Electronic Spectroscopy Of Hydrocinnamic Acid

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We present one and two color resonant two-photon ionization (R2PI) spectra for hydrocinnamic acid (HCA) and its van der Waals complexes with water, HCA–$(H_2O)_n$, where $n = 1 - 5$. Different conformations in the alkyl side chain produce two spectral bands in the 0_0^0 region. Conformation specific solvation effects are observed in the spectra of the HCA–$(\text{water})_n$ vdW complexes. Rotational band contours (resolution ~ 0.08 cm^{-1}), have been obtained for the two conformer origin bands of HCA and the water complexes associated with these origins up to $n = 2$ water molecules. Band contours indicate that the water molecules do not significantly alter the polarization characteristics of the band. The results are interpreted in terms of reasonable structures for the monomers and van der Waals complexes.