

Conformational Structures of Indole-3-acetic Acid by UV-UV hole-burning and IR-dip spectroscopy

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Indole-3-acetic acid (IAA) is the most common plant hormone that plays an essential role in the regulation of plant growth and fruit development. The special role in nature has led us to investigate the intrinsic properties of IAA in the gas phase. We have measured the electronic spectra of IAA by employing a resonant two-photon ionization (R2PI) and UV-UV hole-burning (UV-UV HB) technique in the free jet conditions. As a result, we identified three different conformers of IAA. A combination of infrared-dip, R2PI, UV-UV HB spectroscopy is used to characterize the IAA conformers. Further investigation with *ab initio* and density functional theory calculations of IAA is carried out for the study of potential energy landscapes of IAA.

