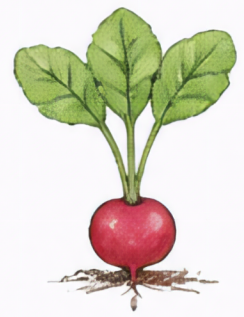


GROWING RADISHES

& MEASURING THEIR RESPONSE TO FERTILIZER CONCENTRATION



QUESTION

How does different fertilizer concentration affect the growth of radishes?

PURPOSE

To investigate how increasing fertilizer concentration in water affects the growth (height and root size) of radishes.

MATERIALS

- Radish seeds (same variety)
- 4–5 small pots or cups (with drainage)
- Potting soil
- Liquid fertilizer (balanced, e.g., 10-10-10)
- Watering can or graduated cup
- Ruler (cm/mm)
- Labels or marker
- Notebook or data sheet (this page)

EXPERIMENT SETUP

1. Label each pot with the fertilizer concentration you will use.
2. Prepare fertilizer solutions using the table below.
3. Fill each pot with potting soil and plant 2–3 radish seeds per pot, about 1 cm deep.
4. Water each pot with its assigned fertilizer solution.
5. Keep all pots in the same location with the same amount of light.
6. Water daily with the same solution and volume for each pot.
7. Measure and record plant height every 2–3 days. At the end, harvest and measure root length.



KEEP CONSTANT

Same seed type, soil, pot size, light, water amount, and temperature.

HARVEST & FINAL MEASUREMENTS

1. On the final day, gently pull one radish from each pot.
2. Rinse off soil.
3. Measure root length from the top of the root (crown) to the tip.
4. Record in the data table.

FERTILIZER CONCENTRATIONS

POT LABEL	FERTILIZER CONCENTRATION	LIQUID FERTILIZER (to make 1 liter of solution)	EXAMPLE: FERTILIZER + WATER
A (Control)	0% (No fertilizer)	0 mL fertilizer	0 mL fertilizer + 1000 mL water
B	25%	2.5 mL fertilizer	2.5 mL fertilizer + 997.5 mL water
C	50%	5 mL fertilizer	5 mL fertilizer + 995 mL water
D	100%	10 mL fertilizer	10 mL fertilizer + 990 mL water
E	200%	20 mL fertilizer	20 mL fertilizer + 980 mL water

Note: Adjust amounts if your fertilizer instructions use a different rate. Keep the ratios consistent.

DATA TABLE

Measure plant height from soil line to the top of the tallest leaf.

DAY	PLANT HEIGHT (cm)					OBSERVATIONS (leaf color, vigor, etc.)
	A (0%)	B (25%)	C (50%)	D (100%)	E (200%)	
Day 0 (Planting)						
Day 3						
Day 3						
Day 6						
Day 9						
Day 12						
Day 15 (or final)						
Final Root Length (cm)						

ANALYSIS & CONCLUSION

1. Which fertilizer concentration produced the tallest plants? _____
2. Which fertilizer concentration produced the longest roots? _____
3. How did increasing fertilizer concentration affect growth? _____

4. What do you think would happen at concentrations higher than 200%? Why? _____

5. What was one thing you learned from this experiment? _____