STRUCTURE AND SOME BIOLOGICAL PROPERTIES OF Fe(III) COMPLEXES WITH NITROGEN-CONTAINING LIGANDS

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Abstract. Four coordination compounds of iron(III) with ligands based on hydrazine and sulfadiazine: $[Fe(dig)]Cl_3 \cdot 2H_2O$ (**I**) (dig-semicarbazide diacetic acid dihydrazide), $[Fe(HL)SO_4]$ (**II**) (HL - sulfadiazine), $[Fe(H_2L^1)(H_2O)_2](NO_3)_3 \cdot 5H_2O$ (**III**) (H_2L^1-2,6-diacetylpyridine bis(nicotinoylhydrazone) and $[Fe(H_2L^2)(H_2O)_2](NO_3)_3 \cdot 1.5H_2O$ (**IV**) (H_2L^2 - 2,6-diacetylpyridine bis(isonicotinoylhydrazone) were synthesized. The spectroscopic and structure characterisation, as well as their biological properties, are presented. All tested coordination compounds, caused an inhibitory effect on the biosynthesis of hydrolases of the producer *Aspergillus niger* CNMN FD-10. The effect increased with the raise of the concentration from 5 mg/L to 15 mg/L. The complexes largely inhibited cellobiohydrolase and less- *β*-glucosidase. The inhibitory effect of the coordination compounds was quite similar in the case of endoglucanase and xylanase. Compound **I**, containing both chloride ions and dig, demonstrated a stronger inhibitory effect, while compound **III**, containing NO_3^- ions, showed the weakest inhibitory action.

Keywords: iron complexes, nitrogen-containing ligand, structure, biological properties.

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