

**Preparation of MOF materials in water at room temperature****Negash Getachew**

Addis Ababa University, Ethiopia

**M**etal-Organic Frameworks (MOFs) are a new class of hybrid inorganic – organic porous materials. Porous materials are very useful in gas storage, adsorption based gas/vapor separation, shape/size-selective catalysis, drug storage and delivery etc. Chemistry of Metal-Organic Frameworks is extraordinarily rich. However, this richness has been scarcely exploited in their syntheses, which are still widely dominated by environmentally not benign procedures including solvothermal treatments, harmful solvents etc. This work focuses on changing the solvent and practically the only parameter that has not been altered in the synthesis of MOFs, i.e. the protonated nature of the linker source. Instead alkaline salts of organic linkers have been used. The approach resulted in affording MOF materials in a rapid, cheap and environmentally friendly way, allowing the preparation of high-quality carboxylate based MOFs under particularly sustainable conditions; room temperature and water as the only solvent

in particular for MIL-53(Al). Amongst some other advantages, the preparation of MIL-53(Al) is free of any linker molecules, avoiding the subsequent calcinations step, which is compulsory in the conventional MIL-53 (Al) materials. The method has been successfully applied to some other emblematical MOF materials. Furthermore, the method circumvents the harsh condition in the synthesis of MOFs; high temperature and the use hazardous solvents. It does not only imply the prevention of the undesirable corrosive synthesis medium, but it also introduces substantial differences in terms of solubility of the linker and pH of the medium. Furthermore, it is relevant in the generation of MOFs with important textural properties. The method can be applied as a general strategy consisting in the use of salts as an alternative to the exclusively tested acidic protonated linkers.

e: betimoses@yahoo.com

*Notes:*