

Synthesis and characterization of Zn(II) complexes with Mannich bases

T. Koval'chuk, A. Gres, N. Loginova, G. Polozov, N. Osipovich, R. Zheldakova
Belarusian State University, Minsk, Belarus, loginov@gmail.com

Zn(II) complexes with 5-tert-butyl-3-(pyrrolidine-1-ilmethyl)-1,2-dihydroxybenzene (I), 5-tert-butyl-3-(piperidine-1-ilmethyl)-1,2-dihydroxybenzene (II), 5-tert-butyl-3-(azetidine-1-ilmethyl)-1,2-dihydroxybenzene (III), 5-tert-butyl-3-(morpholine-1-ilmethyl)-1,2-dihydroxybenzene (IV), and 5-tert-butyl-3-(methylpiperazine-1-ilmethyl)-1,2-dihydroxybenzene (V) have been synthesized and characterized by means of elemental analysis, TG/DTA, FT-IR, ESR, XPD and conductivity measurements. According to the data obtained compounds I–V can coordinate in their singly deprotonated forms and act as bidentate ligands. These compounds yield Zn(II) complexes of the stoichiometry $Zn(L)_2$, which are characterized by square planar geometry. Antibacterial activities of these ligands and their respective Zn(II) complexes have been determined against *Escherichia coli*, *Pseudomonas aeruginosa*, *Serratia marcescens*, *Salmonella typhimurium*, *Bacillus subtilis*, *Sarcina lutea*, *Staphylococcus saprophyticus*, *Staphylococcus aureus*, *Mycobacterium smegmatis*. Most of these complexes exert a pronounced activity ($MIC < 25 \mu g \cdot ml^{-1}$), but virtually all of them have the highest inhibitory properties ($MIC < 6.25 \mu g \cdot ml^{-1}$) against *Mycobacterium smegmatis*.