



Experiment 17: Isolation of Chlorophyll

Understand how column chromatography can be used to selectively identify and isolate substances from a mixture. Apply chromatography to the isolation of naturally occurring organic substances, including chlorophyll and natural pigments.

Preparations

Read: Experiment 17 - Isolation of Chlorophyll (page 144)

Technique 19 - Column Chromatography

Review: Technique 5, 6 and 20

Essay - Chemistry of Vision

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

- * Know column chromatography can be used to separate substances with very small differences in solubility.
- * Understand differences in solubility produce differences in the speed a substance moves through a column.
- * Given two structures, predict which substance will move faster through a column.
- * Know column separations can be enhanced by solvent choice, solid phase choice, and column length.
- * Know solvent choice affects relative solubility, and therefore time in the mobile phase.
- * Know solid phase choice affects how strongly the substances will be extracted from the mobile phase.
- * Know column length establishes how long the different rates will be allowed to compete with each other.
- * Comparing two TLC results, predict which solvent mixture will best separate two substances.
- * Given a TLC result, predict whether a more polar solid phase will improve separation.
- * Given a TLC result, predict a solvent mixture that will better separate two substances.

Report

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