

ESR Study of Cu(II) Ions in a Deuterated glycine Crystal

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In this study, the ESR parameters collected from crystal of copper doped deuterated glycine, $\text{ND}_2\text{CH}_2\text{COOH}$, were measured at room temperature by employing a x-band spectrometer. Hyperfine structure lines of ^{63}Cu and ^{65}Cu were well resolved from the crystal doped with Cu(II), while no signal was detected from a nominally undoped crystal. The superhyperfine structure lines arising from the interaction between Cu(II) and ligand N nuclei were also resolved. The superhyperfine lines split into five components with an intensity ratio 1:2:3:2:1. It indicated the nitrogen ligands were equivalent through an inversion at the copper site. The principal values and the principal-axis orientations of \mathbf{g} tensors and the hyperfine structure tensors, \mathbf{A}_{63} , \mathbf{A}_{65} , and \mathbf{A}_N , have been determined. From our overall results the substitutional sites of Cu(II) and the symmetry of the local structure around Cu(II) have been suggested.