NEUROTRANSMITTERS IN THE GAS PHASE: LA-MB-FTMW STUDIES

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LA-MB-FTMW spectroscopy combines laser ablation with Fourier transform microwave spectroscopy in supersonic jets overcoming the problems of thermal decomposition associated with conventional heating methods. We present here the results on LA-MB-FTMW studies of some neurotransmitters. Six conformers of dopamine, four of adrenaline, five of noradrenaline and three conformers of serotonin have been characterized in the gas phase. The rotational and nuclear quadrupole coupling constants extracted from the analysis of the rotational spectrum are directly compared with those predicted by ab initio methods to achieve the conclusive identification of different conformers and the experimental characterization of the intramolecular forces at play which control conformational preferences.