ON THE SYNTHESIS, REDUCING AND SPECTROSCOPIC PROPERTIES OF METHYL-SUBSTITUTED 1,4-DIHYDRONICOTINAMIDES.

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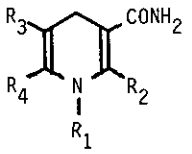
In the investigation of the reducing properties of 1,4-dihydropyridines as theoretical model compounds of NADH (ref 1 and 2), we here report on the synthesis of a series of N-substituted 3-carbamoyl-methyl-1,4-dihydronicotinamides I to XII. The reduction of the pyridinium salts I to XII with sodium dithionite to the corresponding 1,4-dihydropyridines was only succesfull for salts I, V and VII to XII. The 1,4-dihydropyridines of the compounds II to IV and VI could not be isolated, probably due to their instability.



I: R_1=CH_3, R_2=R_3=R_4=H

II: R_1=R_2=CH_3, R_3=R_4=H

III: R_1=R_3=CH_3, R_2=R_4=H

IV: R_1=R_4=CH_3, R_2=R_3=H

V: R_1=Bn, R_2=R_3=R_4=H

VI: R_1=Bn, R_2=CH_3, R_3=R_4=H

VII: R_1=Bn, R_3=CH_3, R_2=R_4=H

VIII: R_1=Bn, R_4=CH_3, R_2=R_3=H

IX: R_1=DCB, R_2=R_3=R_4=H

X: R_1=DCB, R_2=CH_3, R_3=R_4=H

XI: R_1=DCB, R_3=CH_3, R_2=R_4=H

XII: R_1=DCB, R_4=CH_3, R_2=R_3=H

Bn = Benzyl, DCB = 2,6-dichlorobenzyl

Structures of all isolated compounds was confirmed by both ^{1}H-NMR and ^{13}C-NMR spectroscopy. A compilation of these results will also be presented together with some kinetic data illustrating the reactivity towards an activated ketone.

References :

1. Ohno A., Yasui S., Nakamura K., Oka S., Bull. Chem. Soc. Jpn. 51 290 '78

2. J.P. Samama, Ph.D.-thesis, Université Louis Pasteur (Strasbourg, France) '79