COMPREHENSIVE SPECTROSCOPIC CHARACTERIZATION OF MODEL AROMATIC SUBSTITUENTS OF LIGNIN

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2,6-Dimethoxyphenol (2,6-DMP) is a model compound with aromatic substitution similar to that in sinapyl alcohol, one of the three monomers that make up lignin. 2,6-DMP has been studied combining several spectroscopic techniques that span the microwave, infrared and ultraviolet regions. Spectra from laser-induced fluorescence excitation, IR-UV hole-burning, fluorescence dip IR, dispersed fluorescence and rotational spectra have allowed us to develop more insight to the structural details, intramolecular H-bonding and electronic excited states of this sinapyl alcohol analog. Coupling in the CH stretch region, broadening effects in the IR spectra and Coriolis coupling due to the OH tunneling coordinate in the rotational spectrum will be shown as we present this diverse set of experimental data involving transitions between different vibronic, vibrational and rotational levels of the molecule. These features will be compared to those in 2-methoxyphenol and 4-methyl-2,6-DMP during the discussion.