Complexing properties of pyridine-4-methylene derivatives: diethyl(pyridine-4-ylmethyl)phosphate, 4-pyridylmethylphosphonic acid and 4-hydroxymethylpyridine with Cu(II) in aqueous solution.

Autorzy

Aleksander Kufelnicki

Mirosława Świątek

Magdalena Woźniczka

Urszula Kalinowska-Lis

Julia Jezierska

Justyn Ochocki

Rok wydania

2016

Czasopismo

Journal of Solution Chemistry

Numer woluminu

45

Strony

28-41

DOI

10.1007/s10953-015-0424-z

Kolekcja

Naukowa

Język

Angielski

Typ publikacji

Artykuł

Streszczenie

The coordinating properties in aqueous solution of two novel pyridine-4-methylene derivatives, diethyl(pyridine-4-ylmethyl)phosphate (4-PO(Oet)2CH2-py = 4-pmOpe) and 4-pyridylmethylphos phonic acid (4-PO(OH)2CH2-py = 4-pmpa), towards Cu(II) are compared with those of 4-hydroxymethyl-pyridine (4-OHCH2-py = 4-pmOH). The two new derivatives were chosen due to their expected interesting biological activity that is observed for related solid complexes of several metals with various pyridine-methylene derivatives. The studies were carried out using pH potentiometry, UV–Vis spectrophotometry and EPR spectroscopy. The results show that 4-pmOpe and 4-pmpa, similarly to 4-OHCH2-py, form mononuclear L:M = 1:1 and 2:1 complexes with Cu(II). However, in the case of 4-pmpa, complexation occurs both via oxygen atoms of the R-(Formula presented.) group (ML and ML2 species) and the N(1) nitrogen (protonated MLH and ML2H2 complexes). The possible attendance of the third ligand in the coordination sphere was indicated for 4-OHCH2-py by EPR spectroscopy.

Słowa kluczowe

Substituted pyridine-4-methylenes, Phosphonic and phosphoric groups, copper(II) complexes, Coordination modes, stability constants

Adres publiczny

http://dx.doi.org/10.1007/s10953-015-0424-z

Strona internetowa wydawcy

http://link.springer.com