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Enzymatic glycosylation of epothilone A

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Many natural products and antibiotics have been modified by tailoring enzymes through the process of glycosylation whichusually improves their biological activities.Epothilonehaving epoxide, thiazole, and ketonemoietiesare extremely cytotoxic agents with a similar mode of action to taxol.Nevertheless, Epothilones represents a novel structural class of compounds with equipotent kinetic similarity to taxol. These antifungal and cytotoxic epothiloes are produced by a few strains of myxobacterium, *Sorangiumcellulosum*. In *S. cellulosum*, 8 analogs of 16-membered macrolide epothilones (A to H) containing 29 variants have been described. Epothilone A and B are the major products having potential applications intherapy and cytotoxicity against different tumor cell lines. Thus, it could be interesting to elucidate and search for glycosylated analogues of epothilones.Here we reportan enzymatic glycosylation study of epothilone A with the help of GT (YjiC) from *Bacillus lichaniformis* DSM 13. UDP-D-glucose and TDP-2 deoxyD-glucose were used as a sugar donor whereas epothilone A as an acceptor substrate for YjiC. The reaction products were analyzed by HPLC and high resolution LC-QTOF-ESI/MS which revealed the presence of glycosylated products. Although 3-hydroxyl and 7-hydroxyl positions were prominent in epothilone A for glycosylation; reactions with UDP-glucose and TDP-2-deoxy glucose, mono glucosidewere detected which was confirmed by mass analysis. Exact glycosylation position is yet to be elucidated.

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