**Introduction**

The presence of leaves and buds on cuttings has been shown to have beneficial effects toward rapid and successful rooting. The production of carbohydrates, auxins, and various co-factors in the leaves are translocated to the basal portion of the stem where they are used in the formation of adventitious root initiation. This laboratory exercise investigates the effects of leaves on the position and formation of roots.

**Objectives**

To examine the influence of leaf area on the formation and development of adventitious roots.

**Materials**

*Dendranthema* (mum) cuttings
- Propagation knife
- Labels
- Markers
- Medium
- Propagation flats

**Procedures**

1. Work in pairs
2. Select 25 uniform cuttings
3. Re-cut base of each cutting
4. Treatments - Leave the following number of expanded leaves on the cutting from the distal end down
   - 1. 4 leaves
   - 2. 3 leaves
   - 3. 2 leaves
   - 4. 1 leaf
   - 5. 0 leaves
5. Plant in media, firming medium around base. You may use the same flat as for the previous experiment if space is available.
6. Place under mist
Data will be collected in lab in two weeks, although it may be necessary for you to come in either the day before or the day after to collect additional data if there isn’t sufficient time to complete the analysis during lab time.

Carefully remove cuttings from the flat and wash the medium off the roots in the bucket of water provided. DO NOT RINSE THE CUTTINGS IN THE SINK! Use moistened newspaper and the labels to keep the cuttings grouped together.

Evaluate the cuttings based on the same visual rating scale from 1-5 as was done in the experiment on ‘Effects of growth regulators on rooting.’

Record your results in tables similar to the on

Prepare an appropriate presentation and summary of your data.

Compare your results between the treatments. What were the effects of reduced leaf area on the rooting response? Did the position of the adventitious roots on the base of the stem change with the position and number of leaves remaining on the cutting.

**DATA FOR INFLUENCE OF LEAF AREA ON ROOT DEVELOPMENT**

<table>
<thead>
<tr>
<th>TREATMENT</th>
<th>CUTTING NUMBER</th>
<th>AVERAGE VISUAL SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1 2 3 4 5</td>
<td></td>
</tr>
<tr>
<td>4 LEAVES</td>
<td></td>
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</tr>
<tr>
<td>3 LEAVES</td>
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<tr>
<td>2 LEAVES</td>
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</tr>
<tr>
<td>1 LEAF</td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 LEAVES</td>
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</tbody>
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