Heteropolymolybdate- amino acid hybrid materials: Synthesis and characterization

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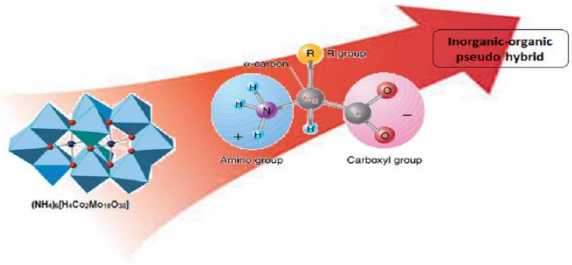
Polyoxometalates (POMs) as anionic early-transition-metal oxide clusters, bear many properties ranging from chemistry, catalysis and materials science to biology.[1] Owing to their great potential antitumor and antiviral activities, polyoxometalate complexes have become attractive to both inorganic chemists and biochemists.[2,3] However, POMs are often (potentially) toxic, making further trials as drugs unacceptable. One of the solutions to the toxicity problem is to modify the POMs by different organic ligands or enzymes. Cocrystallization with small organic molecules such as amino acids to modify the surface of these POM clusters may offer a rational way to not only fine-tune the properties of these compounds but also bring about novel synergistic effects. [4] During the course of our attempts to synthesize new POM-based hybrids organic-inorganic, we have obtained two novel heteropolymolybdates functionalized by amino acids including aspartic acid (L-Asp) and sodium glutamate (Na_2Glu). It has been showed that spectroscopic studies, especially FT-IR results, are accurate, more reachable, easier and cheaper methods for characterization of POMs and confirm different types of interactions between them and organic molecules.[5] This context describes the synthesis and characterization of $(NH_4)_6[H_4Co_2Mo_{10}O_{38}].(L.Asp)_2$ (1) and $(NH_4)_6[H_4Co_2Mo_{10}O_{38}].(Na_2Glu)_2$ (2) through elemental analysis, FT-IR spectroscopy and atomic absorption spectroscopy.



Scheme. 1. General procedure of synthesis

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