



GROWING WATERCRESS & TESTING NITRATE LEVELS IN WATER

Name: _____

Date: _____

BACKGROUND

Nitrates are chemicals that can be found in natural waters and in water polluted by fertilizers, sewage, or runoff. Plants like watercress can absorb nitrates from water. In this experiment, you will grow watercress in different water samples and test the nitrate levels before and after to see how much nitrate the plants remove.

MATERIALS

- Watercress seeds
- 3 shallow containers or trays
- Paper towels or growing mats
- 3 different water samples (examples below)
- Nitrate test kit (strips or liquid test kit)
- Clear cup or small beaker
- Ruler
- Notebook or lab journal
- Labels or masking tape & marker

Examples of water samples:

- Tap water (control)
- Pond or creek water
- Water with a small amount of fertilizer (e.g., 1/4 tsp aquarium or plant fertilizer per liter of water)

VARIABLES

- **Independent Variable:** Type of water (different nitrate levels)
- **Dependent Variables:** Nitrate level (mg/L), plant growth (height or mass)
- **Controlled Variables:** Amount of water, number of seeds, light exposure, temperature, container type

DATA TABLE

Water Sample (Write type)	Nitrate Level (mg/L)		Change in Nitrate (mg/L)	Average Plant Height (cm) Day 7
	Day 0 (Before)	Day 7 (After)		
1.				
2.				
3.				

Note: mg/L = milligrams per liter (ppm)



PROCEDURE

- 1 Prepare the Containers**
Place paper towels or growing mats in each container. Sprinkle a similar amount of watercress seeds evenly in each container.
- 2 Add Water Samples**
Moisten each container with one type of water. Make sure each container has the same amount of water.
- 3 Initial Nitrate Test (Day 0)**
Collect a small sample of each water. Use the nitrate test kit to measure and record the initial nitrate level for each sample in the data table.
- 4 Grow the Watercress**
Place containers in a spot with bright, indirect light. Keep the mats moist by adding the same amount of water as needed. Do not let them dry out.
- 5 Final Nitrate Test (Day 7)**
After 7 days, collect a small sample of water from each container. Test and record the nitrate level.
- 6 Measure Plant Growth**
Measure the average height of the plants in each container (cm) or harvest and compare mass (g). Record in the data table.
- 7 Analyze Results**
Calculate the change in nitrate level (Day 0 – Day 7). Compare how much nitrate was removed in each water sample and how the plants grew.

OBSERVATIONS & CONCLUSIONS

What did you observe about the nitrate levels in each water sample? _____

Which water sample had the greatest decrease in nitrate? _____

How did the plant growth compare between the samples? _____

What can you conclude about watercress and nitrates? _____

