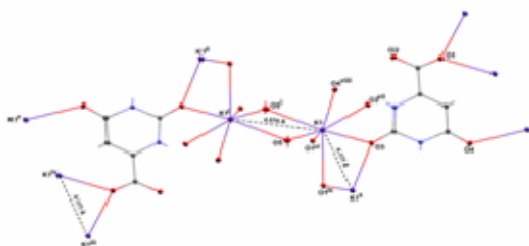
**MS15 P11**

**The novel polymeric potassium complex with a new coordination mode of orotic acid  $[K(\mu_5\text{-H}_2\text{Or})(\mu\text{-H}_2\text{O})]_n$ : Synthesis, spectral, thermal and structural characterization (H<sub>3</sub>Or = Orotic acid)**

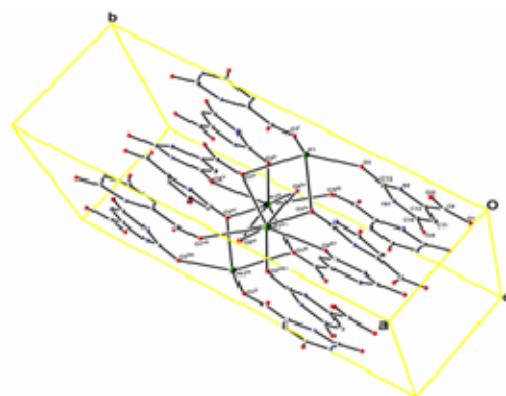
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**Keywords:** orotic acid, potassium complex, X-ray

New water and orotate bridged polynuclear seven-coordinated potassium complex,  $[K(\mu_5\text{-H}_2\text{Or})(\mu\text{-H}_2\text{O})]_n$  (H<sub>3</sub>Or = orotic acid), with unprecedented coordination mode of orotic acid has been prepared and characterized by elemental analysis, FT-IR spectra, thermal analysis (TG, DTG and DTA) techniques and X-ray diffraction. The orotate ligand exhibits new coordination mode of  $\mu_5\text{-K}(\text{O},\text{O}:\text{K}(\text{O}',\text{O}')\text{O}'')$  for H<sub>2</sub>Or<sup>-</sup> (Fig.1). The complex crystallizes in the orthorhombic space group *Pbca* with unit cell parameters:  $a = 6.524(5)$ ,  $b = 18.241(5)$ ,  $c = 12.613(2)$  Å and  $Z = 8$ . The potassium cations are seven-coordinated and are bridged by the oxygen atoms of carboxyl group, carbonyl group and aqua ligand (Fig. 2). Thermal analyses have showed decomposes in three stages over the range 20–700 °C on heating in oxygen atmosphere.



**Figure1.** The penta-dentate behaviour of the HOr ligands



**Figure2.** The coordination geometry around potassium cation and unit-cell packing.

**MS15 P12**

**Synthesis and Structural Study of  $\text{Fe}_2(\text{CO})_4[\mu_2\text{-S}(\text{CH}_2)_2\text{-S}][\text{P}(\text{OMe})_3]_2$  Complex** Abdelhamid Mousser<sup>a</sup>,

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**Keywords:** Complex, ligand, X-ray diffraction

The mononuclear or polynuclear of carbonyl metal complexes are frequently used as catalysts in organic synthesis [1] or in the preparation of other organometallic complexes [2].

Information resulting from the studies of reactivity of these complexes generally relates to the stability of the substrates under various condition reactions. The aspect more studied relates to the replacement of carbon monoxide with other ligands [3-6], their volatility makes it possible to easily eliminate them from the reactional medium.

The thermal activity of the hexacarbonyl complex  $[\mu^2\text{-S}(\text{CH}_2)_2\text{S-}]_2\text{Fe}_2(\text{CO})_6$  in the presence of an excess of trimethylphosphite  $\text{P}(\text{OMe})_3$  leads to the  $[\mu^2\text{-S}(\text{CH}_2)_2\text{S}]_2\text{Fe}_2(\text{CO})_4[\text{P}(\text{OMe})_3]_2$  complex. The spectroscopic methods confirm the disubstitution, but the provided information is insufficient to specify the regioselectivity of the exchange. The study of the regioselectivity and the stereochemistry of the replacement were realized on the basis of structural determination by X-ray diffraction. The two  $\text{P}(\text{OMe})_3$  ligands are in axial position in trans with respect to the iron-iron bond. The structure was solved on single crystal by direct methods in space group  $C_{2/c}$  and refined by least squares methods to  $R = 0.035$ .

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