

Glucosinolates, From Nature to some Sulfur Chemistry in carbohydrates



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Glucosinolates (GLs) are well-known thiosugars mainly found in the botanical order Brassicales. These unique compounds, thanks to the atypical O-sulfated anomeric thiohydroximate function, are hydrolysed with a unique enzyme, myrosinase (thioglucoside glucohydrolase EC 3.2.3.147) and a broad library of aglycons, whose structure varies in the vegetal kingdom depending on the species (over 130 different aglycons). The myrosinase-glucosinolate (MG) tandem is a well-known mechanism of defense in plants. It is restricted to species of the order Brassicales. This biochemical system is unique in that myrosinase acts as a thioglucoside glucohydrolase cleaving the anomeric C-S bond of glucosinolates (GLs) to liberate transient species that spontaneously form isothiocyanates (ITC).

The purpose of the talk will be to walk along our scientific results describing the thiohydroximate function in its synthesis and transformations applied to glucosinolates and glycochemistry.