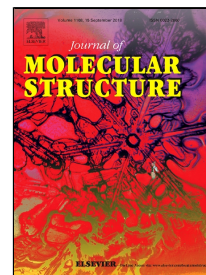


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FTIR spectroscopic study of possible interactions of N-*tert*-butylformamide with ethers

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Abstract

IR spectroscopic investigation of intramolecular interactions of N-*tert*-butylformamide (NtBF) in presence of selected ethers as the O-electron donors was carried out. Following ethers were selected based on the different size of sidechain: diethyl ether (DEE), diisopropyl ether (DiPE), methyl-*tert*-buthyl ether (MtBE), dibutyl ether (DBE), tetrahydrofuran (THF) and tetrahydropyran (THP). Frequency shifts of carbonyl stretching vibration $\nu(\text{C=O})$ of NtBF in ether solvents were also investigated. The spectroscopic characteristics for N-H $\cdots$ O hydrogen bonded complexes are given. Also, the equilibrium constants for 1 : 1 complex formation in carbon tetrachloride, at 298 K were determined using IR measurements. Further, the wavenumbers of carbonyl stretching vibration $\nu(\text{C=O})$ were correlated with the Catalan and the linear solvation energy relationships (LSER) solvatochromic parameters.

Keywords: Hydrogen bonding, N-*tert*-butylformamide, Ethers, Molecular complex, Spectroscopy

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