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Kinetic Investigation of Unusual Arbuzov Reaction

Nina A. Polezhaeva^a; Irina V. Loginova^a; Elena V. Ovechkina^a; Vladimir I. Galkin^a; Rafael A. Cherkasov^a

^a Kazan State University, Kazan, Russia

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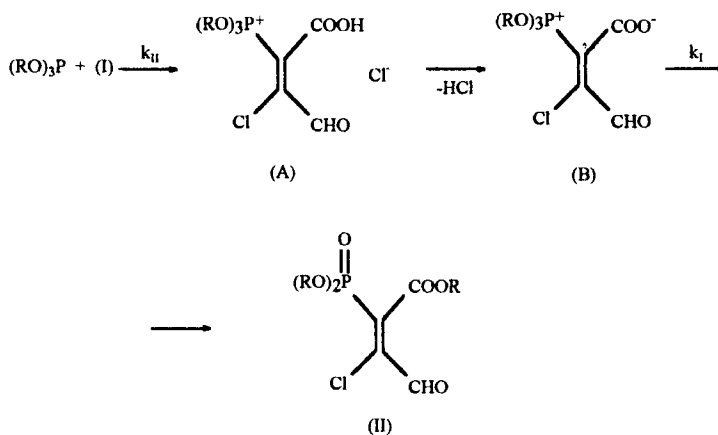
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NINA A. POLEZHAIEVA, IRINA V. LOGINOVA,
ELENA V. OVECHKINA, VLADIMIR I. GALKIN,
AND RAFAEL A. CHERKASOV

Kazan State University, Kazan, Russia

3,4-Dichloro-5-hydroxy-2(5H)furanone (mucochloric acid) (I), which may exist in two (cyclic and acyclic) forms, reacts with trialkylphosphites under mild conditions to form two products, one and the most interesting of which is (II). Kinetic study of this process has shown the following reaction mechanism which is an unusual Arbuzov reaction with the elimination of HCl (but not RCl) from the intermediate (A):



Kinetic and activation parameters of two limiting stages have been estimated. The mechanism suggested has been proved also by fixation of HCl with the help of triethylamine and by preparation of intermediates in the case of triphenylphosphine.