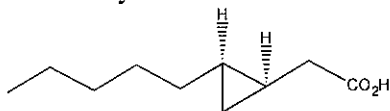


Ch 336  
Problem Set #3  
Due May 13, 2009

Code \_\_\_\_\_

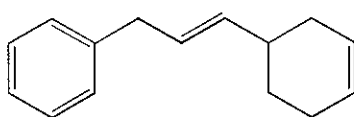
These problems may require you to use reactions not just from this term's material. **Do not write your answers on this page, use a separate sheet of paper. If you have more than one page, you must staple the pages together -- no paper clips, folded corners, etc.**

1. (5 pts) Cascariilic acid occurs naturally in Euphorbiaceae plants. Synthesize it starting from acetylene. You also must use ethylene oxide in your synthesis



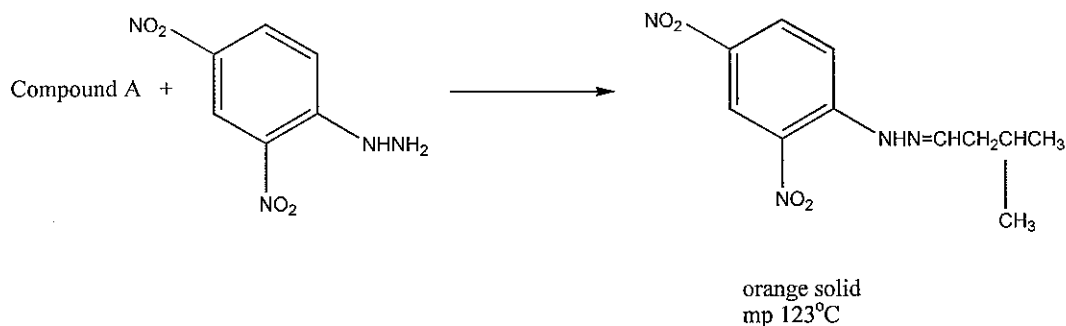
Cascariilic Acid

2. (5 pts) Propose a synthesis for Compound 2 utilizing both a Diels-Alder reaction and a Wittig reaction.



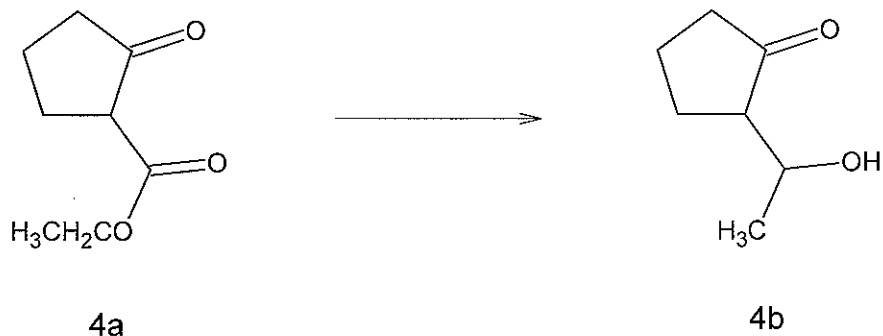
Compound 2

3. (10 pts) Compound A is a liquid which has a boiling point of 92.5°C. Compound A turns chromic acid green. Compound A reacts with lithium aluminum hydride to yield compound B. Compound B also turns chromic acid green.



Using the information given above, determine the structures of compounds A & B.  
Unjustified answers will not receive any credit.

4. (5 pts) Convert Compound 4a into 4b.



5. (10 pts) Identify each of the following structures as a (a) hemiacetal, (b) hemiketal, (c) acetal, (d) ketal, or (e) none of these. Put the letter of the correct response in the box provided. If your answer was a, b, c, or d, draw the structure of the alcohol and carbonyl compound from which the compound was derived.

