conferenceseries.com SciTechnol

J Pharm Drug Deliv Res 2017, 6:5
DOI: 10.4172/2325-9604-C1-024

11TH WORLD DRUG DELIVERY SUMMIT

October 16-18, 2017 Baltimore, USA

Investigation of ruthenium based metal carrier as potential drug carriers for improved solubility, dissolution and permeation of sulpiride model drug

Gretta Cornelia M'bitsi-Ibouily
University of the Witwatersrand, South Africa

Statement of the Problem: The effectiveness of sulpiride (SPR) as an antipsychotic drug has been demonstrated, however, with regards to its pharmacokinetic features, it has many limitations. These include poor aqueous solubility, low bioavailability, relatively short half-life and limited intestinal permeability. These properties of SPR result in patients needing high doses of the drug to be treated, which negatively affect patient compliance and result in undesirable side effects. Medicinal inorganic chemistry focuses on the design of coordination compounds as drugs and diagnostic agents. The use of different metals and ligands in metal coordination affects a range of pharmacokinetic changes; hence metal coordination compounds could enhance the properties of known medicinal drugs. Methodology: This work reports the determination of the stability constant of the ruthenium (II) - sulpiride complex, the synthesis and characterisation of five ternary ruthenium (II) complexes with general formula [Ru(p-cymene)(L)(SPR)] PF6, as well as, solubility, dissolution and permeation studies of the drug incorporated in the metal complexes. Five amino alcohols were used as ancillary ligands (L1-5). Findings: Solubility studies of complexed sulpiride showed higher aqueous solubility than the free drug. Dissolution profiles of sulpiride from the metal complexes exhibited slower dissolution rate of the drug. Permeation studies through the pig's intestine revealed improved membrane permeation of the complexed drug. Conclusion & Significance: Ruthenium based metal carrier shows potential as a sustained release drug delivery carrier for drugs with poor aqueous solubility and limited permeability.

grettacornelia@yahoo.com