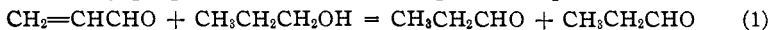


NOTES

Reduction with Alcohols of Cinnamaldehyde to Beta-Phenylpropionaldehyde.—It was shown in a previous paper¹ that acrolein was reduced over alumina by propanol at 330° according to the equation



Since it seemed possible that this was a general reaction for 2,3-unsaturated aldehydes, and since it offered a means of reducing the carbon to carbon double bond without reducing the carbon to oxygen bond, attempts were made to reduce cinnamaldehyde to β -phenylpropionaldehyde according to the equation



The reduction was performed by passing 100 g. of cinnamaldehyde dissolved in 100 cc. of propanol over 5 g. of alumina catalyst (from hydrated alumina) at 330° and at the rate of 75 cc. per hour. The liquid product was distilled at atmospheric pressure to remove the low-boiling fraction (propionaldehyde, propyl ether, propyl alcohol and water) and under a pressure of 40 mm. of mercury to separate the β -phenylpropionaldehyde. Twenty grams of β -phenylpropionaldehyde was obtained, b. p. 130–133° at 40 mm.; 55 g. of cinnamaldehyde was recovered, b. p. 155–158° at 40 mm.; and 15 g. of a dark brown, viscous liquid boiling above 250° remained. The β -phenylpropionaldehyde was identified by the preparation of the oxime which was recrystallized until it had a melting point of 97° (corr.). The melting point is given in the literature as 93–94.5°.

From the amounts of the products obtained, it is estimated that 35% of the cinnamaldehyde and 50% of the propyl alcohol introduced had reacted in some way. About 60% of the cinnamaldehyde which reacted was converted into β -phenylpropionaldehyde, the rest having undergone polymerization, decomposition, etc. About 50% of the alcohol which reacted was used in the formation of propionaldehyde and β -phenylpropionaldehyde, almost all of the remainder forming propyl ether, except a very small amount which was converted into propylene and water.

Similar reactions occurred and approximately the same yields of β -phenylpropionaldehyde were obtained using 50 g. of cinnamaldehyde in 100 cc. of methanol, ethanol or propanol.

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Acetoxymurcuric Chloride, $\text{CH}_3\text{COOHgCl}$.—The replacement of hydrogen in organic compounds by mercury, mercuration, is practically always

¹ Weston and Adkins, *THIS JOURNAL*, **50**, 1930 (1928).