

TLC Lab Report

NAME: _____

PARTNER'S NAME: _____

LAB SECTION: _____

DATE: _____

% SCORE:

	Possible points	
PreLab quiz	10	
A. Lab Data and observations		
B. Questions		
C. Discussion/Application		
Total		

B. QUESTIONS

1. Based on your TLC evidence, rank the polarity of the standards you used for the TLC of analgesics. Number the compounds below from most polar (1) to least polar (5).

Acetaminophen____ Aspirin____ Caffeine____ Ibuprofen____ Salicylamide____

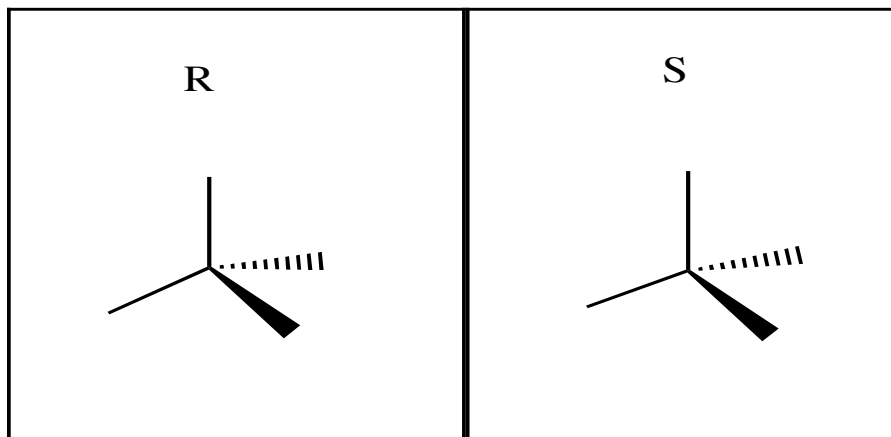
2. Which of the analgesic compound(s) you spotted in lab can be considered a phenol? Which compound(s) can be considered a carboxylic acid?

Phenol: _____

Carboxylic acid: _____

3. Among the provided Active Pharmaceutical Ingredients, **API**, presented in Figure 4, there is one ingredient that has a chiral center. Name this compound and draw it below.

By adding substituents to the carbon center below, draw both enantiomers of the compound you identified above in the labeled configurations.



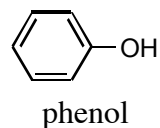
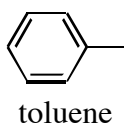
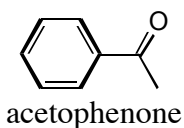
4. When you tested various elution solvents, how did the R_f of acetanilide change as the elution solvent changed from 1:1 pet ether: ethyl acetate to 1:1methanol ethyl acetate. Explain why the elution solvent affects the R_f of the compound.

5. Which solvent did you determine to be optimal for the separation of guaiazulene and acetanilide? Explain

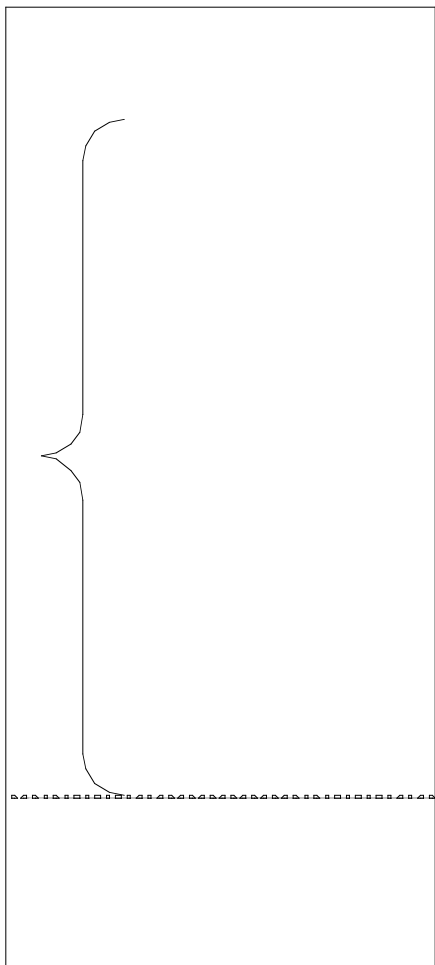
C. APPLICATION:

A mixture of phenol, acetophenone, and toluene is to be separated using two different solvent systems: CCl_4 (carbon tetrachloride) and CH_3OH (methanol). Complete the diagrams by drawing the spots after the plate has been developed. Please include the chemical structure of the compound found in each spot. As you do so, consider the following questions:

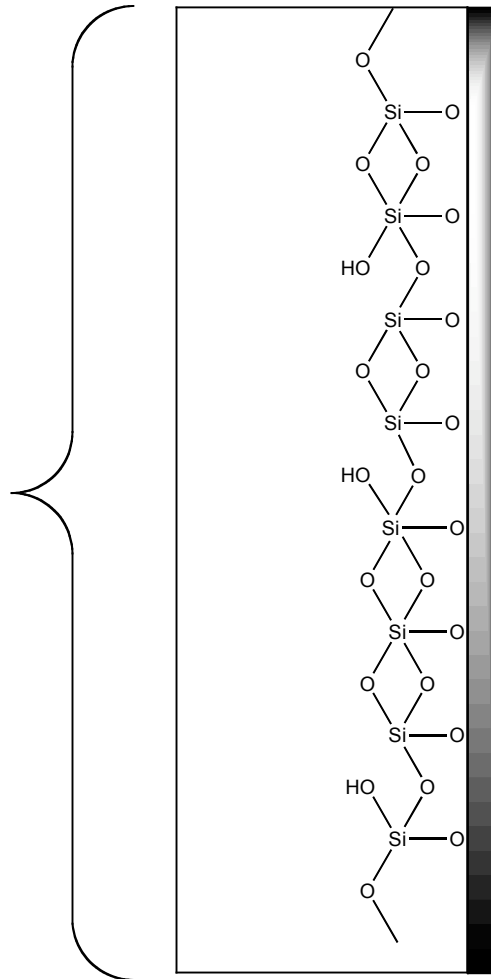
- Based on your knowledge of functional groups, what may you conclude about the polarities of phenol, acetophenone, and toluene?
- Does being strongly absorbed on the stationary phase increase or decrease the R_f value?
- What effect does increasing the elution solvent polarity have on the R_f values you observed?



After development in CCl_4

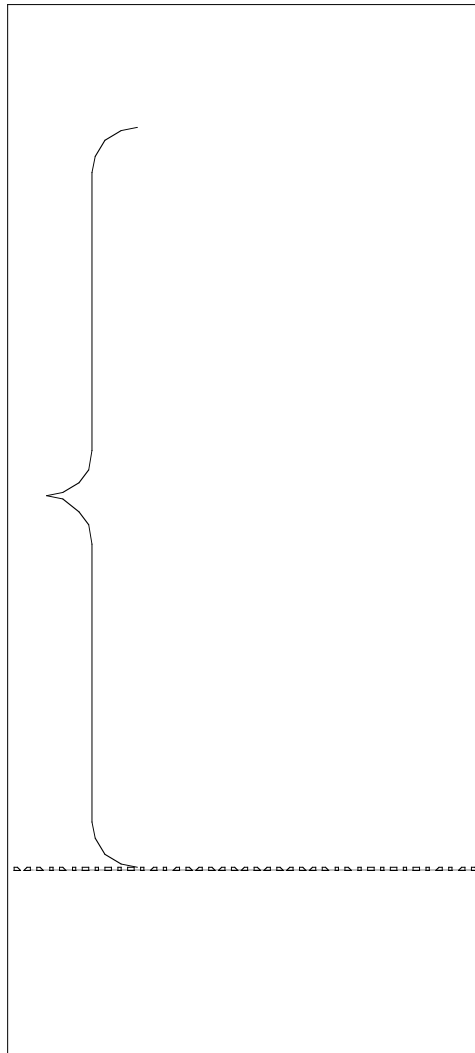


Front view: Draw spots of compounds after development

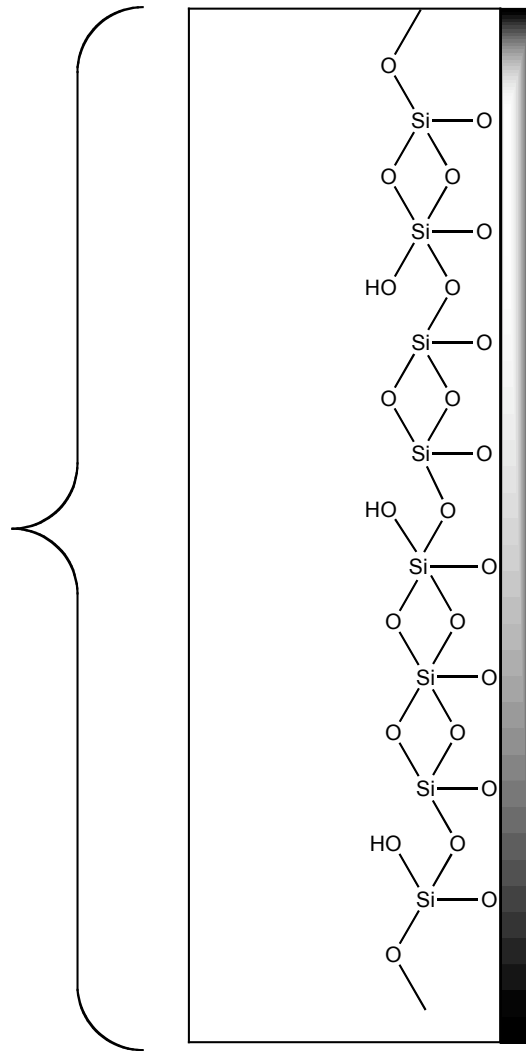


Side view (particulate): Draw structure of compounds after development

After development in CH_3OH



Front view: draw spots



Side view (particulate): draw structures