SHORT COMMUNICATIONS

A Reaction of Malonic Ester with Vinyl Acetate

By Teiji TSURUTA

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Diethyl sodio malonate has been found to react readily with vinyl acetate to give ethylidenedimalonic ester.

To a solution of 4 g. (1/6 atom) of metallic sodium and 80 g. (1/2 mol.) of diethyl malonate in 200 ml. of absolute ethanol, was added 44 g. (1/2 mol.) of vinyl acetate. The temperature was maintained at 20°. After the mixture was stirred for one hour, it was acidified with 15 ml. of glacial acetic acid and the solvent removed under reduced pressure. The residual liquid was taken up in ether, washed with water, and dried over anhydrous sodium sulfate; the solvent was removed and the residue distilled under reduced pressure. There was obtained 48 g. of a viscous oil, b.p. 165–171° (9 mm), which was hydrolysed with barium hydroxide. The resulting barium salt was dissolved in hydrochloric acid and filtered through a column of Amberlite IR-120 (SO_3H-type). From the filtrate, on removing solvent in vacuo, there was obtained crystalline powder (I), m.p. 155° (with decomposition). By decarboxylation at 160°, (I) was converted to crystals (II) of m.p. 85°. The crystals (I) and (II) were proved to be ethylidenedimalonic acid and β-methylglutaric acid by mixed melting with authentic specimens.

Since active hydrogen compounds were reported to react with vinyl acetate to give vinyl-, vinylidene- or ethylidene-derivatives in the presence of a mercuric salt[1], the mechanism of the present condensation reaction of sodio malonic ester with the vinyl ester is to be considered in connection with *the vinyl exchange reaction.*

Full details will be reported later.

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1) R. L. Adelman, U.S.P., 2,550, 439 (1951); *Chem. Abstr.* **45**, 8035 (1951); *J. Am. Chem. Soc.*, **75**, 2678 (1953).

Institute for Chemical Research,
Kyoto University,
Takatsuki, Osaka-Fu