ISOTHIOCYANATE NICKEL(II) COMPLEXES WITH FUROPYRIDINES

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The presentation deals with preparation of isothiocyanate nickel(II) complexes of the formula \([\text{Ni}(L_{1-4})(\text{NCS})_2] \cdot \text{CH}_2\text{Cl}_2\) with furopyr

The ligands \(L_{1-4}\) were prepared according [1,2]. The starting furan-2-carbaldehydes \(1a-d\) were subjected to the Doebner condensation resulting in the corresponding acids \(2a-d\) (Scheme 1). The acylazides were prepared by treatment of \(2a-d\) with ethyl chloroformate and sodium azide in one-pot reaction and then were transformed by thermal cyclisation in Dowtherm with tributylamine to 4,5-dihydropyridines \(3a-d\). Refluxing of \(3a-d\) with phosphorus oxychloride and the reduction of the obtained chloro-derivatives yielded furo[3,2-c]pyridines \(4a-4d\) [1,2].

For compounds \(a \quad R = R^1 = H; \quad b \quad R = \text{CH}_3, \quad R^1 = H; \quad c \quad R = R^1 = \text{CH}_2; \quad d \quad R - R^1 = \text{CH} = \text{CH} = \text{CH}\)

Scheme 1

The structures of all complexes are formed by isolated molecules and have been determined by X-ray diffraction methods. The Ni(II) ions are six-coordinate, the equatorial planes are formed by four \(N\)-donor furopyridines whereas the isothiocyanate groups coordinate in the axial position. The magnetism of the complexes exhibits a zero-field splitting, the magnitude of which correlates with distortion degree of the coordinated polyhedra [3].