USING HYPERFINE STRUCTURE TO QUANTIFY THE EFFECTS OF SUBSTITUTION ON THE ELECTRON DISTRIBUTION WITHIN A PYRIDINE RING: A STUDY OF 2-, 3-, AND 4-PICOLYLAMINE

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The ground state rotational spectra of the three methylamine substituted pyridines, 2-, 3-, and 4-picolylamine, were collected and analyzed over the frequency range of 7-17.5 GHz using chirped-pulsed Fourier transform microwave spectroscopy. All three molecules show a distinctive quadrupole splitting, which is representative of the local electronic environment around the two different ^{14}N nuclei, with the pyridine nitrogen being particularly sensitive to the pi-electron distribution within the ring. The role that the position of the methylamine group plays on the quadrupole coupling constants on both nitrogens will be discussed and compared to other substituted pyridines.