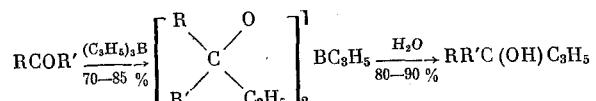


ALKENYL ESTERS OF ORGANOBORON ACIDS

B. M. Mikhailov, G. S. Ter-Sarkisyan,
and N. A. Nikolaeva

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α,β -Unsaturated aldehydes and ketones (acrolein, methyl vinyl ketone, and methyl β -chlorovinyl ketone) react with triallylboron to form esters of allylboronic acid (I-III)



(I) R = CH₂ = CH, R' = H; (II) R = CH₂ = CH; R' = CH₃; (III) R = ClCH = CH,
R' = CH₃.

Compound (I) has bp 87-89°C (4 mm); n_D²⁰ 1.4530; compound (II) bp 84-85°C (5 mm); n_D²⁰ 1.4629; and compound (III) bp 111-114°C (1 mm); n_D²⁰ 1.4862. The hydrolysis of esters (I)-(III) smoothly gave the following products, respectively: hexa-1,5-dien-3-ol, 3-methylhexa-1,5-dien-3-ol, and 1-chloro-3-methylhexa-1,5-dien-3-ol [bp 66-67°C (10 mm); n_D²⁰ 1.4780].

With triallylboron β -cyclocitral gives 1-(2,6,6-trimethylcyclohex-1-enyl)but-3-en-1-yl borate, the saponification of which yields 1-(2,6,6-trimethylcyclohex-1-enyl)but-3-en-1-ol, bp 91-93°C (3 mm), n_D²⁰ 1.4950. n-Tributylboron adds to methyl vinyl ketone in the 1,4 position with the formation of oct-2-en-2-yl di-n-butylborinate (V) with bp 100-103°C (1.5 mm); n_D²⁰ 1.4300. Found%: C 76.06; H 13.15; B 4.57. C₁₆H₂₃BO. Calculated%: C 76.13; H 13.18; B 4.36. The hydrolysis of (V) gives n-hexyl methyl ketone.

N. D. Zelinskii Institute of Organic Chemistry. Translated from Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No. 7, p. 1655, July, 1968. Original article submitted April 3, 1968.