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Amino-Substituted Gem-Diphosphonic Acids: Dissociation Mechanism, Complex Formation and the Structure of Species in Aqueous Solutions

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AMINO-SUBSTITUTED GEM-DIPHOSPHONIC ACIDS: DISSOCIATION MECHANISM, COMPLEX FORMATION AND THE STRUCTURE OF SPECIES IN AQUEOUS SOLUTIONS

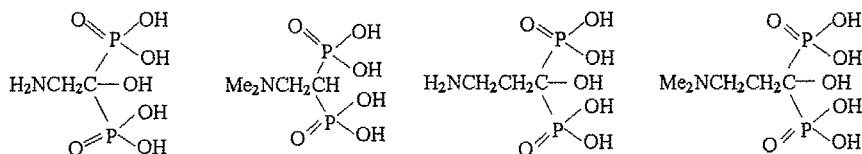
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Dissociation mechanism of acids $R_2N(CH_2)_nCR'(PO_3H_2)_2$ and the structure of their metal complexes depend on R and N. Intramolecular H-bonds stabilize the cyclic conformations of the species.

Keywords: ω -Aminoalkylidenediphosphonic acids; gem-diphosphonates; dissociation; complexation

The dissociation mechanism¹ of aminobisphosphonates and their complexation² with Mg^{2+} , Ca^{2+} , Zn^{2+} , and Cu^{2+} cations and the structure of acid and complex ions in aqueous solutions particularly are dependent on aminoalkylidene fragment design. The investigation carried out by means of potentiometry, IR, Raman, NMR (1H , ^{31}P , ^{14}N), UV-vis, and ESR spectroscopy with use of conformational and normal coordinate analysis data.



SCHEME 1

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