# Study of dicarboxylatecobalt(II) complexes with succinic acid

Marek Brezovan, Vladimír Kuchtanin, and Peter Segľa

*Faculty of Chemical and Food Technology STU in Bratislava, Radlinského 9, Bratislava 812 37, Slovak Republic*

Thesis deals with the study of spectral (infrared and electronic) and magnetic properties and the molecular and crystal structures of cobalt complexes with succinic acid. Reaction of $Co^{II}$ salt, $Na_2suc{\cdot}6H_2O$ and corresponding benzimidazole derivate (1-H-benzimidazole - bzim, 2-methyl-1-H-benzimidazole - 2-mebzim, 2-ethylbenzimidazole - 2-etbzim, 2-hydroxy-methyl-1-H-benzimidazole - 2-$CH_2OH$bzim) or nicotinamide (nia) in a mixed solvent water/methanol (1:1) were prepared six new coordination compounds, [Co( $\mu_2$-suc)(bzim)$_2$($H_2O$)$_2$]$_n$ (**1**), [Co( $\mu_2$-suc)(bzim)$_2$(MeOH)$_2$]$_n$ (**2**), [Co( $\mu_2$-suc)(2-mebzim)$_2$($H_2O$)$_2$]$_n$(**3**), [Co(2-$CH_2OH$bzim)$_2$ ($H_2O$)$_2$]·suc (**4**), [Co( $\mu_2$-suc)(2-etbzim)$_2$]$_n$ (**5**) and [Co( $\mu_2$-suc)(nia)$_2$($H_2O$)$_2$]·2$H_2O_n$ (**6**) of a different composition and molecular structure. Obtained coordination polymers were characterized by elemental analysis, mass spectroscopy, IR, Raman and electron spectroscopy and X-ray structural analysis. Dianions $suc^{2-}$ are coordinated to central ion $Co^{II}$ in bis(monodentate) bridging manner, leading thus to formation of polymeric chain.

*Financial support was provided by: grant VEGA 1/0639/18, APVV-18-0016 a KEGA 017STU-4-2017.*