

To What Extent the Electronic Structures of Transition Metal Complexes are Modified Upon Encapsulation?

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One of the major challenges in chemistry is to understand the structure-function relationship of metalloenzymes in catalysing several substrates with immense specificity. Many organometallic catalysts were synthesized to mimic the metalloenzymes with some success. Alternatively, supramolecular hosts can mimic the enzymes due to the unique shapes provided by them. Cucurbituril (CB), a pumpkin shaped supramolecule can accommodate guests of different sizes. The presence of hydrophilic portals and hydrophobic core facilitate the binding of wide range of molecules such as gases, dyes,¹ hydrocarbons² and metal ions.³ In this presentation, I will showcase with examples that the electronic structures of transition metal complexes are retained upon encapsulation, whereas their stabilities are enhanced due to favourable host-guest complexation has tremendous application in supramolecular catalysis.^{4,5}

References

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