

Synthesis and Structure of the 3,5-Diarylsubstituted Piperidoles-4

Tynyshtyk K. Iskakova, K.D. Praliev, K.D. Berlin, N.Ismagulova., Valentina K. Yu

Institute of Chemical Sciences of MS-AS RK, 106, Sh. Walihanov Str., Almaty, Kazakhstan,

Fax: 8-3272-615765, E-mail: adm@chem.academ.alma-ata.su

Oklahoma State University, 107, Department of Chemistry, Stillwater, Oklahoma 74078, USA

Fax: 405-744-6007, E-mail: kdberlin@bmb-fs1.biochem.okstate.edu

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The intensity of different N-substituted piperidones-4 synthetic modification with the following studying of the correlation between the chemical structure and biological properties of synthesised substances is stipulated by the high activity of the wide spectrum of action of these chemical class compounds and the simplicity of its synthesis. It well known that benzoic esters of some piperidoles-4 possess high anaesthetic and antiarrhythmic activity. Moreover, the combination of azaheterocycle with alkoxyphenyl substitutes gives the presence of the spasmolytic action. Therefore, it will be very interesting to synthesise the substances having the above mentioned fragments in one molecule with the study of its pharmacological properties.

Aldol-crotonization of N-substituted piperidone-4 with aromatic aldehydes (benzaldehyde, anisaldehyde, veratraldehyde) leads to 3,5-dibenzyliden-, 3,5-di(p-methoxybenzyliden)-, 3,5-di(m-,p-dimethoxybenzyliden)-piperidone-4 with good yields. The synthesised compounds are crystal yellow solids. Under conditions of Ni-Raney catalytic hydrogenation of corresponding dienones the mixtures of two stereoisomers of 3,5-di(arylmethyl)piperidoles-4 were obtained. In all the cases one epimer was separated by crystallisation from *i*-propanol. Acylation of individual piperidoles-4 by the mixture of acetic anhydride and acetyl chloride yielded acetic esters of 3,5-di(arylmethyl)piperidoles-4 hydrochlorides with the potential anaesthetic, antiarrhythmic and spasmolytic activity.

In contrast to initial N-substituted piperidone-4 which had an absorption at 1740 cm^{-1} , infrared spectra of the dienones were characterised by the display of C=O group absorption at $1671\text{-}1680\text{ cm}^{-1}$ with a decrease in intensity. This fact testified to the high conjugation of system $\text{Ar-CH=C-C(O)-C=CH-Ar}$. NMR ^{13}C spectra of synthesised compounds were appropriated carbon composition of the synthesised compounds. Carbon atom at C_4 of dienones (singlet) was found at 186,7-187 ppm. The 135,8-136,2 (singlet) ppm signals were attributed to double bond carbon =CH-(Ar). Carbon atoms C_4 (duplicate) of piperidoles-4 had the signal at 77,0-77,3 ppm. The triplets at 57,5-57,6 ppm were conformed to methylene groups at C_3 and C_5 . On the basis of NMR ^{13}C "monoresonance" spectra of piperidoles-4 the equatorial orientation of the C_3 and C_5 substitutes were determined.