Friedrich-Alexander-Universität Erlangen-Nürnberg

DESIGN OF PARTICULATE PRODUCTS

Experiment: DIY Candy Chromatography

Target groups: Children aged 6-12 and their parents

Project: Find optimum materials and conditions for a chromatographic experiment designed with materials that can be found in every household.

Materials

- Color samples: M&Ms, Smarties or Skittles
- Eluent: water, ethanol (desinfectant solution) or mixture (clear spirit, vodka etc)
  Parents: Please follow the safety instructions on the product to be tested as an eluent and provide adequate supervision
- Stationary phase: non-coated paper, tissue or paper towel,
- Jam jar
- Toothpicks
- Ruler
- Pencil
- Paper plate

Procedure:

Step 1: Take a few drops of water on a paper plate and put the candies in it. After about 5 min, the color of the candy comes out completely.

Step 2: For the stationary phase, take a double folded tissue paper ca. 4x8 cm. Make a line with the ruler 1 cm from the lower edge. Make 3-5 crosses on the line.

Step 3: Dip the toothpick in the colored solution and transfer it to the crosses on the tissue paper. Now your sample is ready!

Step 4: Fill the eluent, which is either water/disinfectant solution into the jam jar ca. 0.5 cm high. Carefully put the tissue paper into the jar and close the jar. Stabilize pieces of tissue paper by sticking to the toothpick if needed.

Step 5: Wait for about 5-10 mins for the eluent to run through the length of the stationary phase.

Result/What to expect:

What we can see on the tissue paper is what is called a chromatogram.

The different colors of M&Ms move at different speeds through the tissue paper.

Some candy contains a coating that is a mixture of two or more colors and therefore get split into these. For example, the green color gets split into yellow and blue and the brown color gets split into green, yellow and red.

You can also try it with different colored candy. Try to predict your results!