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pH Dependent Hantzsch Cyclization of the Thioureidobisphosphonates

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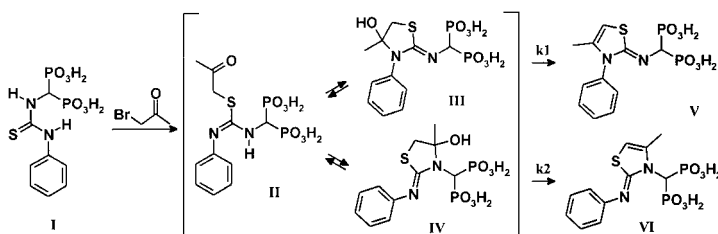
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pH DEPENDENT HANTZSCH CYCLIZATION OF THE THIOUREIDOBISPHOSPHONATES

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Reaction of the Phenylthioureidobisphosphonic acid (**1**) with bromoacetone quickly leads to the isothiurea (**II**) in equilibrium with hydroxy-thiazolines (**III**, **IV**). Next slow dehydration leads to the isomeric thiazoles (**V**, **VI**).



SCHEME 1

Data on the dependence of the velocities of this dehydration on quantities of the NaOH in the reaction mixture presented at the diagram (Figure 1).

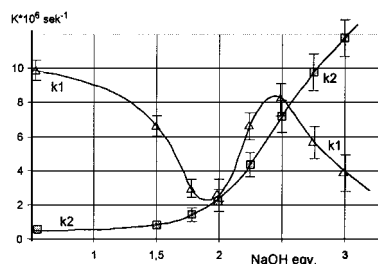


FIGURE 1

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As for our opinion, this dependence may be the result of hydrogen bonding in the cation of (IV).

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- [1] A. Chuiko, L. Philonenko, A. Borisevich, and M. O. Lozinsky, *Phosphorus, Sulfur & Silicon*, **111**, 65 (1996).