

GLOWING SPINACH

Learn about the powerhouse of plants with this experiment viewing glowing chlorophyll!

INSTRUCTIONS

STEP 1: Place some spinach into a zip bag and use the hammer to crush it.

STEP 2: Add an ounce of ethanol (vodka, some hand sanitizers or rubbing alcohol)

STEP 3: Continue to smash the spinach and ethanol together to form a green liquid.

STEP 4: Snip a tiny corner of the bag and pour the liquid into one of the small glasses.

STEP 5: Now add an ounce of water to the other glass and add a drop of green food coloring. Mix.

STEP 6: Turn out the lights and shine the UV light onto each glass. Do you see a difference? Record your observations.

THE SCIENCE

Chlorophyll is like a special material in plants. It can grab different types of light energy, like blue, red, and even a bit of ultraviolet (UV) light.

When chlorophyll takes in UV light, it gets very excited, like a kid who just got a new toy. This makes some parts of it move faster. This is called fluorescence.

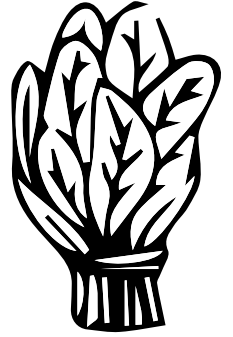
But, just like a kid who can't stay excited forever, the chlorophyll eventually calms down. When it does, it lets out some of that extra energy as a special kind of light that we can see. This light is usually red. So, it's like the plant is showing off its red glow because it got so excited by the UV light.

SUPPLIES

Spinach
Zip bag
Hammer
Ethanol
2 small glasses
Green food coloring
Scissors
Black / UV light

Glowing Spinach Observations

Use this worksheet to process and evaluate your work.



Do you predict that both glasses will look the same under the UV light?

What did you see?

Do you think this will happen with any green plant?

Try the experiment with a green leaf from a tree.

What did you learn about fluorescence and chlorophyll?



