Highly Functionalised Cyclopentanes by Radical Cyclisation of Unsaturated Bromolactones. I - DTU Orbit (10/12/2018)

Three carbasugars: 5-Deoxycarba-alpha-L-xylo-hexofuranose, 5-deoxycarba-alpha-L-lyxo-hexofuranose and 5-deoxycarba-beta-D-lyxo-hexofuranose have been prepared starting from readily available 2,7-dibromo-2,7-dideoxy-D-glycero-D-ido-heptono-1,4-lactone and 2,7-dibromo-2,7-dideoxy-D-glycero-L-gluco-heptono-1,4-lactone. 2,3-Unsaturated 7-bromo-7-deoxy-heptono-1,4-lactones were prepared by reductive elimination of the starting compounds. The key step was a highly regio- and stereoselective 5-exo-trig radical cyclisation of the unsaturated bromolactones to give bicyclic cyclopentane derivatives. The lactone moiety of these compounds were reduced using H3B . S(CH3)(2) to give the abovementioned carbahexofuranoses. (C) 1997 Elsevier Science Ltd.

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