

**TITLE:****AUTHOR:** Thiago Jorge**ABSTRACT**

The anionic complexes  $[\text{Cu}(\text{L}1-)_3]^{1-}$ , L = dopasemiquinone or Ldopasemiquinone, were prepared and characterized. The complexes are stable in aqueous solution showing intense absorption bands at 605 nm for Cu(II)-Ldopasemiquinone and at 595 nm for Cu(II)-dopasemiquinone in the UV–Vis spectra, that can be assigned to intraligand transitions. Noradrenaline and adrenaline, under the same experimental conditions, did not yield Cu complexes, despite the bands in the UV region indicate that noradrenaline and adrenaline were oxidized during the processes. The complexes display a resonant Raman effect, and the most enhanced bands involve ring modes and particularly the  $\nu(\text{CC}) + \nu(\text{CO})$  stretching mode at  $1384\text{cm}^{-1}$ . The free radical nature of the ligands and the oxidation state of the Cu(II) were confirmed by the EPR spectra that display absorptions assigned to organic radicals with  $g = 2.0115$  and  $g = 1.9980$  and for Cu(II) with  $g = 2.0923$  and  $g = 2.0897$  for Ldopasemiquinone and dopasemiquinone, respectively. The possibility that dopamine and L-dopa can form stable and aqueous soluble copper complexes at neutral pH, whereas noradrenaline and adrenaline cannot, may be important in understanding how Cu(II)-dopamine crosses the cellular membrane as proposed in the literature to explain the role of copper in Wilson disease.

**Key words.** Catecolamines. Spectrophotometer UV-vis. Semiquinone. Wilson disease