

# **CHEMISTRY AND BIOLOGY SUSTAINABLE PROGRESS OF HUMAN CIVILIZATION**

**Edited by**

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# Chapter 1

## Biological applications of MOF: a Review

*Abhinandan Rana*

Biological metal-organic frameworks (bioMOFs) are a new subclass of the MOF family. In comparison with traditional MOFs, the bioMOFs are made of multifunctional biologically related ligands (bio-ligand) and metal ions. The bio-ligands confer biological compatibility for traditional MOFs, thus providing many opportunities for a wide array of biological applications. This review highlights the recent advances in the synthesis of bioMOFs comprising multifunctional bio-ligands and metal ions. These bio-ligands include nucleobases, amino acids, peptides, proteins, cyclodextrin, saccharides, and other biomolecules. Furthermore, the potential bio-applications of bioMOFs in several fields such as biomedicine, biosensing and bioimaging, antimicrobial applications, biomimetic catalysis, chiral separation, and environmental protection are also demonstrated.

**Keywords:** Biological Metal-organic Frameworks (bioMOFs), Bio-ligand, Biodesign, Bioapplications.