World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:9, No:12, 2015

A Comparison of Generation Dependent Brain Targeting Potential of(Poly Propylene Mine) Dendrimers

Authors : Nitin Dwivedi, Jigna Shah

Abstract : Aim and objective of study: This article indicates a comparison among various generations of dendrimers, a dendrimer is a bioactive material has repetitively branched molecule and used for delivery of various therapeutic active agents. This debut report compares the effect various generations of PPI dendrimers for brain targeting and management of neurodegenerative disorders potential on single platform. This report involves the study of the various mechanism of synthesis ligand anchored various generations PPI dendrimers deliver the drug directly to the CNS, prove their effectiveness in the management of the various neurodegenerative disease. Material and Methods: The Memantine an anti-Alzheimer drug loaded in different generations (3.0G, 4.0G, and 5.0G) of PPI dendrimers which were synthesized were synthesized. The various studies investigate the effect of PPI dendrimers generation on different characteristic parameters i.e. synthesis procedure, drug loading, release behavior, hemolysis profile at different concentration, MRI study for determine the route drug from olfactory transfer, animal model study in vitro, as well as in vivo performance. The outcomes of the investigation indicate drug delivery benefit as well as superior biocompatibility of 4.0G PPI dendrimer over 3.0G and 5.0G dendrimer, respectively. Results and Conclusion: The above study indicate the superiority of in drug delivery system with maximum drug utilization and minimize the drug dose for neurodegenerative disorder over 5.0G PPI dendrimers. So, 4.0G PPI dendrimers are the safe formulations for the symptomatic treatment of the neurodegenerative disorder. The fifth-generation poly(propyleneimine) (PPI) dendrimers, inherent toxicity due to the presence of many peripheral cationic groups is the major issue that limits their applicability.

Keywords : Alzheimer disease, generation, memantine, PPI
Conference Title : ICMAP 2015 : International Conference on Medicinal and Aromatic Plants
Conference Location : Penang, Malaysia
Conference Dates : December 03-04, 2015