**EXP.5**

**Canizzaro reaction**

One of the notable organic reactions in chemistry is the Cannizzaro reaction, named after its discoverer, Stanislao Cannizzaro. It is limited to aldehydes lacking alpha hydrogen centers. It produces an alcohol and carboxylic acid at minimal amounts, accounting only 50% to the yield even under ideal conditions. It is a base-catalyzed reaction, which begins with the nucleophilic attack of OH-  on the carbonyl center. The resulting anion attacks another molecule of aldehyde, transferring a hydride ion. In the final step, the acid and alkoxide ions formed exchange a proton. All in all, the discovery of Cannizzaro has proven to be one of the most important reactions in synthetic organic chemistry

1. Dissolve 1.0g of KOH in 1 mL distilled H2O in a test tube.
2. Weigh 200 mg of 4-chlorobenzaldehyde and transfer it to a 25 mL round bottle flask, add 0.5 mL of methanol and stir to dissolve the 4-chlorobenzaldehyde.
3. Transfer 0.3 mL of the 50% aqueous KOH sol’n to the flask.
4. Place the base of the 25 mL flask in a heating bath, preheated to ~75 degree celsius, and heat the reaction mixture with stirring for 1.5 hour.
5. Remove the flask from the bath and cool the mixture to room temperature. Then, add 2.5 mL of water and transfer the mixture in a small separator funnel. Extract the aqueous mixture with 3 separate 1.0 mL portions of dichloromethane and collect the organic layer.
6. Wash the combined dichloromethane extracts with two separate 0.5 mL portions of saturated aqueous sodium chloride. Also add several spatula tips of anhydrous sodium sulfate anhydrous to organic layer.
7. Remove DCM in organic layer by using rotary evaporator. P-chlorobenzyl alcohol in organic layer should recrystallized in 3ml of 4% acetone in hexane.