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| CHAPTER 14 | Launch Lab: Familiar Organic Compounds | BLM 14.0.3 |
| HANDOUT | | |
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Familiar Organic Compounds

A derivative of salicylic acid called methyl salicylate is easily detected by the characteristic “medicinal” smell it gives to plants that contain it. In this activity, you will prepare methyl salicylate from salicylic acid and identify the common chemical name for this compound from its characteristic aroma.

Safety Precautions



- Methanol is flammable. Ensure that there are no open flames in the laboratory. Use a hot plate.
- Methanol is toxic. If it gets on your skin, rinse with copious amounts of water and notify your teacher.
- $\text{H}_2\text{SO}_4(\text{aq})$ is corrosive. Use extreme caution. In the case of accidental spills, rinse skin and clothing with plenty of cold water and notify your teacher.
- The boiling point of methanol is 64.7°C . When heating, be sure to point the mouth of the test tube away from others. Avoid overheating the methanol.

Materials

- hot plate or electric kettle
- small test tube
- rubber stopper to fit test tube
- test-tube rack
- beaker tongs
- test-tube clamp
- water
- salicylic acid
- methanol
- 3.0 mol/L sulfuric acid, $\text{H}_2\text{SO}_4(\text{aq})$
- 1.0 mol/L sodium carbonate, $\text{Na}_2\text{CO}_3(\text{aq})$
- 100 mL graduated cylinder
- 250 mL beaker

Procedure

1. Using the graduated cylinder, measure 100 mL of water and pour it into a 250 mL beaker. Place the beaker on a hot plate and bring the water to a gentle boil (or boil water in the kettle).
2. Place one drop of salicylic acid in a test tube. Add three drops of methanol to the test tube, and then add one drop of 3.0 mol/L $\text{H}_2\text{SO}_4(\text{aq})$. Insert a rubber stopper firmly into the test tube. Place the test tube in the test tube rack.
3. Using tongs, remove the beaker of boiling water from the hot plate. Place the test tube in the hot water and allow it to stand for 8 to 10 min. Do not allow water to enter the test tube.
4. Remove test tube from the water bath by using the test tube clamp. Add four drops of 1.0 mol/L $\text{Na}_2\text{CO}_3(\text{aq})$ to the tube. Swirl gently.
5. Wave the aroma gently toward your nose. Record your observations of the aroma. Dispose of all materials as directed by your teacher.

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Analysis

1. Based on the aroma, what commercial products do you think would contain methyl salicylate?

2. What is the common name for methyl salicylate?