P92

THE CRYSTAL STRUCTURE AND ANTIMICROBIAL ACTIVITY OF BIS[METHYL-N'-(2-HYDROXOBENZYLIDENE)-N-PROP-2-EN-1-YLCARBAMOHYDRAZONOTHIOATE]CHROMIUM(III) NITRATE

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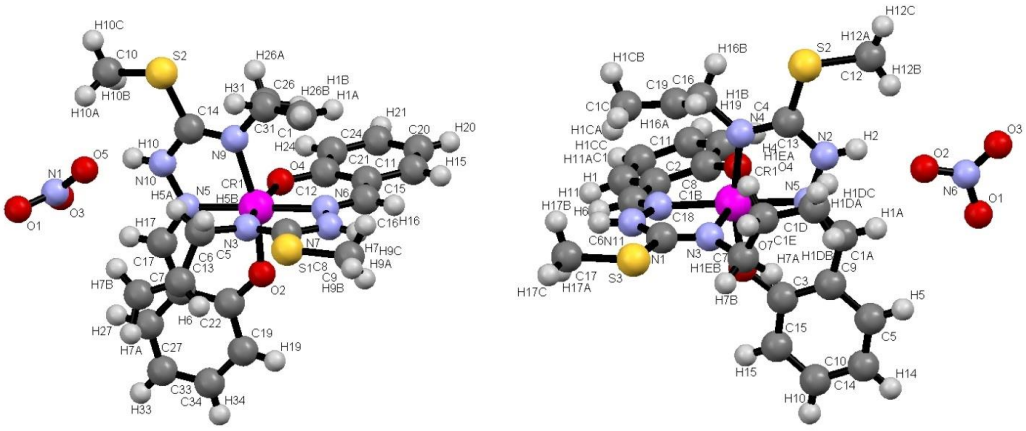
The aim of this work is the synthesis, study of structure and antimicrobial activity of bis[methyl-N'-(2-hydroxobenzylidene)-N-prop-2-en-1-ylcarbamohydrazonothioate]-chromium(III) nitrate.

The coordination compound was synthesized by the reaction between ethanolic solutions of chromium(III) nitrate hexahydrate and salicylaldehyde 4-allyl-S-methylisothiosemicarbazone (HL) in 1:2 molar ratio. Two types of monocrystals with different colures (orange and brown) were obtained as a result of recrystallization from ethanol. Their crystal structures of both type of crystals were determined by X-ray analysis.



Form a Form b

Fig. 1. The crystal structure of bis[methyl-N'-(2-hydroxobenzylidene)-N-prop-2-en-1-yl-carbamohydrazonothioate]-chromium(III) nitrate.(forms a and b)

It was determined that forms a and b of these complex are optical isomers. There are two molecules of isothiosemicarbazone HL in the inner sphere that act as tridentate monodeprotonated ligands and coordinate to the central atom of chromium by phenolic oxygen atoms, azomethinic and thiocarbamidic nitrogen atoms forming five- and six-membered metallacycles. The molecules of isothiosemicarbazone HL are almost planar and are in the mutually perpendicular planes. One nitrate-ion is in the outer sphere of each complex.

The synthesized compound manifests selective bacteriostatic and bactericidal activity for a series of gram-positive (*Staphylococcus aureus and Enterococcus*) and gram-negative (*Escherichia coli and Salmonella abony*) microorganisms and *Candida albicans* in the range of concentration 0,5-2,0 mg/mL.

This work was fulfilled with the financial support of the Project 14.518.04.07A of the State Program.