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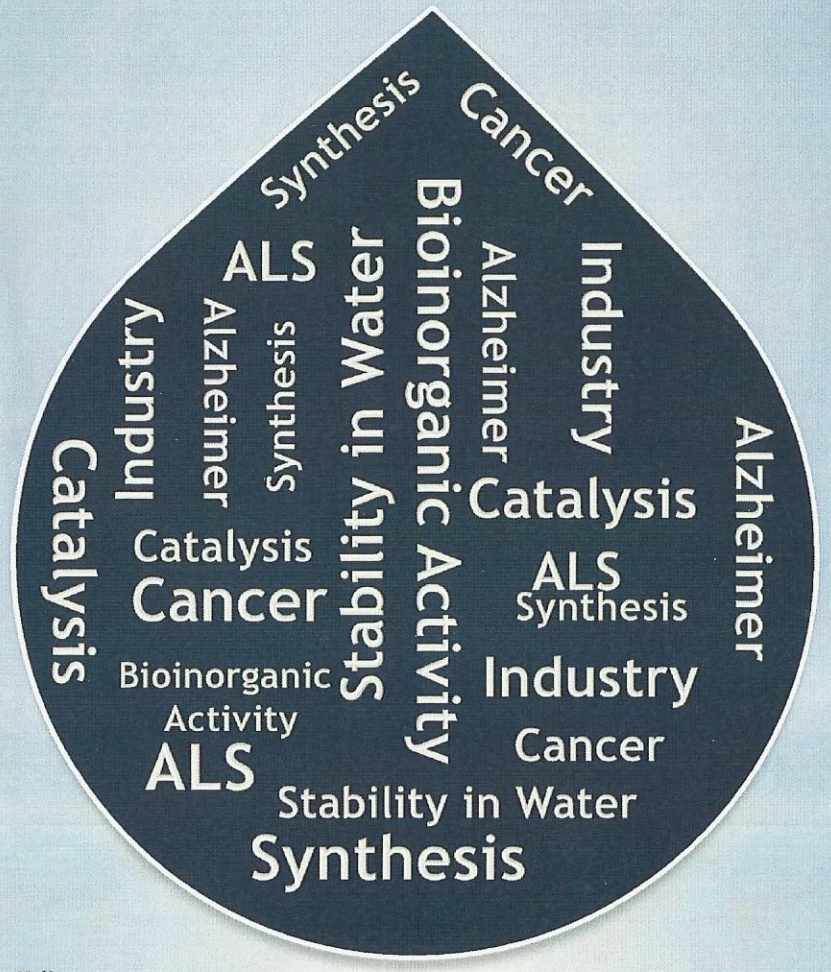
II International Conference on Water Soluble Metal Complexes



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Aurophilicity-mediated hydrogelation

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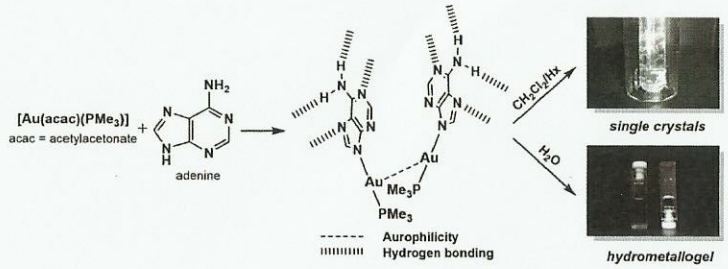
Weak interactive forces, such as hydrogen bonding, Van der Waals forces or London dispersive forces, represent, after conventional chemical bonds, the most important level of organisation of matter. Thus, these forces are responsible for the packing of molecular solids, or for life-determinant processes as the establishment of the tertiary and quaternary structures of proteins or the adoption of the double helix of DNA.

Among those forces, aurophilicity arises, as Schimdbaur firstly pointed out, as an unexpected "super-Van der Waals force". This aurophilic interaction manifests itself by the approximation of the metallic gold(I) centres in its crystalline structures because of dispersive forces reinforced by relativistic effects, that find a maximum in its period at that metal. The existence of such force frequently gives rise to interesting photophysical properties with multiple applications. [1,2]

More recently, Rodríguez and collaborators discovered that aurophilicity participates in the formation of gold(I) hydrometallogels, being the key driving force for the formation of that supramolecular structures. Moreover, it is associated with the luminescent emission that is commonly observed in such materials. [3]

In this communication we present the synthesis and characterisation of two gold(I) compounds based on the coordination of water-soluble $[Au(PR_3)]^+$ fragments (PR_3 = PMe_3, PTA) to the nucleobase adenine. We analyse their different behaviour in aqueous solution and their ability to form hydrogels, which is monitored with the aid of PGSE-NMR techniques and luminescence measurements. It is also highlighted the importance of the obtaining of an adenine-based hydrogel, which chemistry in this ambit is scarcely described versus guanine and its derivatives. [4]



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