Experiment 12: Analgesic Drug TLC Analysis

Exploring mixtures of common pain relievers using the TLC technique.

Preparations

Read: Experiment 12 - Analgesic Analysis (page 34)
Technique 20 - Thin Layer Chromatography
Essay - Analgesics
Essay - Identification of Drugs

Do: Prepare your lab notebook:
- State experiment objectives (for each part assigned)
- List materials used w/ properties (solvents used in previous experiments do not need to be repeated)
- Make a procedures bullet list (for each part assigned)

Intended Learning Outcomes

* Recognize the carboxyl functional group and identify substances that are carboxylic acids.
* Know carboxylic acids have higher boiling and melting points that even alcohols.
* Know carboxylic acids with up to four carbons are very soluble in water.
* Show with an arrow pushing mechanism how carboxylic acids can release hydrogen ion.
* Explain why the water solubility of carboxylic acids can be greatly increased with even mild bases.
* Identify an ester group and substances than are esters.
* Explain why chemists modified salicylic acid to prepare methyl salicylate.
* Identify differences in properties between salicylic acid and methyl salicylate.
* Explain how structural differences produce these differences in properties.
* Predict the product of a carboxylic acid and an alcohol under acidic conditions.
* Identify conditions or predict the product for saponification or hydrolysis of an ester.
* Recognize esters are responsible for many fruity flavors and floral fragrances.

Report

Prepare a report for this experiment according to this experiments report description for the parts we accomplished. Include the questions with answers for this experiment, except any your instructor tells you to omit.