

GAS PHASE SPECTRA AND STRUCTURAL DETERMINATION OF GLUCOSE 6 PHOSPHATE USING CRYOGENIC ION VIBRATIONAL SPECTROSCOPY

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Glucose-6-Phosphate (G6P) is one member of a class of simple phosphorylated sugars that are relevant in biological processes. We have acquired a gas phase infrared spectrum of $G6P^-$ using cryogenic ion vibrational spectroscopy (CIVS) in a home-built spectrometer. The experimental spectrum was compared with calculated vibrational spectra from a systematic conformer search. For both of the α and β anomers, results show that only the lowest energy conformers are present in the gas phase. If spectral signatures for similar sugars could be cataloged, it would allow for conformer-specific determination of mixture composition, for example, for glycolization processes.