Bromination of sugar enones and enonolactones

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Bromination of 2,4,6-tri-O-benzoyl-3-deoxy-d-erytro-hex-2-enono-1,5-lactone (1) took place diastereoselectively to afford a single product: 2,4,6-tri-O-benzoyl-2,3-dibromo-3-deoxy-d-altrono-1,5-lactone (2). The configuration of C-2 and C-3 was determined as R,R by NMR spectroscopy and taking into account considerations of the stereochemical course of the bromination. The configuration of 2 was confirmed by X-ray analysis, which also revealed that the conformation of the lactone ring consists of a 4H3(d) distorted half-chair. The bromine addition to 2,5,6,7-tetra-O-benzoyl-d-arabino-hept-2-enono-1,4-lactone (5), readily prepared by DBU-promoted elimination from the perbenzoylated lactone derivative 4, was also diastereoselective and led to the dibromo derivative 6, whose configuration for C-2 and C-3 was assigned as S,S. Bromination of the ?,?-unsaturated carbonyl system of 2-propyl 6-O-acetyl-3,4-dideoxy-?-d-glycero-hex-3-enopyranosid-2-ulose (7) afforded an unsaturated monobromo deriv