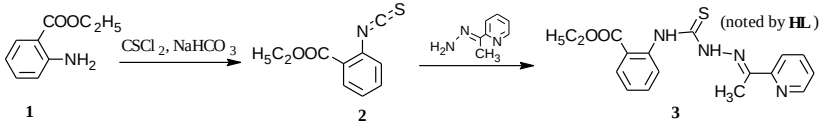
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COPPER COMPLEXES WITH N⁴(2-ETHYL BENZOATE) THIOSEMICARBAZONE OF 2-ACETYLPYRIDINE

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Thiosemicarbazones are an important class of organic compounds that have attracted attention in the pharmaceutical industry due to their high biological activity such as antibacterial, antifungal, antiviral, antimalarial, antitumor and others. The paper presents the synthesis of new ligand and coordination compounds of Cu(II), with N⁴(2-ethyl benzoate) thiosemicarbazone of 2-acetilpyridine **(3)** obtained through the addition of ethyl 2-isothiocyanatobenzoate **(2)** with 2-(1-hydrazinylideneethyl)pyridine.



1 **2** **3**

Fig. 1. Synthesis of N⁴(2-ethyl benzoate) thiosemicarbazone of 2-acetilpyridine (**3**)

Based on the synthesized thiosemicarbazone HL, five coordination compounds were obtained by mixing, the salts of Cu(II) solutions in ethanol and ligand solutions in ethanol ratio of 1:1, reflux for half an hour. Obtained as a green microcrystalline complexes according to the reaction written below.

$$HL + CuX_2 \cdot nH_2O = \{Cu(L)X\} + nH_2O + HX \quad (1)$$

$X=Cl^-, NO_3^-, CH_3COO^-, ClO_4^-$; n=0-6. (2)

The characterization of new compounds was done by ^1H NMR, ^{13}C NMR, IR spectroscopy, conductivity and elemental analysis. In addition, the structures of the ligand (HL) and complexes $[Cu(L)NO_3]$, $[Cu(L)H_2O]_2 \cdot 2ClO_4 \cdot 4H_2O$ were determined by single-crystal X-ray diffraction.

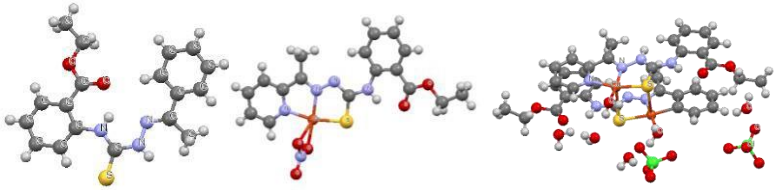


Fig. 2. Crystalline structure of ligand (HL), coordination compound $[Cu(L)NO_3]$ and $[Cu(L)H_2O]_2 \cdot 2ClO_4 \cdot 4H_2O$

The effect of ligand and complexes on antioxidant activity were studied. The best result was found to be on ligand, with IC_{50} = 22.51 μM, it is better than the substance Trolox, IC_{50} =33.33 μM used in medicine.

Keywords: antioxidant activity, thiosemicarbazones, IR spectroscopy, ligand.