

MS33-P15 | COORDINATION POLYMERS AND SOLVATOMORPHS – COPPER COMPLEXES WITH AMINO ACIDS AND 2,2'-BIPYRIDINE

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Copper complexes with amino acids and heterocyclic bases are interesting systems in crystal engineering due to versatility of noncovalent interactions (hydrogen bonds, π -interactions), which are responsible for different architectures. These type of complexes are also used in medicine, enantioselective synthesis and for molecular recognition.

As part of our investigation of porous materials, coordination polymers and solvatomorphism in copper–amino acidato systems, we report 4 new structures of copper complexes with 2,2'-bipyridine (bpy) and L-alanine (ala), L-valine (val) and L-threonine (thr): $[\text{Cu}(\text{ala})(\text{H}_2\text{O})(\text{bpy})]_2\text{SO}_4 \cdot 2.5\text{H}_2\text{O}$ (**1**), $[\text{Cu}(\text{ala})(\text{H}_2\text{O})(\text{bpy})]_2\text{SO}_4 \cdot 2\text{H}_2\text{O}$ (**2**), $[\text{Cu}(\text{val})(\text{H}_2\text{O})(\text{bpy})]_2\text{SO}_4 \cdot 2\text{H}_2\text{O}$ (**3**), and $[\text{Cu}(\text{thr})(\text{H}_2\text{O})(\text{bpy})]_2\text{SO}_4 \cdot 4\text{H}_2\text{O}$ (**4**). In cations of mononuclear complex **4** the copper(II) ion is pentacoordinated by *N,O*-donating thr ligand and *N,N'*-donating bpy ligand in the basal plane and an apically coordinated water molecule with close $\text{C}=\text{O} \cdots \text{Cu}$ contact at unoccupied axial position. 1D coordination polymers **1–3** contain complex cations with Cu(II) ions octahedrally coordinated by didentate ala or val, bpy and carboxyl oxygen atom. **1–4** form infinite double chains through π -interactions of the neighbouring bpy rings, which are interconnected by $\text{O}-\text{H} \cdots \text{O}$ hydrogen bonds. Water molecules of crystallization are located in pockets between double chains, and, with sulfate ions, serve as hydrogen bond bridges between adjacent chains through $\text{O}-\text{H} \cdots \text{O}$ and $\text{N}-\text{H} \cdots \text{O}$ hydrogen bonds.