The Synthesis of Naturally Occurring 3,3’- Neotrehalosadiamine and its Analogs through Disarmed to Armed And Armed to Super Armed Approach

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The synthesis of a naturally occurring 1,1’-disaccharide, neotrehalosadiamine (NTD) and its analogs, is described in this report for the first time. Following an 11 step process, seven of which did not require chromatographic separation, NTD was generated at an overall yield of 60%. A high yielding, stereoselective synthetic process was developed using the inexpensive, commercially available precursor: 1,2:5,6-di-O-isopropylidene-α-D-glucofuranose. The advantage of the participating effect of the acyl group at O-2 of donor glycoside was taken in order to build the key α,β-linkage of NTD molecule in highly stereoselective manner. The influence of electronic effects of disarmed to armed and armed to super armed glycosyl donor/acceptor on outcome of 1,1’-glycosidation was also observed. The detailed antibacterial studies on neotrehalosadiamine (NTD) and its analogs have also been described here in due course.

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REFERENCES