SYNTHESIS AND SPECTROSCOPIC DATA OF SOME QUINOLINIUM NUCLEOSIDES

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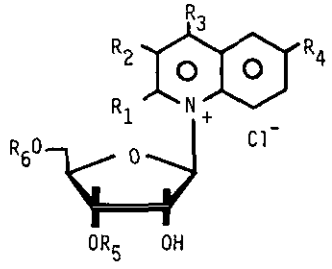
It is a well known fact that some metabolic enzymatic processes in biosynthesis (glycolysis, nucleoside biosynthesis) are NAD^+-dependent. The observations that cytostatic activity of a nucleoside analog sometimes can be explained in terms of ar inhibition of an NAD^+-dependent dehydrogenase after biochemical convertion into the corresponding NAD-analog prompted the synthesis of a series of quinolinium nucleosides I to VI.



I: R_1=R_2=R_3=H ; R_4=H ; R_5=H ; R_6=H

II: R_1=H ; R_2=H ; R_3=H ; R_4=CH_3 ; R_5=H ; R_6=H

III: R_1=CH_3 ; R_2=H ; R_3=H ; R_4=H ; R_5=H ; R_6=H

IV: R_1=COOBu ; R_2=H ; R_3=H ; R_4=H ; R_5=Bz ; R_6=Bz

V: R_1=H ; R_2=COOBu ; R_3=H ; R_4=H ; R_5=Bz ; R_6=Bz

VI: R_1=H ; R_2=$CONH_2$; R_3=H ; R_4=H ; R_5=H ; R_6=H

Bz : benzoyl

These quinolinium nucleosides, some of which show a structure relationship with the active nicotinamide part in NAD^+ itself were obtained in 80-90% yield by direct condensation of 3,5-di-O-bezoyl-β-D-furanosyl chloride with the corresponding quinoline derivative in dry acetonitrile at 0°C. Debenzoylation was performed using methanolic ammonia. The structure of these compounds was investigated by ^{1}H- and ^{13}C-NMR and D/CI mass spectrometry.