**CONTENTS**

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>INTRODUCTION</strong></td>
<td>1</td>
</tr>
<tr>
<td><strong>REVIEW OF LITERATURE</strong></td>
<td>7</td>
</tr>
<tr>
<td><em>A. The first part</em></td>
<td>7</td>
</tr>
<tr>
<td>A-1. Effect of water on germination and seedlings growth.</td>
<td>7</td>
</tr>
<tr>
<td>A-2. Effect of potassium nitrate (KNO₃) [nutrition treatment] on seed germination and seedling growth.</td>
<td>8</td>
</tr>
<tr>
<td>A-3. Effect of thiourea (Thiocarbamide CH₄N₂S) on germination and seedlings growth</td>
<td>12</td>
</tr>
<tr>
<td>A-4. Yeast extract preparation as a new material for breaking dormancy of seeds</td>
<td>14</td>
</tr>
<tr>
<td><strong>B. The second part</strong></td>
<td>15</td>
</tr>
<tr>
<td>B-Effect of the date of seed collection on some woody trees</td>
<td>15</td>
</tr>
<tr>
<td><strong>MATERIALS AND METHODS</strong></td>
<td>27</td>
</tr>
<tr>
<td><strong>RESULTS AND DISCUSSION</strong></td>
<td>37</td>
</tr>
<tr>
<td><em>A. The first part</em></td>
<td>37</td>
</tr>
<tr>
<td>A- <em>Albizzia lebbeck</em> Benth*</td>
<td>37</td>
</tr>
<tr>
<td>A-1. Effect of potassium nitrate (KNO₃) [nutrition]; thiourea (Thiocarbamide CH₄N₂S) and yeast extract on the germination percentage; rate and periodicity of Albizia lebbeck Benth. during 1999/2000 and 2000/2001 seasons</td>
<td>37</td>
</tr>
<tr>
<td>A-1-1. Germination percentage (%)</td>
<td>37</td>
</tr>
</tbody>
</table>
A-1-2. Germination rate ................................................. 40
A-1-3. Germination periodicity (days) ............................ 41
A-2. Effect of potassium nitrate (KNO₃) [nutrition]; thiourea (Thiocarbamide CH₄N₂S) and yeast extract on the growth of Albizia lebbeck Benth. seedlings at age of 9 months after sowing during 1999/2000 and 2000/2001 seasons .......................... 42
A-2-1. Plant height (cm) ................................................. 42
A-2-2. Number of leaves /plant ....................................... 45
A-2-3. Thickness of stem (mm) ....................................... 46
A-2-4. Root length (cm) ................................................ 46
A-3. Effect of potassium nitrate (KNO₃) [nutrition]; thiourea (Thiocarbamide CH₄N₂S) and yeast extract on the fresh weight of Albizia lebbeck Benth. seedlings at age of 9 months after sowing during 1999/2000 and 2000/2001 seasons .......................... 47
A-3-1. Fresh weight of the stem (gm) ................................ 47
A-3-2. Fresh weight of the leaves (gm) .............................. 50
A-3-3. Fresh weight of the roots (gm) ............................... 51
A-4. Effect of potassium nitrate (KNO₃) [nutrition]; thiourea (Thiocarbamide CH₄N₂S) and yeast extract on the dry weight of Albizia lebbeck Benth. seedlings at age 9 months after sowing during 1999/2000 and 2000/2001 seasons .......................... 52
A-4-1. Dry weight of the stems (gm) ................................. 52
A-4-2. Dry weight of the leaves (gm) ............................... 55
B-3-3. Fresh weight of the roots (gm)................................. 74

B-4. Effect of potassium nitrate (KNO₃) [nutrition]; thiourea (Thiocarbamide CH₄N₂S) and yeast extract on the dry weight of *Taxodium distichum* (L.) Rich. seedlings at age of 9 months after sowing during 1999/2000 and 2000/2001 seasons.............................. 75

B-4-1- Dry weight of the stem (gm).................................. 75

B-4-2. Dry weight of the leaves (gm).................................. 78

B-4-3. Dry weight of the roots (gm)................................... 78

*B-The second part* ....................................................... 82

*A- Albizia lebbeck Benth* .............................................. 82

A-1. Effect of the date of seed collection on the seed chemical content of total phenols (p.p.m.); total amino acids (p.p.m.); total carbohydrates (p.p.m.) and total indoles (p.p.m.) of *Albizia lebbeck* Benth. during 1999/2000 and 2000/2001 seasons ....................... 82

A-1-1. Seed content of total phenols (p.p.m.)....................... 82

A-1-2. Seed content of total amino acids (p.p.m.)................. 85

A-1-3. Seed content of total carbohydrates (p.p.m.)............. 85

A-1-4. Seed content of total indoles (p.p.m.) ..................... 86

A-2. Effect the date of seed collection on the weight of 100 seeds (gm), seeds moisture content (%); germination percentage (%); rate and periodicity (days) of *Albizia lebbeck* Benth. during 1999/2000 and 2000/2001 seasons ................................................. 86

-IV-
A-4-3. Dry weight of the roots (gm) ........................................... 56

B. Taxodium distichum (L.) Rich ........................................ 60

B-1. Effect of potassium nitrate (KNO₃) [nutrition];
    thiourea (Thiocarbamide CH₄N₂S) and yeast extract
    on the germination percentage; rate and periodicity of
    Taxodium distichum (L.) Rich. during 1999/2000 and
    2000/2001 seasons .................................................. 60

B-1-1. Germination percentage (%) ...................................... 60

B-1-2. Germination rate .................................................. 63

B-1-3. Germination periodicity (days) ............................... 64

B-2. Effect of potassium nitrate (KNO₃) [nutrition];
    thiourea (Thiocarbamide CH₄N₂S) and yeast extract
    on the growth of Taxodium distichum (L.) Rich.
    seedlings at age of 9 months after sowing during

B-2-1. Plant height (cm) ............................................... 64

B-2-2. Number of leaves/plant ....................................... 67

B-2-3. Thickness of stem (mm) ...................................... 68

B-2-4. Root length (cm) ............................................... 69

B-3. Effect of potassium nitrate (KNO₃) [nutrition];
    thiourea (Thiocarbamide CH₄N₂S) and yeast extract
    on the fresh weight of Taxodium distichum (L.) Rich.
    seedlings at age of 9 months after sowing during
    1999/2000 and 2000/2001 seasons ............................. 70

B-3-1. Fresh weight of the stem (gm) ............................... 70

B-3-2. Fresh weight of the leaves (gm) ............................ 73
A-2-1. Weight of 100 seeds (gm) .................................................. 86
A-2-2. Seeds moisture content (%) ............................................... 89
A-2-3. Germination percentage (%) .............................................. 90
A-2-4. Germination rate .............................................................. 91
A-2-5. Germination periodicity (days) .......................................... 92
A-3. Effect of the date of seed collection on the growth of
    Albizia lebbeck Benth. seedlings at age of 9 months
A-3-1. Plant height (cm) ............................................................. 93
A-3-2. Number of leaves/plant ................................................... 96
A-3-3. Thickness of stem (mm) ................................................... 97
A-3-4. Root length (cm) ............................................................ 97
A-3-5. Number of nodules / seedling ......................................... 97
A-4. Effect of the date of seed collection on the fresh
    weight (gm) of Albizia lebbeck Benth. seedlings at
    age of 9 months after sowing during 1999/2000 and
    2000/2001 seasons ............................................................... 98
A-4-1. Fresh weight of the stem (gm) ......................................... 98
A-4-2. Fresh weight of the leaves (gm) ...................................... 101
A-4-3. Fresh weight of the roots (gm) ........................................ 101
A-4-4. Fresh weight of the nodules on the roots (gm) .................. 102
A-5. Effect of the date of seed collection on the dry weight
    of Albizia lebbeck Benth. seedlings at age of 9
    seasons ................................................................. 102
A-5-1. Dry weight of the stem (gm).............................. 102
A-5-2. Dry weight of the leaves (gm) ......................... 105
A-5-3. Dry weight of the roots (gm).......................... 105
A-5-4. Dry weight the nodules on the roots (gm).......... 106

B. *Taxodium distichum* (L.) Rich ................................. 108

B-1. Effect of the date of seed collection on the seed chemical content total phenols (p.p.m.); total amino acids (p.p.m.); total carbohydrates (p.p.m.) and total indoles (p.p.m.) of *Taxodium distichum* (L.) Rich. during 1999/2000 and 2000/2001 seasons ..................... 108

B-1-1. Seed content of total phenols (p.p.m.).............. 108
B-1-2. Seed content of total amino acids (p.p.m.)........ 111
B-1-3. Seed content of total carbohydrates (p.p.m.)...... 111
B-1-4. Seed content of total indoles (p.p.m.).............. 111

B-2. Effect of the date of seed collection on the weight of 100 seeds (gm); seed moisture content (%); germination percentage (%); rate and periodicity (days) of *Taxodium distichum* (L.) Rich. during 1999/2000 and 2000/2001 seasons ...................... 112

B-2-1. Weight of 100 seeds (gm)............................... 112
B-2-2. Seeds moisture content (%)........................... 115
B-2-3. Germination Percentage (%).......................... 115
B-2-4. Germination rate ........................................ 117
B-2-5. Germination periodicity (days) ....................... 118

B-3-1. Plant height (cm) .................................................. 118
B-3-1. Number of leaves/plant........................................... 121
B-3-3. Thickness of stem (mm) ........................................... 121
B-3-4. Root length (cm) .................................................. 122


B-4-1. Fresh weight of the stem (gm) ................................. 123
B-4-2. Fresh weight of the leaves (gm) ............................... 123
B-4-3. Fresh weight of the roots (gm) ................................. 126


B-5-1. Dry weight of the stem (gm) ................................. 127
B-5-2. Dry weight of the leaves (gm) ............................... 127
B-5-2. Dry weight of the roots (gm) ................................. 130

C. *Cupressus sempervirens* L ...................................... 132

-VII-
C-1. Effect of the date of seed collection on the seed chemical content of total phenols (p.p.m.); total amino acids (p.p.m.); total carbohydrates (p.p.m.) and total indoles (p.p.m.) of *Cupressus sempervirens* L. during 1999/2000 and 2000/2001 seasons .................................. 132

C-1-1. Seed content of total phenols (p.p.m.) .................................. 132

C-1-2. Seed content of total amino acids (p.p.m.) .......................... 135

C-1-3. Seed content of total carbohydrates (p.p.m.) .............. 135

C-1-4. Seed content of total indoles (p.p.m.) ............................... 136

C-2. Effect of the date of seed collection on the weight of 100 seeds (gm); seeds moisture content (%); germination percentage (%); rate and periodicity (days) of *Cupressus sempervirens* L. during 1999/2000 and 2000/2001 seasons .................................. 137

C-2-1. Weight of 100 seeds (gm) .................................. 137

C-2-2. Seeds moisture content (%) .................................. 137

C-2-3. Germination Percentage (%) .................................. 140

C-2-4. Germination rate .................................. 141

C-2-5. Germination periodicity (days) .................................. 142

C-3. Effect of the date of seed collection on the growth of *Cupressus sempervirens* L. seedlings at age of 9 months after sowing during 1999/2000 and 2000/2001 seasons .................................. 143

C-3-1. Plant height (cm) .................................. 143

C-3-1. Number of leaves /plant .................................. 143
C-3-3. Thickness of stem (mm) ........................................ 146
C-3-4. Root length (cm) .................................................. 146
C-4. Effect of the date of seed collection on the fresh weight of Cupressus sempervirens L. seedlings at age of 9 months after sowing during 1999/2000 and 2000/2001 seasons ........................................ 147
C-4-1. Fresh weight of the stem (gm) ................................. 147
C-4-2. Fresh weight of the leaves (gm) ............................... 147
C-4-3. Fresh weight of the roots (gm) ................................. 150
C-5. Effect of the date of seed collection on the dry weight of Cupressus sempervirens L. seedlings at age of 9 months after sowing during 1999/2000 and 2000/2001 seasons ........................................ 151
C-5-1. Dry weight of the stem (gm) ................................. 151
C-5-2. Dry weight of the leaves (gm) ............................... 151
C-5-2. Dry weight of the roots (gm) ................................. 154
SUMMARY ................................................................. 156
REFERENCES .............................................................. 165
ARABIC SUMMARY ......................................................... 16-1