

## Experiment 5 (A,C) and 15: Thin layer and column chromatography of spinach pigments

**Pre-lab exercise:** See other sheet.

**Lab report format (Due Tuesday, March 1 at 6:00 p.m.)** — Please arrange the pages in the following order:

**1. Abstract** (separate page, word-processed, proofread):

Here is the beginning of your abstract:

**(Your name), North Seattle Community College**

Monitoring the reduction of fluorenone to fluorenone using thin-layer chromatography

Write three sentences that:

- clearly **describes** the rate behavior of the fluorenone–fluorenone reaction (i.e., “Most of the reaction seemed to have occurred within x seconds...”).
- **explains** the method (including the visualization step) you used to monitor the progress of the reaction. You do not need to go into the detail of how many seconds or how you sampled the reaction – this should be evident from your procedure. You should mention the solvent system used in the method.
- **assesses** your confidence in your results. In other words, what leads you to believe that your conclusions about the rate of the reaction are valid?

**2. Photocopies of the purpose, materials and methods, and data sections of both labs.**

I will check the **purpose** of *each* lab for mentioning specific chemicals and /or reactions and /or techniques.

I will assess the accuracy of the **procedure** you used to monitor the reaction in experiment 5C (for instance, did you write down what you actually did, or did you merely copy the textbook procedure?) and whether you **recorded** what number of milliliters you switched to each of the different polarity solvents for running the column in experiment 15.

Finally, I will look at each of the **TLC plate drawings** you made for experiments 5A, 5C and 15, specifically for start lines, solvent front lines, spots (and their identity labels).

**3. Report questions on experiment 5, Part A** (these are the same questions that are asked in the Report section on page 86 of the text)

1. Calculate the  $R_f$  values for each spot. Include the actual plate or a sketch of the plate with your report.

2. Explain the relative  $R_f$  values for fluorene, fluorenol, and fluorenone in terms of their polarities.

3. Give the composition of the unknown that you were assigned.

**4. Report questions on experiment 5, Part C** (these are some of the same questions that are asked in the Report section on page 87 of the text)

1. When was the reaction complete?

2. What other visible evidence indicated that the reaction went to completion?

#### **5. Report questions on experiment 15**

Don't answer these questions in this part of the report, but do make sure that the answers show up in earlier parts of this lab write-up!

Q. Explain **clearly** when happened during the column procedure (pages 160-162). Your description must include what solvent was being used when each band comes off the column.

Q. Do what is asked for in the last paragraph on page 164, the one that begins "Identify as many of the spots..." Include the actual plate or a sketch of the plate with your report. State **clearly** which pigments were present in the yellow band and in the green band.

Here are the questions I actually want you to answer in this part:

**Questions 1, 2, 3 and 4** on page 164. For question 4, your comment on purity should also include an explanation *justifying* what you conclude about purity.

Technique 12: Problems 1, 4, and 5 (p. 692). For Problem 1, assume that the sample was eluted from the column, but no separation occurred.

Technique 14: Problems 1, 4, and 5 (pp. 710, 711).

Note that no conclusion is necessary, though you may wish to add one at the end of your experiment write-up in your lab notebook for completeness.