

Zinc complexes with nitroderivatives of quinolin-8-ol

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Five new zinc(II) complexes, $\{\text{Na}[\text{Zn}(\text{CINQ})(\text{SO}_4)(\text{H}_2\text{O})]\}_n$ (**1**), $[\text{Zn}(\text{dNQ})_2(\text{H}_2\text{O})_2] \cdot 1,4\text{-dioxane}$ (**2**), $[\text{Zn}(\text{dNQ})_2(\text{H}_2\text{O})_2]$ (**3**), $\text{NH}_2(\text{CH}_3)_2[\text{Zn}(\text{CINQ})_3] \cdot \text{DMF}$ (**4**) and $\text{K}[\text{Zn}(\text{CINQ})_3] \cdot 2\text{DMF}$ (**5**), (HCINQ = 5-chloro-7-nitroquinolin-8-ol, HdNQ = 5,7-dinitroquinolin-8-ol (Fig.1)) have been prepared. All complexes were characterized by IR spectroscopy, elemental analysis and X-ray structure analysis.

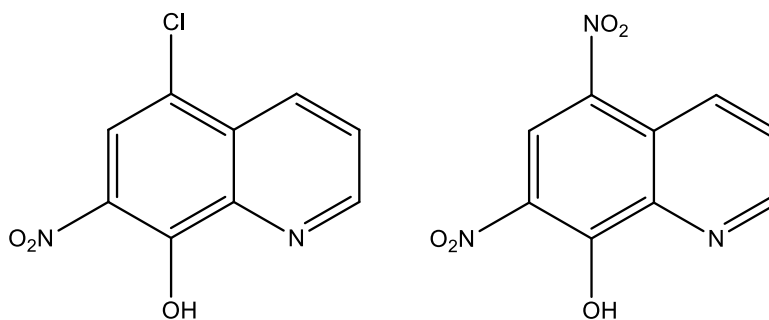


Figure 1. Chemical structures of HCINQ (left) and HdNQ (right)

Complex **1** has a polymeric structure. Zn(II) atom is penta-coordinated by one bidentate molecule of CINQ ligand, one molecule of water and a pair of crystallographically equivalent sulfate anions, which interconnect adjacent zinc atoms to form a *zig-zag* chain. In addition, the central atoms are also connected through ionic interactions between oxygen atoms with a partial negative charge and sodium cation.

Complexes **2** and **3** have similar molecular structures, Zn(II) atom sits at the center of the symmetry, therefore only a half of the molecule is independent. In their crystal structures, there are two *trans*-coordinated dNQ molecules in the equatorial plane while two water molecules occupy axial positions, forming a deformed octahedral geometry. Complex **2** also contains one uncoordinated molecule of 1,4-dioxane.

Complexes **4** and **5** are ionic compounds with very similar structures, in which Zn(II) atom is tris-coordinated by molecules of deprotonated 5-chloro-7-nitro-quinolin-8-ol with nitrogen and oxygen donor atoms coordinated in *mer*-fashion. The negative charge of the complex anions is counterbalanced by uncoordinated dimethylammonium and potassium cations, respectively, and interesting orientation of the oxygen atoms to $\text{NH}_2(\text{CH}_3)_2^+$ (**4**) and K^+ (**5**) ions is observed. In addition, the complex **5** contains one more solvated molecule of DMF molecule.

Keywords: 5-chloro-7-nitroquinolin-8-ol; 5,7-dinitroquinolin-8-ol; zinc

Slovak Grant Agencies (VEGA 1/0148/19, VVGS-PF-2020-1425 and VVGS-PF-2021-1772) are acknowledged for financial support.