Synthesis and reactivity of copper(II) metallacrowns with (*S*)-phenylalanine and 2-picolinehydroxamic acids.

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Streszczenie

The new pentanuclear 12-metallacrown-4 complexes of the formula $[Cu_5L_4]X_2$ (where H_2L is (*S*)-phenylalanine or 2-picolinehydroxamic acids and X^- is , Cl^-, or) have been isolated in solid state for the first time and characterized by NMR and UV–Vis spectroscopy, electrospray ionization mass spectrometry and elemental analyses. The ^1H NMR spectroscopy was used to follow the transformation of these 12-metallacrown-4 complexes into lanthanide 15-metallacrown-5 complexes $[LnCu_5L_5](NO_3)_3$, and allowed to establish the correlation between the stability of the latter complexes and the lanthanide ionic radius. As indicated by ^1H NMR and ESI-MS data, the reaction of $[Cu_5L_4]X_2$ complexes with Ni^{2+} ion results in replacement of the central Cu^{2+} ion and formation of heteronuclear 12-metallacrowns-4 of the $[NiCu_4L_4]X_2$ type. The crystallization of the complex of 2-picolinehydroxamic acid, $[Cu_5(picha)_4](NO_3)_2$, in the presence of pyridine leads to destruction of the metallacrown core and formation of trinuclear complex, $[Cu_3(picha)_2(py)_5(NO_3)_2]$, whose X-ray crystal structure has been determined.

Słowa kluczowe

Metallacrowns, Hydroxamic acids, Copper complexes, Crystal structure

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