Synthetic Utility of Sugar-Derived Cyclic Nitrones

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Nitrones have been one of the important building blocks in organic synthesis and they act as an important tool for the synthesis of various complex molecules.¹ Among nitrones, the sugarderived nitrones have been proved to be versatile substrates as they provide a polyhydroxylated carbon framework with multiple avenues of chirality. Moreover, enantiomerically pure and polyfunctional cyclic nitrones have found applications in the total, asymmetric synthesis of polyhydroxylated pyrrolidine, indolizidine, and pyrrolizidine alkaloids.²

Our group has earlier reported the synthesis of calystegine analogues, aza-bridged amino polycyclitols and 5-*epi*-hyacinthacine A3 and 5-*epi*-hyacinthacine A5.³ In continuance of our interest in nitrone chemistry, we utilized the sugar-derived cyclic nitrones for the synthesis of chiral β -lactam using Kinugasa reaction,⁴ aza-C-aryl glycosides using 1,3-dipolar cycloaddition with benzynes followed by reductive cleavage of N-O bond, and nitro-pyrrolo-isoxazole using 1,3-dipolar cycloaddition with aryl nitroalkenes.



References:

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