A FACILE SYNTHETIC ROUTE FOR HYDROXYMETHYL BRANCHED-CHAIN SUGARS

V.R. N. Munasinghe

Dept. of Chemistry, University of Colombo.

Hydroxymethyl branched-chain sugars occur in plants and in several antibiotics produced by micro-organisms[1]. These are usually synthesised from two or more steps from osulose derivatives[2]. However we have shown that by a cross-pinacolisation of a ribo-hexopyranos-3-ulose derivative with methanol, branched-chain sugars are synthesised in one step[3]. In this communication we reported that u.v. irradiation of a methanolic solution of the xylo-hexopyranos-3-ulose derivative (1), gave in moderate yield (70%) a 1:1 mixture of hydroxymethyl branched-chain sugars. These were separated by column chromatography to yield the 3-C-hydroxymethyl galacto derivative (2) and the 3-C-hydroxymethyl gulo derivative (3). The configuration at the quartenary centre in the pair of branched-chain sugars was determined by ^{13}C n.m.r. as well as by conversion of one into a known less complex C-methyl branched-chain sugar.

References:

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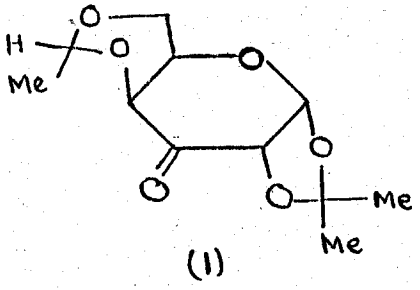
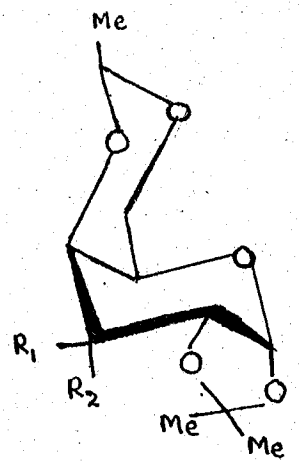


(1)



(2) $R_1 = OH$ $R_2 = CH_2OH$

(3) $R_1 = CH_2OH$ $R_2 = OH$