INTERACTION OF PYRIMIDINYL PHOSPHITES WITH CARBOXYLIC ACIDS

M. A. Giniyatullina, G. I. Podzigun, and V. S. Reznik

UDC 542.91:547.1'118

It is known that trialkyl phosphites and carboxylic acids form at 110-170°C dialkyl phosphites and alkyl carboxylates [1]. It has been shown by us for the first time that dialkylpyrimidinyl phosphites (I) interact with carboxylic acids at 20-35°C with the formation of the corresponding acyloxyphosphites in 85-90% yield.

$$\begin{array}{c|c} & \text{Me} & \text{Me} & \text{O} \\ & \text{N} & + \text{MeCOOH} \rightarrow & \text{N} & + \text{MeCOP(OR)}_{i} \\ & \text{Me} & \text{N} & \text{O} \\ & \text{N} & \text{O} \\ & \text{(I)} & \text{(II)} \\ & \text{R} = i\text{-Pr (a), CH}_{2} \text{ (b).} \end{array}$$

Structures of the obtained compounds were confirmed by an alternate synthesis, and by IR and 31P NMR spectra.

AcOH (1.2 g, 0.02 mole) was added dropwise to (Ia) (5.4 g, 0.02 mole) in ether (50 mI) during 10 min. The mixture was boiled for 15 min and the precipitated crystals of 4,6-dimethyl-1,2-dihydropyrimid-2-one were filtered off. Yield of (IIa) was 2.35 g (94%) having mp 200-201°C (cf. [2]). The filtrate was evaporated in vacuum and the residue distilled. Yield of (IIIa) was 3.6 g (95%) having bp 75°C (9 mm); $n_{\rm D}^{20}$ 1.4180; d_4^{20} 1.0040. ³¹P NMR spectrum +135 ppm, (ν C = O 1780 cm⁻¹). Found: C 46.26; H 7.98; P 15.00%. C₈H₁₇O₄P. Calculated: C 46.15; H 8.17; P 14.90%.

The interaction of (Ib) with AcOH proceeded similarly. Yield of (IIIb) was 86% having bp 87° (9 mm); n_D^{20} 1.4528; d_4^{20} 1.2965. ³¹P NMR spectrum +128 ppm (cf. [3]).

LITERATURE CITED

- 1. G. Kh. Kamai and V. A. Kukhtin, in: Chemistry and Application of Organophosphorus Compounds. Proceedings of 1st Conference [in Russian], Izd. Akad. Nauk SSSR, Moscow (1957), p. 91.
- 2. Pyrimidines. Tables of Compounds of the Pyrimidine Series 1966-1972 [in Russian], Novosibirsk (1976), p. 534.
- 3. L. V. Nesterov, R. A. Sabirova, and N. E. Krepysheva, Zh. Obshch. Khim., 39, 1943 (1969).

A. E. Arbuzov Institute of Organic and Physical Chemistry, Kazan Branch, Academy of Sciences of the USSR. Translated from Izvestiya Akademii Nauk SSSR, Seriya Khimicheskaya, No. 2, p. 475, February, 1982. Original article submitted August 25, 1981.