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Synthesis and NMR spectral studies of polyfunctionalized polymethoxyphenyl piperidones

J. Dineshkumar, P. Parthiban*

Department of Chemistry, CRD, PRIST University, Thanjavur-613403, India

Abstract: The piperidine skeleton is a building block that found in various natural products and biologically active compounds. Hence, the synthesis of new molecules with bio-active piperidine nucleus and the investigation of the stereochemistry of synthesized molecules are significant in the field of medicinal chemistry. As stereochemistry of the molecules is a major criterion for their biological response, it is of immense help to establish the stereochemical structure of newly synthesized compounds. Based on the above credentials of piperidine moiety, synthesis of some polyfunctionalized piperidin-4-ones were undertaken to achieve new molecules and to establish their stereochemistry. Since the methoxy groups are responsible pharmacophore for antioxidant property and many biological actions, the synthesis has been targeted towards polyfunctionalized polymethoxyphenylpiperidin-4-ones. Accordingly, the target molecules were achieved as single isomer by successive Mannich condensations with necessary modification in the reaction conditions, reactants and their quantity. Stereochemical investigations were carried out using NMR spectral data. Despite the possibility of chair, boat, twist-boat, and half-boat conformers for the six-membered piperidine, both the new compounds exist in chair conformation with equatorial orientation of both methyl substituents on the active methylene centers and polymethoxyphenyl groups on both sides of the secondary amine group.

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