ROTATIONAL STUDIES IN THE HYDROXYBUTYRIC ACID SYSTEM

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The rotational spectra of α-, β-, and γ-hydroxybutyric acids have been investigated using CP-FTMW spectroscopy in order to study their conformational geometries and the effects of internal hydrogen bonding within the various compounds. Concurrently, *ab initio* calculations have been carried out in an effort to compare the theoretical and experimental results. In addition, the rotational spectrum of γ-butyrolactone has been observed so that similarities in the geometry can be compared to the conformational geometry of γ-hydroxybutyric acid. The γ-butyrolactone results when water is removed from γ-hydroxybutyric acid. This system is interesting because the two compounds can be interconverted. There is currently a good deal of interest in various methods of detecting and quantifying γ-hydroxybutyric acid in the forensic community. On the street, it is commonly known as GHB, a compound often used as a "date rape drug".