How to Prepare a Wet Mount Slide for Microscopy

This SOP describes how to prepare a wet mount slide for microscopy using an Elodea (freshwater plant) leaf as the test specimen. Follow this procedure to produce a slide suitable for light microscope observation, such as for a photosynthesis lab.

Purpose

This method describes the preparation of a wet mount slide for direct microscopic observation of a plant specimen. The intended analytical use is qualitative visual examination of Elodea leaf structure under a light microscope, as required for photosynthesis lab work.

Scope

This procedure applies to fresh, thin plant specimens such as Elodea leaves mounted in water on a glass slide with a cover slip. It covers materials preparation, mounting, and final slide inspection prior to microscope use.

- Sample type: Elodea (freshwater plant) leaf
- Matrix: Water (used as the mounting medium)
- Instrument: Light microscope (slide is prepared for placement on the microscope stage; observation itself is outside this procedure)
- Analysts: Any individual performing microscopy specimen preparation, such as lab students
- Exclusions: This procedure does not cover dry mounts, permanent (fixed) mounts, or specimens other than thin plant leaf tissue

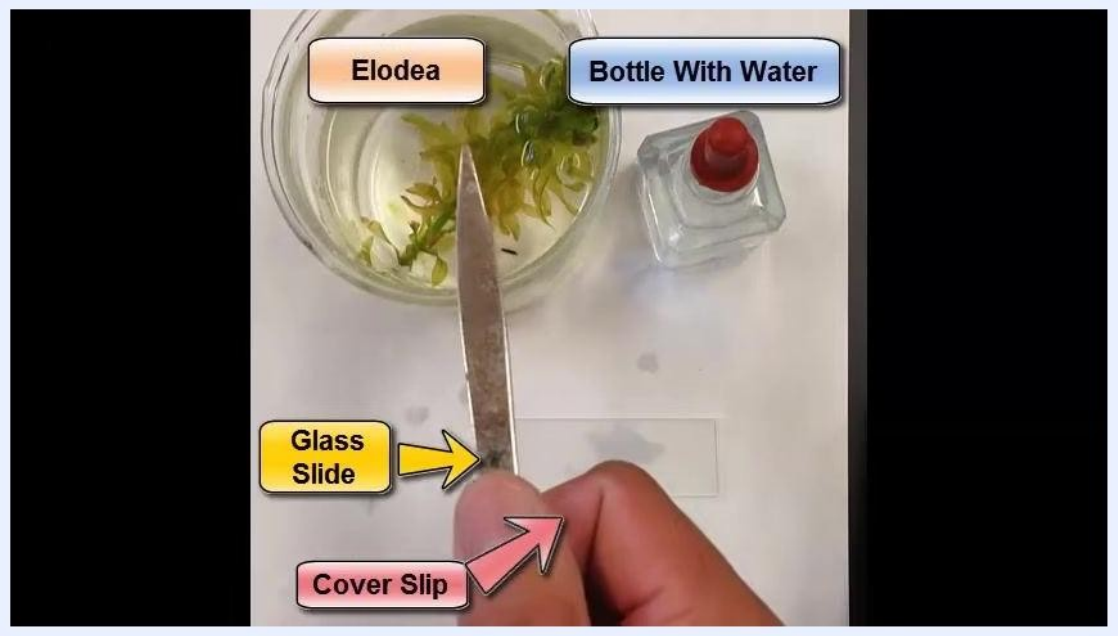
Principle

A wet mount slide suspends a thin specimen in a drop of water between a glass slide and a cover slip. The water medium keeps the specimen hydrated and allows light to pass through it for observation under a microscope. Minimizing trapped air bubbles is essential, since bubbles can be mistaken for cells or other structures during observation.

Materials and Reagents

Item	Description	Preparation/Storage Notes
Glass slide	Clean, rectangular transparent glass piece	Must be clean and free of dust or debris before use
Cover slip	Small, square plastic piece	Handle carefully to avoid cracking
Dropper bottle with water	Bottle fitted with a dropper, filled with water	Recap after use
Elodea specimen	Sample of Elodea (freshwater plant), kept in a bowl of water	Return unused portion to the bowl after use
Tweezers	Used to handle the Elodea leaf	Keep clean between uses
Pencil or pen	Sharp pencil or pen used as a support tool	Any standard pencil or pen is suitable

Arrange all materials on a clean, flat surface within easy reach before beginning.

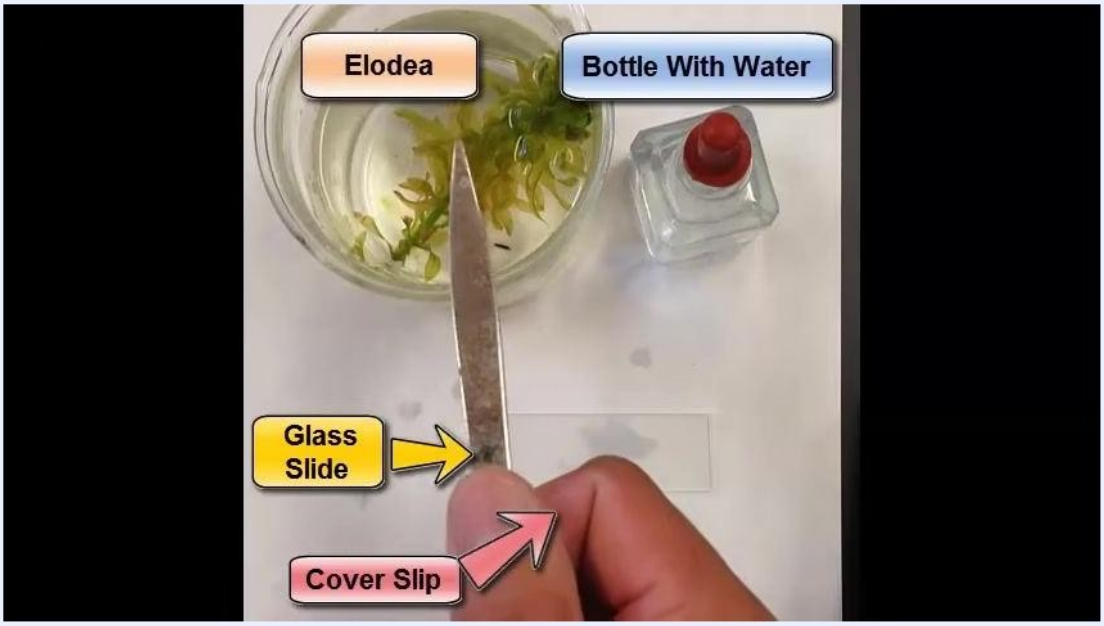


Top-down view of a bowl with Elodea plant in water, a dropper bottle with a red cap, a glass slide, and a cover slip on a white surface.

Confirm the identity of each labeled component before starting the procedure:

- Glass Slide: the rectangular transparent piece
- Cover Slip: the small square plastic piece
- Bottle With Water: the dropper bottle

- Elodea: the green plant in the bowl



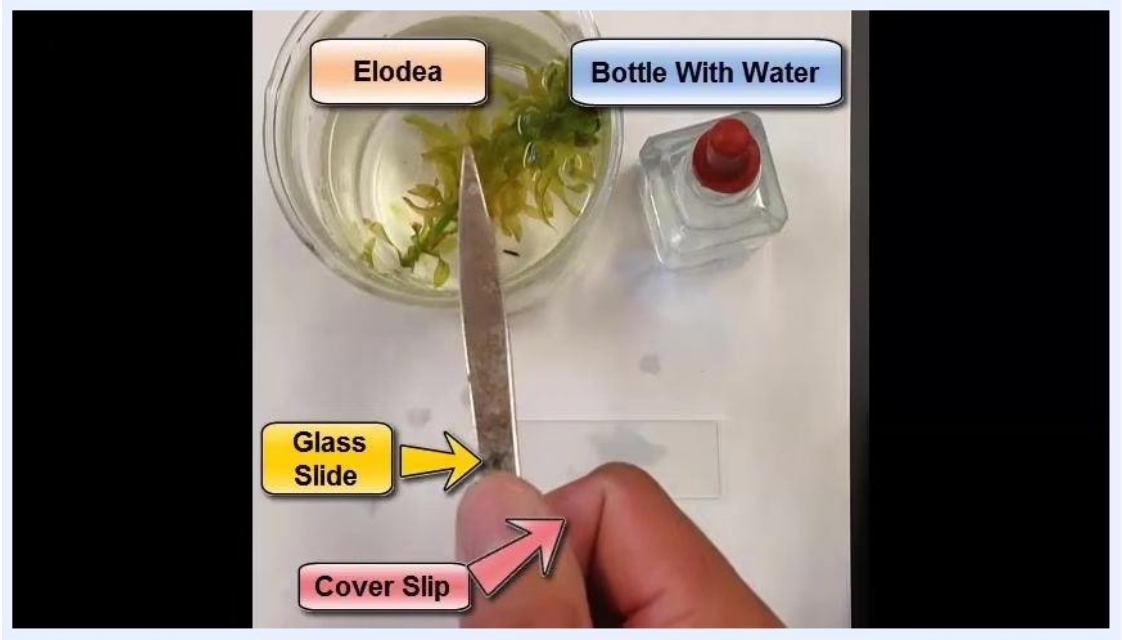
All prepared components labeled: Elodea, water bottle, glass slide, and cover slip, with a hand holding tweezers.

Procedure

Step 1: Add water to the glass slide

- Use the dropper bottle to place 2–3 drops of water onto the center of the glass slide.
- Add an extra drop if the specimen is thick, such as with Elodea leaves, to ensure adequate coverage.

- Confirm the water forms a neat bead centered on the slide, not off to the sides.

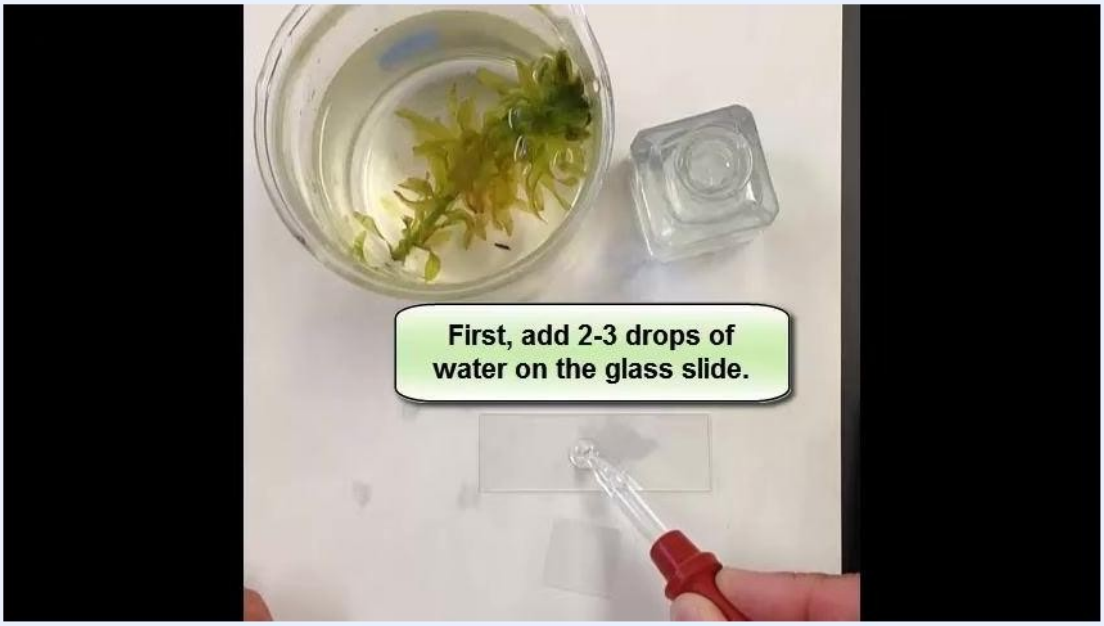


A hand uses a dropper to add water to the center of the glass slide, with instructional text reading: "First, add 2-3 drops of water on the glass slide."

Step 2: Prepare and place the specimen

- Use tweezers to gently pick a single leaf from the Elodea plant.

- Carefully lower the leaf into the water drops on the slide.



A hand uses tweezers to lower an Elodea leaf into the water drops on the glass slide, with instructional text reading: "Second, lower specimen into the water drops."

Step 3: Position the cover slip

- Hold the cover slip upright so that one edge touches the slide next to the water drop.
- Rest the cover slip on a pencil or pen for control as you lower it onto the specimen.

- Lower the cover slip gradually to avoid trapping air bubbles.

A hand positions the cover slip at an angle, ready to lower it onto the specimen, with instructional text reading: "Lastly, slowly lower the cover slip onto the specimen."

Step 4: Use a pencil or pen to guide placement

- Rest the cover slip on the pencil or pen while lowering it for a gentle, controlled placement.

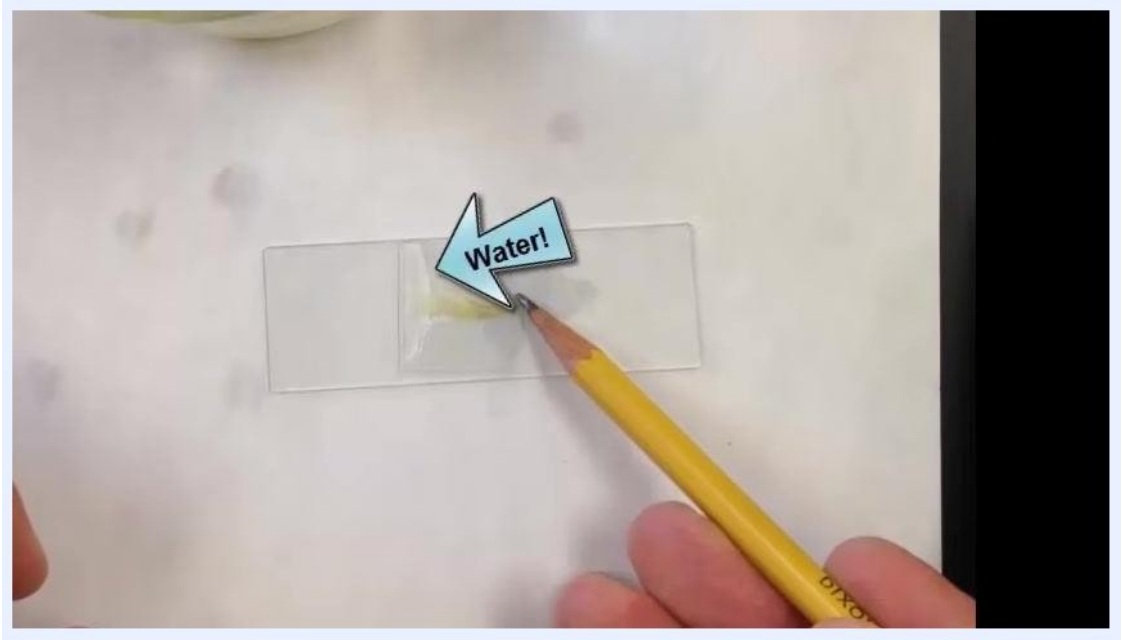
- This technique helps prevent air bubbles and keeps the specimen in place.

A hand uses a yellow pencil to help lower the cover slip onto the specimen on the glass slide.

Step 5: Allow the water to spread and remove the support tool

- Observe the water spreading beneath the cover slip as it is lowered; this helps fully immerse the specimen and reduces the chance of air bubbles.

- Once the cover slip is nearly flat against the slide, gently pull the pencil or pen away to let the cover slip settle onto the specimen.



A hand uses a yellow pencil to support the cover slip as water spreads underneath it, with the word "Water!" labeled by an arrow pointing to the water on the slide.

Step 6: Adjust for thick specimens

- If the Elodea leaf is thick and holds the cover slip up slightly, do not force the cover slip down abruptly.
- Use the pencil or pen to softly and gradually press down on the cover slip.

- Apply gentle, even pressure to avoid cracking the cover slip, and let air escape slowly from beneath it as you press.

A hand uses a yellow pencil to gently press down on the cover slip, ensuring it lies flat while air escapes.

Step 7: Finalize and clean up

- Inspect the slide to confirm there are no, or very few, air bubbles trapped under the cover slip.

- Once the cover slip is flat and the specimen is fully immersed, the wet mount slide is ready. Carefully move it to the microscope stage for observation.

A hand has finished adjusting the cover slip; the wet mount slide is complete and ready for observation.

- Return unused Elodea to the bowl, recap the water dropper bottle, dispose of any waste, and wipe down the work area.

Top-down view of the completed wet mount slide, the bowl of Elodea, and the water dropper bottle on a clean workspace.

Calculations

This procedure is qualitative and does not involve numerical calculations, dilution factors, or reported measurement values; the wet mount slide is prepared for direct visual observation only.

Quality Controls

- Air bubble check: Inspect the finished slide for trapped air bubbles under the cover slip before observation.
- Acceptance criteria: The slide should contain no, or very few, air bubbles, since bubbles can be mistaken for cells or other structures during microscopic examination.
- Failed-preparation handling: If air bubbles are present, gently tap or press the cover slip to release them; if bubbles persist or the specimen is not fully immersed, remove the cover slip and repeat the mounting steps with fresh water drops.
- Always lower the cover slip slowly and use the pencil-or-pen support technique to minimize the risk of trapped air.