World Academy of Science, Engineering and Technology
International Journal of Educational and Pedagogical Sciences
Vol:13, No:10, 2019

A Study on the Computation of Gourava Indices for Poly-L Lysine Dendrimer and Its Biomedical Applications

Authors : M. Helen

Abstract : Chemical graph serves as a convenient model for any real or abstract chemical system. Dendrimers are novel three dimensional hyper branched globular nanopolymeric architectures. Drug delivery scientists are especially enthusiastic about possible utility of dendrimers as drug delivery tool. Dendrimers like poly L lysine (PLL), poly-propylene imine (PPI) and poly-amidoamine (PAMAM), etc., are used as gene carrier in drug delivery system because of their chemical characteristics. These characteristics of chemical compounds are analysed using topological indices (invariants under graph isomorphism) such as Wiener index, Zagreb index, etc., Prof. V. R. Kulli motivated by the application of Zagreb indices in finding the total π energy and derived Gourava indices which is an improved version over Zagreb indices. In this paper, we study the structure of PLL-Dendrimer that has the following applications: reduction in toxicity, colon delivery, and topical delivery. Also, we determine first and second Gourava indices, first and second hyper Gourava indices, product and sum connectivity Gourava indices for PLL-Dendrimer. Gourava Indices have found applications in Quantitative Structure-Property Relationship (QSPR)/ Quantitative Structure-Activity Relationship (QSAR) studies.

Keywords : connectivity Gourava indices, dendrimer, Gourava indices, hyper GouravaG indices
Conference Title : ICTLS 2019 : International Conference on Teaching and Learning Systems
Conference Location : Los Angeles, United States
Conference Dates : October 30-31, 2019