Procedure for Preserving Plant Specimens with 10% Formalin

• Safety Precautions:

- 1. Wear appropriate personal protective equipment or gear (PPE): gloves, goggles, & a lab coat.
- 2. Work in a well-ventilated area or under a fume hood to avoid inhaling fumes.



Materials Needed:

- 1. 37% formalin (formaldehyde) sol.
- 2. Distilled water.
- 3. Measuring cylinders or graduated pipettes.
- 4. Clean containers with lids (e.g., glass jars or plastic containers).
- 5. Specimens.
- 6. Marker for labelling.

Correct Dilution Method

To make a 10% formalin solution from a 37% formalin stock solution:

• Desired Concentration:

Final concentration required: 10% formalin.

• Calculation:

Use the formula: C1V1=C2V2

Where,

C1 = initial concentration (37% Formaldehyde sol.)

V1 = Volume of the stock sol. Needed.

C2 = Final Concentration (10%)

V2 = final volume (1000 mL suppose in this case)

Now, Putting the values accordingly in the above formula;

So,

$$37\% \times V1 = 10\% \times 1000 \text{ mL}$$
 $37\% \times V1 = 10\% \times 1000 \text{ mL}$ $V1 = 10\% \times 1000 \text{ mL}$ $\div 37\% = 270 \text{ mL}.$

Preparation of 10% Formalin Solution

- 1. Measure 270 mL of the 37% formalin stock solution.
- 2. Pour this 270 mL of formalin into a container.
- 3. Add 730 mL of distilled water to the container with the formalin to make a total volume of 1000 mL.
- 4. Mix thoroughly to ensure the solution is uniform.

Preparation of Specimens

- 1. Clean the specimens (suppose we are working with potatoes & cherries) thoroughly to remove any dirt or debris.
- 2. Allow them to dry completely to avoid dilution of the formalin solution.

Submersion of Specimens

- 1. Place the cleaned and dried specimens into separate clean containers.
- 2. Pour the prepared 10% formalin solution over the specimens until they are fully submerged.
- 3. Ensure there are no air bubbles trapped around the specimens.

Sealing and Labeling

 Seal the containers tightly to prevent evaporation and contamination.

Label each container with important details:

- 1. Type of specimen.
- 2. Date of preservation.
- 3. Concentration of the formalin solution (10%).
- 4. Any other relevant information (e.g., experiment number, your name).

Storage

- 1. Store the containers in a cool, dark place to minimize degradation of the formalin & ensure long-term preservation.
- 2. Keep a record of the storage conditions & any observations over time.

Documentation

Document the entire process meticulously in a notebook, including:

- 1. Preparation steps.
- 2. Observations on the condition of the specimens before & after preservation.
- 3. Any issues encountered & how they were resolved.
- 4. Date & time of each step.

Monitoring and Data Collection

- 1. Periodically check the specimens for any signs of decay or changes in appearance.
- 2. Record your observations & any data relevant to your plant pathology experiment.

<u>Disposal</u>

Dispose of any excess formalin solution & contaminated materials according to your institution's (BACQ) safety guidelines & local regulations.

In Short, by following these steps, you will be able to preserve your plant specimens effectively using a 10% formalin solution, ensuring that they remain in good condition for your plant pathology experiments. This method helps prevent microbial growth & decay, providing you with stable specimens for your study.

Dedicated to the students at BACQ. Your commitment to agricultural research is inspiring.

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