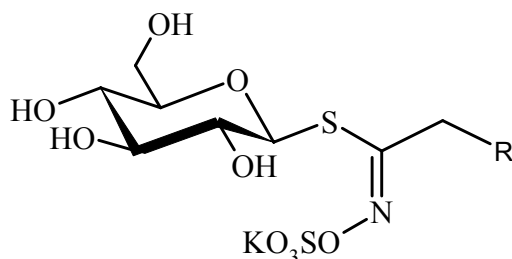


CABBAGE AND RADISH CHEMISTRY: AN UPDATING ANALYSIS OF THE GLUCOSINOLATE-MYROSINASE COUPLE

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All vegetables in the Brassicaceae order contain glucosinolates (GSL) – anciently foreboded [1] and strikingly bio-relevant [2] thiosaccharidic metabolites which display a remarkable structural homogeneity : a hydrophilic β -D-glucopyrano framework bearing a O-sulfated anomeric (*Z*)-thiohydroximate moiety connected to a generally hydrophobic aglycon side chain R. In the over 120 known GSL, R is the sole structural variant, in which diversified aliphatic, arylaliphatic or heterocyclic atom arrangements can be found.[3]



Present in all GSL-containing plants, myrosinase (thioglucoside glucohydrolase EC 3.2.3.1) is the unique enzyme able to effect hydrolytic cleavage of the anomeric C-S bond of GSL; the detached aglycons undergo a fast Lossen rearrangement to mainly produce in situ strongly electrophilic isothiocyanates and/or closely related thiofunctionalized compounds. Sulfur-containing metabolites such as glucosinolates can therefore be regarded as innocuous precursors to markedly bio-active derived products.

Extraction of GSL from vegetable sources is usually not a straightforward operation : over the past forty years, synthetic routes to naturally occurring GSL have therefore been developed then more recently extended to the elaboration of tailor-made artificial GSL-like structures,[4, 5, 6] with a view to exploring the recognition process of myrosinase, estimating the relative importance of topical zones in the active site and searching for enzyme inhibitors.[7]

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