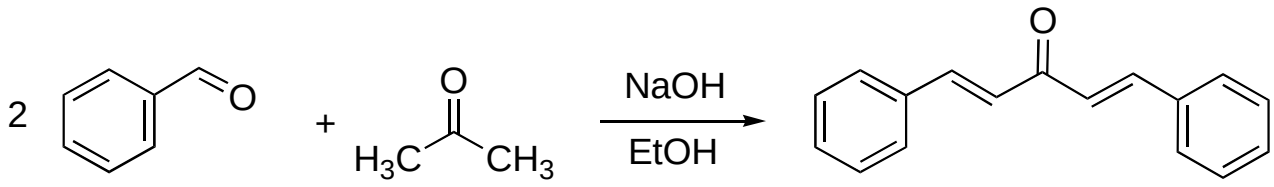
EXPERIMENTATION IN ORGANIC CHEMISTRY

LESSON 2. ALDOL CONDENSATION

REACTION:



REAGENTS:

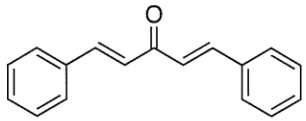
Benzaldehyde; anhydrous acetone; ethanol; NaOH (aqueous 10%)

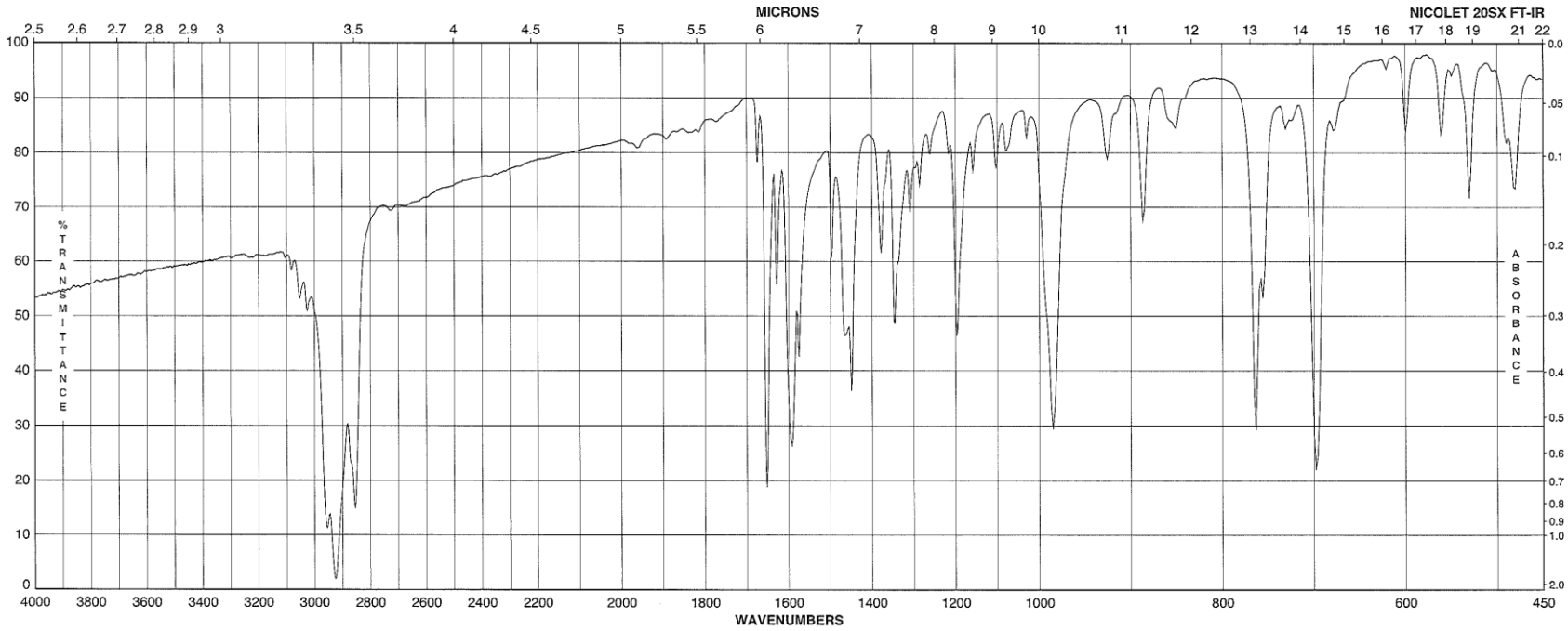
MATERIALS:

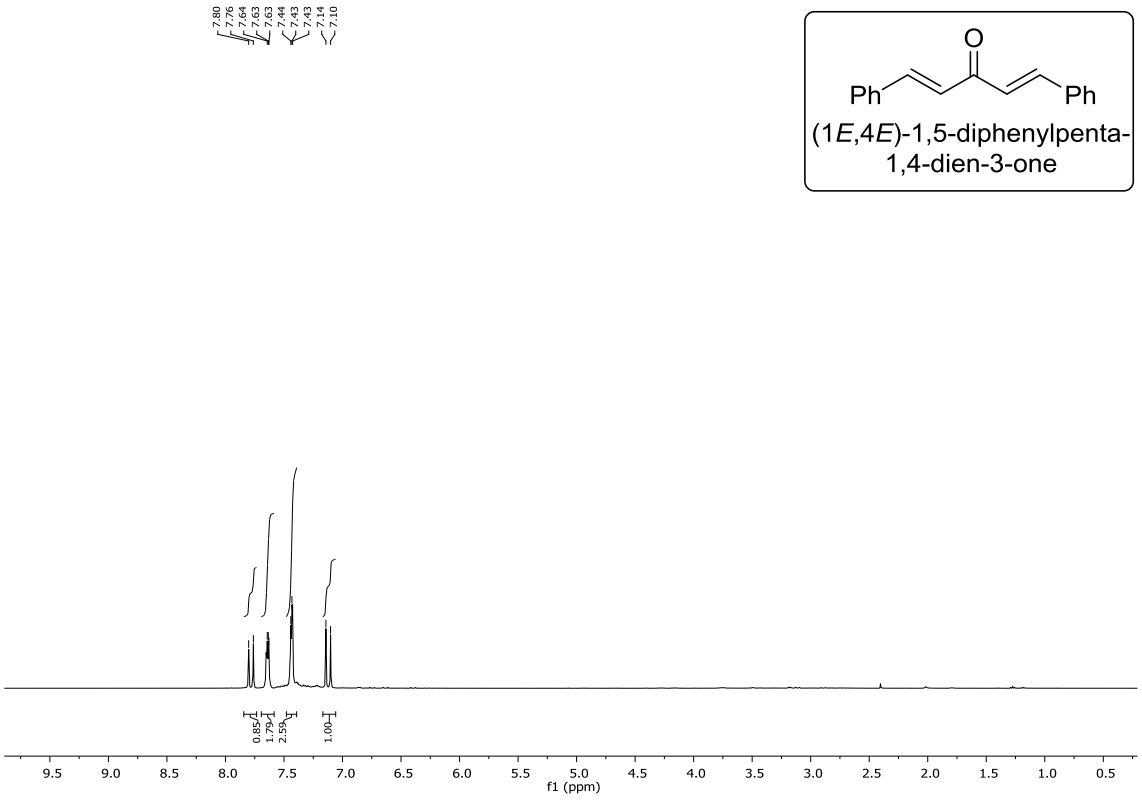
2x100 mL Erlenmeyer flasks; magnetic stirrer; Büchner funnel and Kitasato

PROCEDURE:

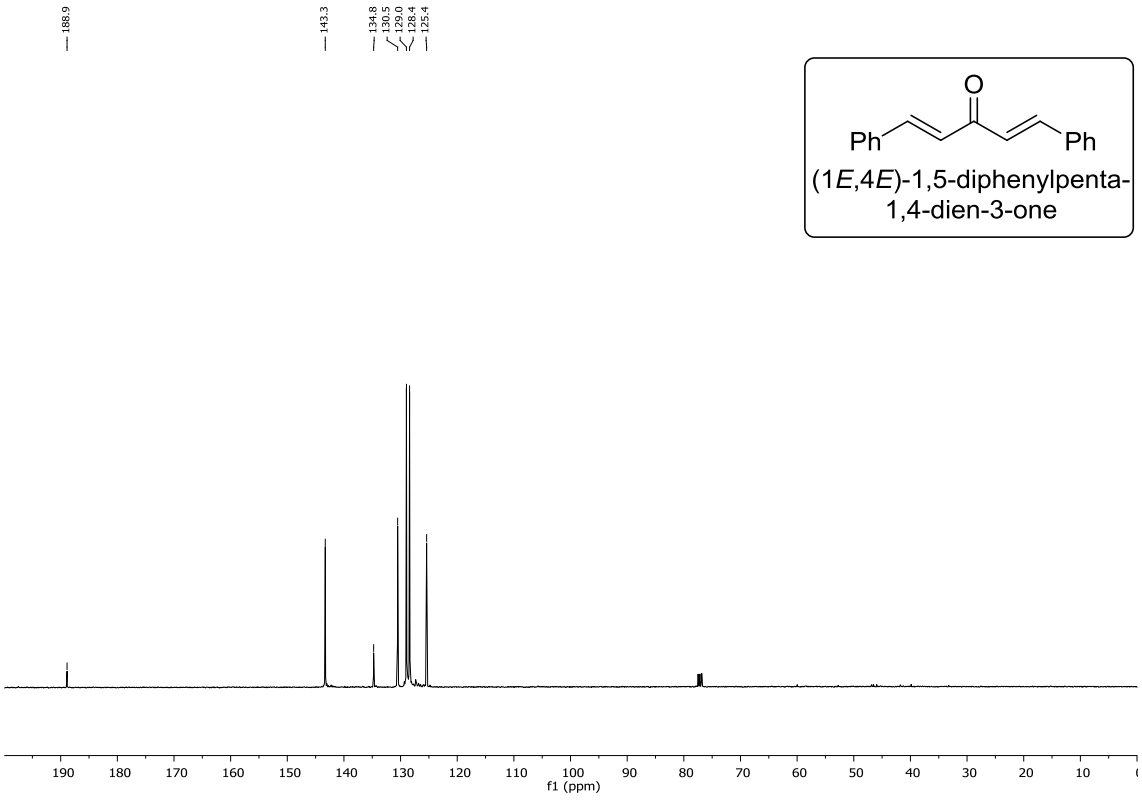
Benzaldehyde (4 mL) is mixed with anhydrous acetone (2 mL) in a 100 mL Erlenmeyer flask. NaOH (10%, 10 mL) is mixed with ethanol (20 mL) in a separate Erlenmeyer flask, and this solution is poured into the previous one at once. The total mixture is stirred at room temperature during 15 min and the precipitate that is formed is collected under vacuum in a Büchner-Kitasato system. The solid is washed twice with 50 mL each of cold water and is dried under vacuum. The product is recrystallized from ethanol or from ethyl acetate. Finally, the melting point and reaction yield are determined.




MICRONS
NICOLET 20SX FT-IR
2.5 2.6 2.7 2.8 2.9 3 3.5 4 4.5 5 5.5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 21 22
100 90 80 70 60 50 40 30 20 10 0
% TRANSMITTANCE
0.0 .05 0.1 0.2 0.3 0.4 0.5 0.6 0.7 0.8 0.9 1.0 2.0
ABSORBANCE
4000 3800 3600 3400 3200 3000 2800 2600 2400 2200 2000 1800 1600 1400 1200 1000 800 600 450
WAVENUMBERS



^{1}H NMR (400 MHz, $CDCl_3$) δ 7.78 (d, *J* = 16.0 Hz, 1H), 7.69 – 7.58 (m, 2H), 7.48 – 7.39 (m, 3H), 7.12 (d, *J* = 15.9 Hz, 1H).



^{13}C NMR (101 MHz, $CDCl_3$) δ 188.9, 143.3, 134.8, 130.5, 129.0, 128.4, 125.4.