Dimethylaminomethylene-α-D-*xylo*-hept-5-ulofuranurononitrile as Building Block in the Synthesis of 'Reversed' *C*-Nucleoside Analogues

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3-*O*-Benzyl-6-deoxy-1,2-*O*-isopropylidene-6-(dimethylaminomethylene)-α-D-*xylo*-hept-5-ulofuranurononitrile (**1**) was reacted with amidinium salts, *S*-methylisothiouronium sulfate, and guanidinium chloride, respectively, in the presence of bases to furnish the 4-(3-*O*-benzyl-1,2-*O*-isopropylidene-α-D-*xylo*-tetrofuranos-4-yl)pyrimidine-5-carbonitriles **2** and the 4-(1,2-*O*-isopropylidene-α-D-*glycero*-tetr-3-enofuranos-4-yl)pyrimidine-5-carbonitriles **3**, respectively. Treatment of **1** with ethyl 5-aminopyrazole-4-carboxylates yielded the ethyl 7-(3-*O*-benzyl-1,2-*O*-isopropylidene-α-D-*xylo*-tetrofuranos-4-yl)-6-cyanopyrazolo[1,5-*a*]pyrimidine-3-carboxylates **4** and the ethyl 7-amino-6-(3-*O*-benzyl-1,2-*O*-isopropylidene-α-D-*xylo*-pentofuranuronoyl)pyrazolo[1,5-*a*]pyrimidine-3-carboxylates **5**, respectively. Reaction of **1** with 2-benzimidazolylacetonitrile in the presence of sodium methanolate afforded 1-amino-2-(3-*O*-benzyl-1,2-*O*-isopropylidene-α-D-*xylo*-pentofuranuronoyl)benzo[4,5]imidazo[1,2-*a*]pyridine-4-carbonitrile (**6**) and 1-amino-2-(3-deoxy-1,2-*O*-isopropylidene-α-D-*glycero*-pent-3-enofuranuronoyl)benzo[4,5]imidazo[1,2-*a*]pyridine-4-carbonitrile (**7**).

Key words: 'Reversed' *C*-Nucleoside Analogues, 5-Aminopyrazoles, Pyrimidines, Pyrazolo[1,5-*a*]pyrimidines, Benzo[4,5]imidazo[1,2-*a*]pyridine