



Kool-Aid® and Powder Fabric Dye Electrophoresis

An excellent introduction to electrophoresis

Kool-Aid®:

In a beaker, add 95mL of water and ~5mL of glycerol.
Pour entire package (small) of Kool-Aid into the water/glycerol solution.
Divide the solution into microcentrifuge tubes.
Label and date all tubes. Store in the refrigerator.

Powder Fabric Dye:

In a beaker, place 50mL of water and ~5mL of glycerol.
Mass 0.5g powdered fabric dye and add to water/glycerol solution.
Divide solution into microcentrifuge tubes.
Label and date all tubes. Store in the refrigerator.

TAE: We usually have a 50X solution, and we need a 1X solution to fill the tank and make the agarose gel.

The tank needs ~ 1200 mL of 1X TAE and we need 120 mL for the agarose.

Using $C_1V_1 = C_2V_2$, determine how to make 1400 mL of 1X TAE.

$$(50X) X (?) = 1400 \text{ mL } X (1X)$$

Then, using BTV, you will...

Hint: Does 1372 mL apply?

Agarose:

Also, we need ~ 120 mL of agarose solution for our gel.

Make an 0.8% agarose gel with 1X TBE buffer.

$$0.008 \text{ g/ml } X 120 \text{ mL} = 0.96\text{g}$$

Place 0.96g of agarose in flask, and BTV 120 mL.

Heat and mold the gel as described.

Please note: The smaller gels require 70mL of agarose solution. Using the same calculations above, one would add 0.56g agarose to 70 mL of TAE.

Electrophorese the Kool-Aid® solutions for 10-15 minutes at 100 volts.

Our favorite results have come from Kool-Aid® flavors: grade, orange, and lemon lime

Our favorite results from powder fabric dye: sunset orange, royal blue, green, and purple