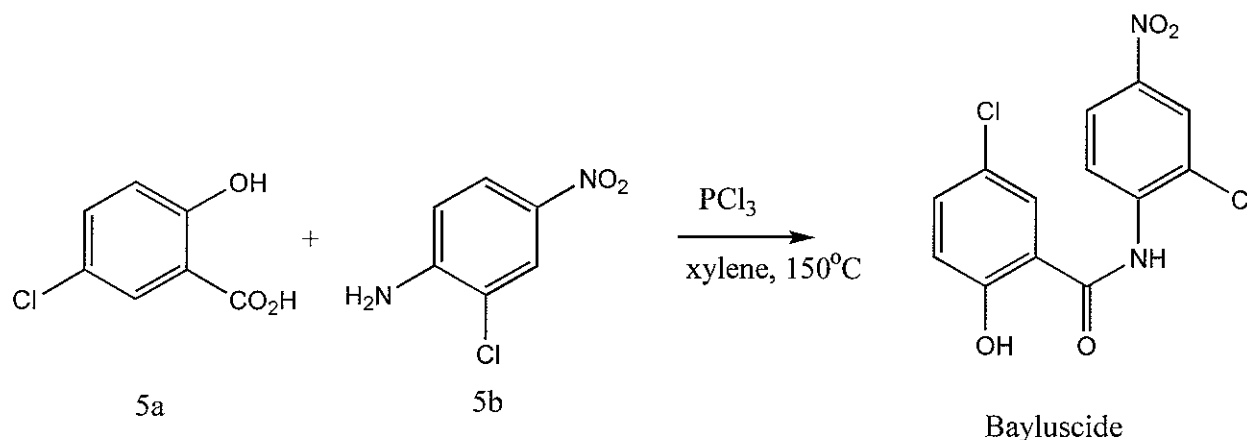


Ch 335
Problem Set #2
Due April 20, 2009

Write all of your answers on a separate sheet of paper. If more than one page is required, **YOU MUST STAPLE** the pages together. Folded corners and other methods of page attachment are not acceptable.

- (16 pts) Synthesize the following compounds from benzene and any other reagents.
 - 2,6-dibromo-4-nitrotoluene
 - 2,4-dibromo-6-nitrotoluene
 - 4-ethyl-3-nitroacetophenone
 - 1-bromo-1-phenylbutane
- (6 pts) The dreadful tropical disease bilharzia is carried by water snails. One way to tackle the disease is to kill the snails with a molluscicide harmless to mammals and fish. Bayluscide is made by Bayer for this purpose. It is an amide made by the reaction shown below.



Devise syntheses for compounds 5a and 5b. The two organic starting materials that you may use without making them are benzene and salicylic acid. (if you don't know what salicylic acid is, look it up.)

- (3 pts) 2,6-Dichlorophenol has been isolated from the females of two species of ticks (*Amblyomma americanum* and *A. masulatum*), where it apparently serves as a sex attractant. Each female tick yields about 5 ng of 2,6-dichlorophenol. You need larger quantities than this to use in tick traps. Outline a synthesis of 2,6-dichlorophenol from phenol. (Hint: the para position of phenol is much more reactive than any other position for EAS.)