

## Vibrational Spectrum of the Copper(II) Complex of Anthranilic Acid

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**SUMMARY.** The infrared and Raman spectra of the  $\text{Cu}(\text{NH}_2\text{C}_6\text{H}_4\text{COO})_2$  complex were recorded and briefly discussed in relation to its structural characteristics. The isostructural Zn(II) complex was also investigated for comparative purposes.

**RESUMEN.** "Espectro vibracional del complejo de cobre(II) con ácido antranílico". Se registraron los espectros de infrarojo y Raman del complejo  $\text{Cu}(\text{NH}_2\text{C}_6\text{H}_4\text{COO})_2$  y se los discutió someramente en base a sus características estructurales. Con fines comparativos se investigó también el complejo isoestructural de Zn(II).

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### INTRODUCTION

The role of copper in relation to inflammatory diseases is not straightforward and has often given rise to paradoxical interpretations<sup>1,2</sup>. However, it has long been established that inactive substances can become potent antiinflammatory agents when administered as their copper complexes and, in particular, that copper complexes of non-steroidal antiinflammatory agents are much more effective than their parent drugs<sup>1-4</sup>.

We have recently initiated systematic studies of copper complexes with non-steroidal antiinflammatory drugs derived from N-phenylanthranilic acid and have investigated the structural and spectroscopic behavior of the dimeric Cu(II) complexes of N-2,3-dimethylphenylanthranilic acid (mefenamic acid)<sup>5</sup> and N-3-trifluorophenylanthranilic acid (flufenamic acid)<sup>6</sup>.

During the study of these complexes, and in order to attain a better understanding of their vibrational-spectroscopic behavior, we have also performed an investigation of the IR and Raman spectra of the mononuclear Cu(II) complex of anthranilic acid (o-amino-benzoic acid). The results of this investigation, complemented with some spectroscopic data for a similar Zn(II)

complex, constitute the main subject of this paper.

Besides, it should be emphasized that it has been recently demonstrated that anthranilic acid presents an important OH radical scavenging potential, which is a direct function of the fraction of Cu(II) bound to it<sup>7</sup>.

### EXPERIMENTAL

Micro-crystalline samples of the bis(anthranilato)Cu(II) complex were obtained by slow addition of a 1 M aqueous solution of copper(II) nitrate to a stoichiometric quantity of a 0.2 M aqueous solution of the sodium salt of the acid<sup>7</sup>. The complex, in form of a blue powder, immediately precipitated and was separated by filtration and washed three times with small portions of water and finally with diethyl ether. It was stored in a vacuum desiccator over  $\text{H}_2\text{SO}_4$ . The similar Zn(II) complex was obtained by an analogous procedure, starting with a zinc nitrate solution. The purity of both complexes was checked by chemical analysis and X-ray diffraction.

The spectra were obtained with a Bruker FTIR IFS 66 instrument, provided with a FRA 106 Raman accessory. IR spectra were recorded

**KEY WORDS:** Cu(II), Anthranilic Acid, Antinflammatory Drugs.

**PALABRAS CLAVE:** Cu(II), Acido Antranílico, Drogas Antiinflamatorias.

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