

Tiger Salamander

pHatal pHormula

What you'll need!

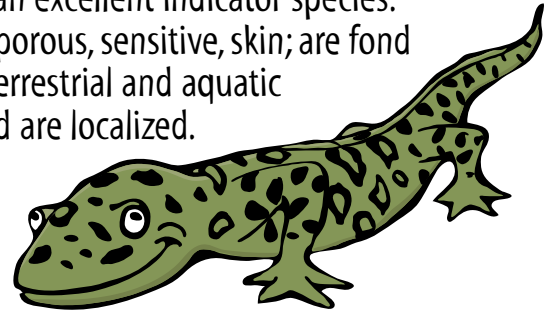
- sliced red cabbage (green cabbage won't work!)
- casserole dish
- 250 ml water
- 1/2 tsp. white vinegar
- 1/2 tsp. baking soda
- 1 tsp. clear, non-cola, carbonated beverage
- 3 clear glasses
- 3 clean teaspoons for stirring



Salamanders are an excellent indicator species. They have a very porous, sensitive, skin; are fond of living in both terrestrial and aquatic environments; and are localized.

If the salamander population in a region dies out, we can be quite

certain that it was something in that local environment that caused their death.



In some parts of North America acid rain has had an impact on salamander populations. Amphibians are very sensitive to extreme pH that can be caused by acid rain. Do this experiment and figure out what can change the pH of a liquid.

What you do:

1. Microwave or boil red cabbage in 250 ml of water for 10 minutes. (Ask an adult for help with this)
2. Let the cabbage-water cool.
3. Pour about 75 ml of cabbage juice into each glass.
4. Add 1/2 tsp. ammonia or baking soda to one glass, stir with a clean spoon.
5. Add 1/2 tsp. vinegar to second glass, stir with a clean spoon.
6. Add about 1 tsp. clear, carbonated beverage to the last glass, stir with a clean spoon.
7. Record what happens in each glass.
8. Pour the contents of the vinegar glass into the ammonia cup and note what happens.

Tiger Salamander

pHatal pHormula

Ask yourself

- Record and draw the results for each glass.
- What happens to the cabbage water when you add the three substances?
- What happens when you mix the vinegar mixture with the ammonia mixture?
- Why do you think the substances cause different results?
- Try the test again with different liquids (dish soap, orange juice, milk, or pond water).

What you find out?

Boiled red cabbage juice has a natural compound that makes it a good pH indicator. In acidic conditions, the juice turns red, while in basic or alkaline solutions it turns blue. Common, everyday items can be tested to determine if they are acidic or alkaline. Liquids that are either very acidic or very alkaline are more dangerous for animals like salamanders.

Specific Learner Expectations (SLE)

Grade 5 Topic C: Classroom Chemistry.

SLE 9: Use an indicator to identify a solution as acidic or basic.

Grade 5 Topic E: Wetland Ecosystems.

SLE 9: Identify human actions that can threaten the abundance or survival of living things in wetland ecosystems e.g., adding pollutants.