Séminaire :

“Intramolecular hydrogen bonds vs. other weak interactions. The resonance assisted phenomenon.”

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Résumé :

For β-chalcogenvinylaldehydes, HC(=X)-CH=CH-CYH (X = O, S, Se, Te; Y = O, S, Se, Te), among which malonaldehyde is a paradigmatic example, the X-H···Y intramolecular hydrogen bond (IHB) competes in strength with the X···YH chalcogen-chalcogen interaction. The origin and the importance of these weak interactions on the reactivity of the systems will be discussed. A comparison of these unsaturated compounds with their saturated analogs seems to point out to the existence of a resonance assisted hydrogen bond (RAHB), which enhances the stability of the former. However, a more detailed analysis shows that neither the magnetic nor the electronic properties of the systems provide any evidence for the existence of the RAHB phenomenon.