UABDIVULGA
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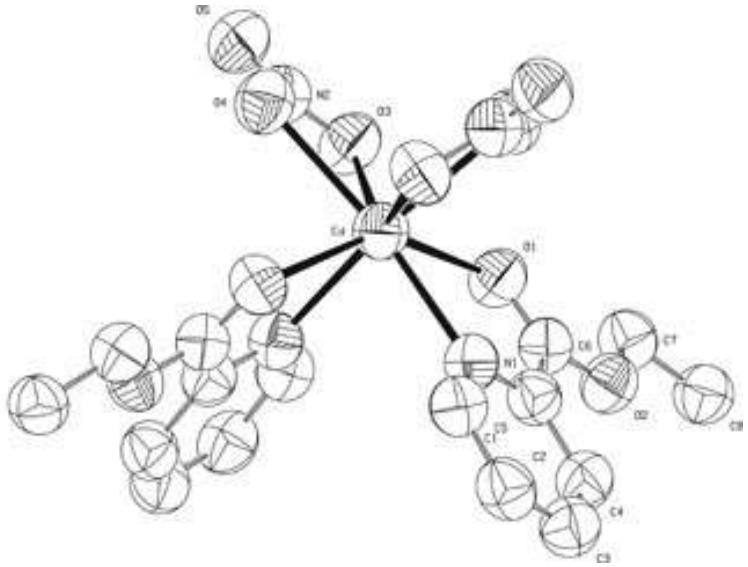
A Cadmium(II) complex with unusual geometry



This work describes the synthesis and characterization of a new coordination compound based on cadmium. The study of the interactions between the zinc(II), cadmium(II) and mercury(II) and biomelecules is a very interesting field due to its many applications in, for example, recovering contaminated substrates or in industrial synthesis.

The interaction of Zn(II), Cd(II) and Hg(II) with biomolecules is one of the most studied fields in coordination chemistry. Zinc is essential for the structure, regulation and catalytic action of over 300 enzymes. Cadmium and mercury, on the contrary, are very toxic metals widely used in main industrial processes.The toxic effect of cadmium is associated with the fact that it often competes with zinc for a variety of important binding sites in cells, including sites potentially important in gene regulation.

Reaction of $Cd(NO_3)_2 \cdot 4H_2O$ with ethyl-2-pyridinecarboxylate (ethyl picolinate) ligand in a 1:2 metal to ligand molar ratio yields the complex $[Cd(NO_3)_2(C_5H_4NCOOEt)_2]$.

>Elemental analyses, conductivity measurements, infrared, ^{1}H and $^{13}C\{^{1}H\}$ NMR spectroscopies and single-crystal X-ray diffraction enabled us to characterise this complex.

The structure of the complex was unequivocally determined by single crystal X-ray diffraction. IR and ^{1}H-NMR spectra have been performed and show no difference from the spectra of the solid precipitate.

The structure of $[Cd(NO_3)_2(C_5H_4NCOOEt)_2]$ consists of monomeric units. Ethyl picolinate ligands act as N1,O1-bidentate chelates. Moreover, in this cadmium compound, nitrate anions (NO_3^-) are also bidentate bonded to the metal centre, giving a four- membered chelated ring. Both nitrate ligands, as well as ethyl picolinate ones are arranged in *cis* dispositions from each other. Therefore, the cadmium ion is eight-coordinated.

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References

“Preparation and structural characterisation of a Cd(II) complex with unusual geometry” Pons, J; Garcia-Anton, J; Jimenez, R; Solans, X; Font-Bardia, M; Ros, J. INORGANIC CHEMISTRY COMMUNICATIONS, 10 (12): 1554-1556 DEC 2007

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