New heterocyclic mono- and bis(α-hydroxymethyl)phosphinic acids: synthesis and Cu^{II} binding abilities.

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Streszczenie

A simple and efficient method for the synthesis of (α-hydroxymethyl)phosphinic acids in a pyridine and imidazole series from their corresponding aldehydes and aqueous hypophosphorous acid was developed. The same reaction carried out with an excess of aldehyde in the presence of a mineral acid led mainly to the corresponding bis(α-hydroxymethyl)phosphinic acids in moderate yields. The coordination properties of these compounds towards Cu^{II} ions were determined. Additionally, it was found that [(hydroxy)(2-pyridyl)- and (hydroxy)(4-pyridyl)methyl]phosphinic acids were easy to cleave in aqueous sulfuric acid solutions, to form phosphorus acid (H_3PO_3) and the corresponding pyridinemethanols. The kinetics of the cleavage reaction was studied. On the basis of the obtained results, a mechanism of the cleavage was formulated.

Adres publiczny

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