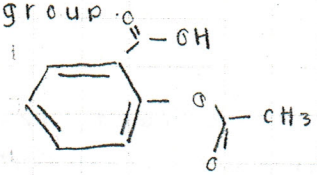
...IMENT/SUBJECT		DATE	
	LAB PARTNER	LOCKER/DESK NO.	COURSE & SECTION NO.

Discussion

(3) Spectrum A: Aspirin

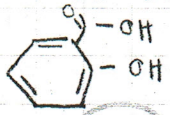
- Two C=O peaks at 1750 and 1700 represent the lower energy peak of resonance structure in aspirin, and higher energy peak of ester group.



Also, the OH stretch 3100 was much more narrow for this spectrum, likely accounting for single OH bond present in sample.

Spectrum B: Salicyclic Acid

- one C=O peak at 1680 represents the lower energy peak ~~at 1680~~ of resonance structure (without the high peak of ester). Also, OH stretch between 3300 and 3150 accounting for two OH bonds in salicyclic acid.



(4a) The smell (similar to vinegar) indicates that acetic acid was formed during reaction. A hydrolysis reaction took place (of an ester) of aspirin back to acetic acid.

aspirin + water $\xrightarrow[H_2SO_4(aq)]{heat}$ acetic acid + salicyclic acid

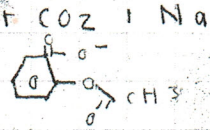
* from the above reaction you can see the importance of not overheating the reaction.

(2) TLC Demonstration:

From the results of this demonstration we can most likely conclude that a pure sample of aspirin was obtained. By analyzing the chromatography paper, it is visible that the starting material or salicyclic acid migrated the most, meaning that it had weaker intermolecular forces with the chromatography paper. Since the product of the lab migrated the same distance ~~as~~ as the material that we were trying to synthesize in this lab (aspirin), we can conclude that the product is in fact a pure sample of aspirin. Also, both the aspirin and the synthesized material did not travel as far as the starting material due to their polar structure (C-O bonds in the molecular structure.

(4b) Test tube 1: This is an acid base reaction. The carboxylic group of aspirin reacts with the bicarbonate ion form H_2CO_3. This breaks down to form water and carbon dioxide, which is responsible for the bubble formation.

Aspirin + $NaHCO_3$ → H_2O + CO_2 + Na^+



Test Tube 2:

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