THERMAL CIS-TRANS ISOMERIZATION OF 5-ETHYL-2-OXO-4-PIPERIDINEACETIC ACID AND RELATED COMPOUNDS

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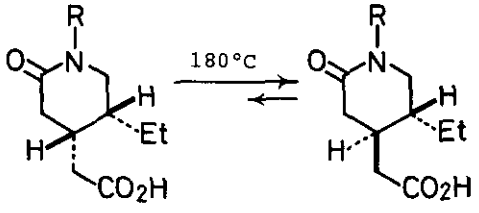
Thermal cis-trans isomerization of 1-(2-arylethyl)-5-ethyl-2-oxo-4-piperidineacetic acids (type I⟶II) has been an important process in our chiral syntheses of the Alangium alkaloids such as emetine, ankorine, alangicine, alangimarckine, desmethylpsychotrine, etc. In order to investigate the effect of the N-substituent on this reaction, (±)-Ia–d, (−)-Ie–i, (±)-IIa–d, and (+)-IIe–i were prepared and the progress of each of their cis-trans isomerizations at 180°C was followed by determining the isomer ratio in the reaction mixture according to the previously reported ^{13}C NMR spectroscopic method. It has been found that in all cases the reaction comes to equilibrium, within 8–130 min, where the cis and trans isomers exist in a ratio of 1 : 2. A higher and/or bulkier N-substituent tends to decrease the rate of attainment of equilibrium between both isomers.



I ⇌ II

a: R = H
b: R = Me
c: R = Et
d: R = $PhCH_2$