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An investigation about complex formation tendencies of Fe(III) and Fe(II) with anti-Parkinsoniandrug, levodopa, (-)-3-(3,4-dihydroxyphenyl)-L-alanine at physiological pH

Syed Zafar A Zaidi, Nasreen Fatima and **Iftikhar I Naqvi**
University of Karachi, Pakistan

Levodopa forms stable complexes with Fe(II) and Fe(III). To study the interaction of LD with different oxidation states of iron in non-buffered as well as in buffered solutions was undertaken for a pH that ranged from 3.0 to 9.2. The complexation tendencies of iron were examined through visible spectra. The studies were carried out in a way that the information regarding stoichiometry, log Kf values and the specific binding sights could be ascertained. Towards our pursuit we could succeed in fixing the molar absorbtivity of the Fe(II)-LD complexat different pH. It was found that the stability of the complexes is pH dependent and it is stable above pH 4. Stoichiometry is 1:3 and the log Kf value stands around 11.Comparative study of levodopa and its analogue dopamine's visible spectra helped to make a suggestion that catecholic side of the ligand is the binding site in these complexes of iron. Variation in pH is instrumental in bringing such changes which influence the functioning of human body and its various organs. Hence complex formation of iron in its two oxidation states with levodopa may be controlled by the pH of the system and thus the potency of the drug may be influence by pH. Described findings may be successful in better understanding of Pharmacological aspects of this levodopa's applications.

Biography

Syed Zafar A Zaidi has completed his PhD from the Department of Chemistry, University of Karachi in 2014. He is an Assistant Manager, Quality Assurance in OBS-Pakistan (formerly Merck Sharp &Dohme-Pakistan), a renowned Pharmaceutical organization. He has diversified work experience of more than 10 years,primarily Quality Assurance and Control departments. He has published 04 papers in reputed journals.

MEHAR_ZAFAR@YAHOO.COM