

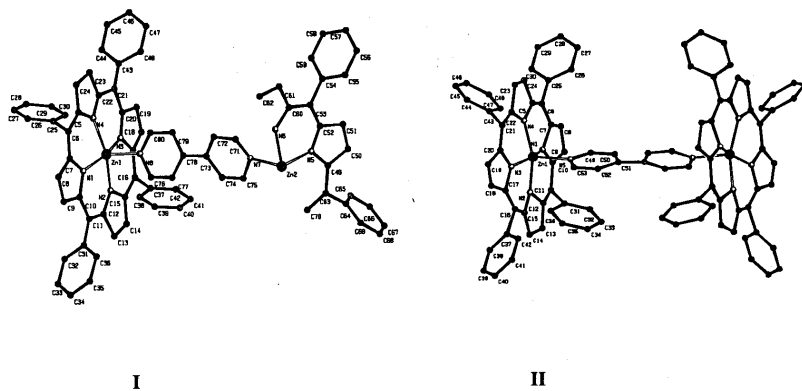
Design, syntheses, characterization and single crystal X-ray diffraction studies of multicomponent Zn-tetraphenylporphyrins: Novel building blocks for microporous crystalline solids

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Two multicomponent Zn-tetraphenylporphyrin (ZnTPP) based building blocks, have been synthesized for designing microporous crystalline solids. Reactions between ZnTPP and 4,4'-bipyridine (4,4'-bpy) in two different molar ratios gave complexes $[\{\text{ZnTPP}\}_3\{\text{m}4,4'\text{-bpy}\}_2]$ (**I**) and $[\{\text{ZnTPP}\}_2\{\text{m}4,4'\text{-bpy}\}]$ (**II**). Complexes **I** and **II** were characterized by different spectroscopic and analytical methods. In order to study their supramolecular array, inclusion complexes of **I** and **II** with toluene as guest (namely **Ia** and **IIa** respectively) have been prepared and their structures determined by single crystal X-ray crystallographic techniques.



Packing arrangements of these building blocks in their inclusion complexes are found to be quite similar to the gross packing mode of TPP based materials. Interestingly, in **Ia**, an extra channel is formed around the central porphyrin core of the trimer because of its unprecedented tilt with respect to the terminal porphyrin core of the trimer. Thermogravimetric analysis (TGA) of **IIa** corresponds well with the stoichiometry found in the crystal structure. To the best of our knowledge, complex **I** is the second example of crystallographically characterized hexacoordinated ZnTPP complex with N donor heterocyclic ligand.