Vibrational study of N-phenyl-substituted hydroxynaphthylaldiminate copper(II) complexes

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The infrared spectra of seven bis(N-phenyl-substituted hydroxynaphthylaldiminate) complexes of Cu(II) were scanned from 4000 to 100 cm-1. Particular emphasis is given to the low-energy region. The assignment of the chelate normal modes is supported by an approximate normal coordinate analysis based on a simplified general valence force field, and the geometrical parameters of the bis(N-phenylsalicylaldiminate)Cu(II) complex. The bands near 390 and 285 cm-1 are assigned to the CuO and CuN stretching vibrations, respectively. The corresponding force constants are estimated to be 1.37 and 0.88 mdyn Å-1. Influence of the nature of the different ligands on the structure of complexes is discussed. Similarity of the vibrational spectra for all the complexes suggests that they possess the same type of structure.