The synthesis, spectroscopy and X-ray single crystal structure of catena-[(μ-anacardato)-copper(II)bipyridine][Cu2{(μ-O2CC6H3(o-OH)(o-C15H31)}4(NC5H5)2]

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Abstract

Hydrogenation of crude anacardic acid gave a transparent crystalline product on recrystallization. When reacted with copper nitrate in the presence of pyridine it produced green crystals of a pyridine adduct of a dimeric copper(ii) anacardate with the copper acetate structure. The X-ray single crystal structures of both anacardic acid and the copper complex were determined. Magnetic studies have confirmed strong antiferromagnetic coupling between copper(ii) centre in the dimer. The exchange coupling constant was determined to be J = -324 cm(-1). The EPR spectra of the polycrystalline product are consistent with spin S = 1. The zero-field splitting parameter and g tensor values are |D| = 0.36 cm(-1), g|| = 2.36 and g⊥ = 2.06.