>
<tr>
<td>12 HRS</td>
<td>1.87 2.25 2.33</td>
<td>1.97 2.37 2.65</td>
<td>2.65 3.26 3.86</td>
<td>12.75 14.23 14.87</td>
</tr>
<tr>
<td>24 HRS</td>
<td>1.65 2.29 2.30</td>
<td>1.86 2.22 2.46</td>
<td>2.31 3.18 3.65</td>
<td>12.58 13.68 14.02</td>
</tr>
</tbody>
</table>

C.D. = 0.88  
DIFFERENCE : 6 HRS  
5% W-C = 1.38  
5% EW-C = 0.32  
DIFFERENCE : 12 HRS  
5% W-C = 0.46  
5% EW-C = 0.38  
DIFFERENCE : 24 HRS  
2% W-C = 0.65  
5% EW-C = 0.64

C.D. = 0.79  
DIFFERENCE : 6 HRS  
5% W-C = 1.49  
5% EW-C = 1.05  
DIFFERENCE : 12 HRS  
5% W-C = 0.68  
5% EW-C = 0.40  
DIFFERENCE : 24 HRS  
2% W-C = 0.60  
5% EW-C = 0.36

C.D. = 0.35  
DIFFERENCE : 6 HRS  
5% W-C = 1.58  
5% EW-C = 0.71  
DIFFERENCE : 12 HRS  
5% W-C = 1.21  
5% EW-C = 0.61  
DIFFERENCE : 24 HRS  
2% W-C = 1.34  
5% EW-C = 0.87

C.D. = 0.55  
DIFFERENCE : 6 HRS  
5% W-C = 2.13  
5% EW-C = 1.49  
DIFFERENCE : 12 HRS  
5% W-C = 2.12  
5% EW-C = 1.48  
DIFFERENCE : 24 HRS  
2% W-C = 1.44  
5% EW-C = 1.10

**ABBREVIATIONS USED :** C- Control, EW- Ether-Water extract, W- Water extract and C.D. - Critical Difference.
5 percent ether extracts exercise increase in protein percentage of root over control. However, 5 percent water extract is comparatively more beneficial than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increase with both 5 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.

**Effect on Stem Constituent:**

A perusal of Table-14 and Graph-14 show that treatments with both 5 percent water and 5 percent ether extracts exercise increase in protein percentage of stem. However, 5 percent water extract is comparatively more effective than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.

**Effect on Leaf Constituent:**

An examination of data given in Table-14 and Graph-14 exhibit that treatments with both 5 percent water and 5 percent ether extracts exercise increase in protein percentage over control. However, 5 percent water extract
GRAPH - 14: EFFECT OF *Lemna paucicostata* EXTRACTS ON PROTEIN PERCENTAGE OF WHEAT

- **ROOT**
  - C - CONTROL
  - EW - ETHER - WATER EXTRACT
  - W - WATER EXTRACT
  - 6 HRS
  - 12 HRS
  - 24 HRS

- **LEAF**

- **STEM**

- **GRAIN**
is more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increase with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Grain Constituent:**

Results exhibit in of Table-14 and Graph-14 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in protein percentage. However, 5 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**INFLUENCE OF 24 HRS PRE-SOAKING SEED TREATMENT ON PROTEIN CONTENT IN WHEAT:**

**Effect on Root Constituent:**

Result exhibit in Table-14 and Graph-14 show that treatments with 2 percent water and 5 percent ether extract exercise increase in protein percentage of root over control. However, 2 percent water extract is comparatively more beneficial than 5 percent ether extract.
Results were statistically analysed following analysis of variance method and observed effects with both, 5 percent water and 5 percent ether extract are insignificant at 5 percent error probability.

**Effect on Stem Constituent:**

A perusal of data given in Table-14 and Graph-14 show that treatments with both 2 percent water and 5 percent ether extracts exercise increase in protein percentage of stem over control. However, 2 percent water extract is comparatively more effective than 5 percent ether extract.

Statistical analysis of data shows that observed effect with 5 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.

**Effect on Leaf Constituent:**

Observations exhibit in Table-14 and Graph-14 exhibit that treatments with both 2 percent water and 5 percent ether extracts exercise increase in protein percentage of leaf over control. However, 2 percent water extract is comparatively more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 5 percent water and 5 percent ether extracts are significant.
at 5 percent error probability.

**Effect on Grain Constituent:**

A perusal of Table-14 and Graph-14 show that treatments with 2 percent water and 5 percent ether extracts exercise increase in protein percentage of grain over control. However, 2 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 2 percent water and 5 percent ether extracts are significant at 5 percent error probability.
INFLUENCE OF 6 HRS PRE-SOAKING SEED TREATMENT ON PHOSPHORUS CONTENT IN WHEAT:

Effect on Root Constituent:

An examination of data given in Table-15 and Graph-15 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of stem over control. However, 5 percent water extract is comparatively more stimulatory than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.

Effect on Stem Constituent:

Results given in Table-15 and Graph-15 exhibit that treatments with 5 percent water and 5 percent ether extracts exercise increase in phosphorus of root over control. However, 5 percent water extract is more stimulatory than ether extract.

Statistical analysis of data shows that observed effects with 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

Effect on Leaf Constituent:

An examination Table-15 and Graph-15 show that treatments with 5 percent water and 5 percent ether
# Effect of *Lemna paucicostata* Extracts on Phosphorous Percentage of Wheat

<table>
<thead>
<tr>
<th>Soaking Period</th>
<th>Root</th>
<th>Stem</th>
<th>Leaf</th>
<th>Grain</th>
</tr>
</thead>
<tbody>
<tr>
<td>6 HRS</td>
<td>0.256</td>
<td>0.261</td>
<td>0.269</td>
<td>0.253</td>
</tr>
<tr>
<td>12 HRS</td>
<td>0.250</td>
<td>0.257</td>
<td>0.258</td>
<td>0.242</td>
</tr>
<tr>
<td>24 HRS</td>
<td>0.241</td>
<td>0.254</td>
<td>0.255</td>
<td>0.242</td>
</tr>
</tbody>
</table>

C.D. = 0.0075  
DIFFERENCE: 6 HRS  
5% W-C = 0.013  
5% EW-C = 0.005  
DIFFERENCE: 12 HRS  
5% W-C = 0.008  
5% EW-C = 0.007  
DIFFERENCE: 24 HRS  
2% W-C = 0.014  
5% EW-C = 0.013  
5% W-C = 0.016  
5% EW-C = 0.027  
5% EW-C = 0.022  
DIFFERENCE: 12 HRS  
5% W-C = 0.006  
5% EW-C = 0.003  
DIFFERENCE: 24 HRS  
2% W-C = 0.016  
5% EW-C = 0.012  
C.D. = 0.011  
DIFFERENCE: 6 HRS  
5% W-C = 0.013  
5% EW-C = 0.005  
DIFFERENCE: 12 HRS  
5% W-C = 0.006  
5% EW-C = 0.003  
DIFFERENCE: 24 HRS  
2% W-C = 0.018  
5% EW-C = 0.016  
C.D. = 0.057  
DIFFERENCE: 6 HRS  
5% W-C = 0.086  
5% EW-C = 0.068  
DIFFERENCE: 12 HRS  
5% W-C = 0.026  
5% EW-C = 0.013  
DIFFERENCE: 24 HRS  
2% W-C = 0.018  
5% EW-C = 0.004

**Abbreviations Used:**  
extracts exercise increase in phosphorus percentage of leaf over control. However, 5 percent water extract is more effective than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 5 percent water extract is significant at 5 percent error probability.

**Effect on Grain Constituent:**

A perusal of Table-15 and Graph-15 show that phosphorus percentage is higher under treatments with both 5 percent water and 5 percent ether extracts. However, effect of 5 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**INFLUENCE OF 12 HRS PRE-SOAKING SEED TREATMENT ON PHOSPHORUS CONTENT IN WHEAT:**

**Effect on Root Constituent:**

A perusal of Table-15 and Graph-15 exhibit that treatments with 5 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of root
GRAPH - 15: EFFECT OF *Lemna paucicostata* EXTRACTS ON PHOSPHORUS CONTENT OF WHEAT

C - CONTROL  
EW - ETHER - WATER EXTRACT  
W - WATER EXTRACT  
6 HRS  
12 HRS  
24 HRS

ROOT

STEM

LEAF

GRAIN
over control. However, 5 percent water extract is comparatively more beneficial than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Stem Constituent:**

An examination of data given in Table-15 and Graph-15 show that treatments with both 5 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of stem over control. However, 5 percent water extract is comparatively more effective than 5 percent ether extract.

Statistical analysis of data shows that observed effect with 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Leaf Constituent:**

Observation of data entered in Table-15 and Graph-15 exhibit that treatments with both 5 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of leaf over control. However, 5 percent water extract is more stimulatory than 5 percent ether extract.
Results were statistically analysed following analysis of variance method and observed effect with 5 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.

**Effect on Grain Constituent:**

A perusal of Table-15 and Graph-15 show that treatments with both 5 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of grain over control. However, 5 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with 5 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.

**INFLUENCE OF 24 HRS PRE-SOAKING SEED TREATMENT ON PHOSPHORUS CONTENT IN WHEAT:**

**Effect on Root Constituent:**

An examination of data given in Table-15 and Graph-15 show that treatments with 2 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of root over control. However, 2 percent water extract is comparatively more beneficial than 5 percent ether extract.
Results were statistically analysed following analysis of variance method and observed effects with both 2 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.

**Effect on Stem Constituent:**

Observations given in Table-15 and Graph-15 show that treatments with both 2 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of stem over control. However, 5 percent water extract is comparatively more effective than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 2 percent water extract is insignificant at 5 percent error probability.

**Effect on Leaf Constituent:**

An examination of Table-15 and Graph-15 exhibit that treatments with 2 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of leaf over control. However, 2 percent water extract is comparatively more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 2 percent water extract is significant at 5 percent error
probability.

**Effect on Grain Constituent:**

Results given in Table-15 and Graph-15 show that treatments with both 2 percent water and 5 percent ether extracts exercise increase in phosphorus percentage of grain over control. However, 2 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are insignificant at 5 percent error probability.
INFLUENCE OF 6 HRS PRE-SOAKING SEED TREATMENT ON POTASSIUM CONTENT IN WHEAT:

Effect on Root Constituent:

Observation exhibit given in Table-16 and Graph-16 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in potassium percentage of root over control. However, 5 percent water extract in comparatively more beneficial towards increasing content than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

Effect on Stem Constituent:

An examination of data entered in Table-16 and Graph-16 exhibit that treatments with 5 percent water and 5 percent ether extracts exercise increase in potassium percentage of stem. However, 5 percent water extract is comparatively more stimulatory than 5 percent ether extract.

Statistical analysis of data shows that observed effect with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.
<table>
<thead>
<tr>
<th>SOAKING PERIOD</th>
<th>ROOT</th>
<th>STEM</th>
<th>LEAF</th>
<th>GRAIN</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
</tr>
<tr>
<td>6 HRS</td>
<td>1.52 1.61 1.68</td>
<td>1.50 1.60 1.68</td>
<td>1.68 1.71 1.80</td>
<td>0.60 0.62 0.67</td>
</tr>
<tr>
<td>12 HRS</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
<td>C 5% EW 5% W</td>
</tr>
<tr>
<td></td>
<td>1.50 1.59 1.63</td>
<td>1.40 1.54 1.63</td>
<td>1.50 1.57 1.59</td>
<td>0.54 0.57 0.65</td>
</tr>
<tr>
<td>24 HRS</td>
<td>C 5% EW 2% W</td>
<td>C 5% EW 2% W</td>
<td>C 5% EW 2% W</td>
<td>C 5% EW 2% W</td>
</tr>
<tr>
<td></td>
<td>1.48 1.51 1.59</td>
<td>1.32 1.50 1.62</td>
<td>1.48 1.52 1.56</td>
<td>0.50 0.56 0.63</td>
</tr>
</tbody>
</table>

C.D. = 0.05
DIFFERENCE: 6 HRS
5% W-C = 0.16
5% EW-C = 0.09
DIFFERENCE: 12 HRS
5% W-C = 0.13
5% EW-C = 0.09
DIFFERENCE: 24 HRS
2% W-C = 0.11
5% EW-C = 0.03

DIFFERENCE: 6 HRS
5% W-C = 0.18
5% EW-C = 0.10
DIFFERENCE: 12 HRS
5% W-C = 0.23
5% EW-C = 0.14
DIFFERENCE: 24 HRS
2% W-C = 0.30
5% EW-C = 0.18

C.D. = 0.09
DIFFERENCE: 6 HRS
5% W-C = 0.12
5% EW-C = 0.03
DIFFERENCE: 12 HRS
5% W-C = 0.09
5% EW-C = 0.07
DIFFERENCE: 24 HRS
2% W-C = 0.08
5% EW-C = 0.04

C.D. = 0.05
DIFFERENCE: 6 HRS
5% W-C = 0.07
5% EW-C = 0.02
DIFFERENCE: 12 HRS
5% W-C = 0.11
5% EW-C = 0.03
DIFFERENCE: 24 HRS
2% W-C = 0.13
5% EW-C = 0.06

Effect on Leaf Constituent:

Results given in Table-16 and Graph-16 show that treatments with 5 percent water and 5 percent ether extracts exercise increase in potassium percentage of leaf over control. 5 percent water extract is comparatively more effective than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed effects with 5 percent water extract is significant at 5 percent error probability.

Effect on Grain Constituent:

A perusal of Table-16 and Graph-16 show that potassium percentage is higher under treatments with both 5 percent water and 5 percent ether extracts. Effect of 5 percent water extract is more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with 5 percent water extract is significant at 5 percent error probability.

INFLUENCE OF 12 HRS PRE-SOAKING SEED TREATMENT ON POTASSIUM CONTENT IN WHEAT:

Effect on Root Constituent:

Results given in Table-16 and Graph-16 exhibit that
treatments with both 5 percent water and 5 percent ether extracts exercise increase in potassium percentage of root over control. However, 5 percent water extract is comparatively more beneficial than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed effects with 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Stem Constituent:**

Observations given in Table-16 and Graph-16 show that treatments with 5 percent water and 5 percent ether extracts exercise increase potassium percentage of stem. Influence of 5 percent water extract is comparatively more effective than 5 percent ether extract.

Statistical analysis of data shows that observed effects with 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Leaf Constituent:**

Observation given in Table-16 and Graph-16 exhibit that treatments with both 5 percent water and 5 percent ether extracts exercise increase in potassium percentage of leaf over control. However, 5 percent water extract is
GRAPH - 16: EFFECT OF *Lemna paucicostata* EXTRACTS ON POTASH PERCENTAGE OF WHEAT

- **C** - CONTROL
- **EW** - ETHER - WATER EXTRACT
- **W** - WATER EXTRACT

- **6 HRS**
- **12 HRS**
- **24 HRS**

**ROOT**

**STEM**

**LEAF**

**GRAIN**
comparatively more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**Effect on Grain Constituent:**

An examination of data given in Table-16 and Graph-16 show that treatments with both 5 percent water and 5 percent ether extracts exercise increase in potassium percentage of grain. Effectiveness of 5 percent water extract is comparatively more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.

**INFLUENCE OF 24 HRS PRE-SOAKING SEED TREATMENT ON POTASSIUM CONTENT IN WHEAT:**

**Effect on Root Constituent:**

Results given in Table-16 and Graph-16 show that treatments with both 2 percent water and 5 percent ether extracts exercise increase in potassium percentage of root over control. However, 5 percent water extract is comparatively
beneficial to larger extent than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increases with 5 percent water extract is significant at 5 percent error probability.

**Effect on Stem Constituent:**

Observations exhibit given in Table-16 and Graph-16 show that treatments with 2 percent water and 5 percent ether extracts exercise increase in potassium percentage of stem over control. However, 5 percent water extract is comparatively more effective than 5 percent ether extract.

Statistical analysis of data shows that observed increase with 5 percent water is significant at 5 percent error probability.

**Effect on Leaf Constituent:**

A perusal of Table-16 and Graph-16 exhibit that treatments with both 5 percent water and 5 percent ether extracts exercise increase in potassium percentage of leaf over control. However, 5 percent water extract is comparatively more stimulatory than 5 percent ether extract.

Results were statistically analysed following analysis of variance method and observed increase with 5 percent water extract is significant at 5 percent error probability.
Effect on Grain Constituent:

An examination of Table-16 and Graph-16 show that treatments with both 2 percent water and 5 percent ether extracts exercise increase in potassium percentage of grain over control. However, 5 percent water extract is comparatively more pronounced than 5 percent ether extract.

Statistical analysis of data shows that observed effects with both 5 percent water and 5 percent ether extracts are significant at 5 percent error probability.