

6<sup>th</sup> International Conference on

# Physical and Theoretical Chemistry

September 02-03, 2019 | Zurich, Switzerland

## L-alanyl-4,6-O-ethylidene- $\beta$ -D-glucopyranosylamine derived glycoconjugates and its application in metal interactions and amino acid interaction

Kiran Soni

Delhi University, India

Glycoconjugates are the molecules in which sugar is connected to other organic species such as protein, peptide, amino acids etc via covalent interaction. They are divided in three classes O type, N type and C type. It is of general concern to produce the molecules that can imitate like biological system. Several reports have appeared on structural and function mimicking of biological activities. Protein and Carbohydrate are linked by an amido linkage between the carboxyl group of L-aspartic acid and the amino group of 2-acetamido-2-deoxy- $\beta$ -D-glucopyranosylamine which is extracted either from hen egg albumin or from other source. N-(2-Hydroxybenzoyl)-L-alanyl-4,6-O-ethylidene- $\beta$ -D-glucopyranosylamine was interacted with transition metal ions but solid product was not isolated, even though the solution phase study supported the interactions between them. A series of alanyl-(4,6-O-ethylidene- $\beta$ -D-glucopyranosylamine) derived new chiral receptors have been synthesized. Metallochemistry of the ligands has been explored. N-(2-Hydroxybenzylidene)-L-alanyl-4,6-O-ethylidene- $\beta$ -D-glucopyranosylamine (K1) interacts with the acetates of Zn(II), Cu(II), Ni(II), Mn(II) and Co(II) ions in ground state but the interaction remains conserved in excited state for Zn<sup>2+</sup> ion only. K1 has been also used for the molecular recognition of naturally occurring amino acids. All the interactions studies were explored using UV-visible, fluorescence and mass spectroscopy.

### Recent Publications

1. Jeong, Y., and Yoon, J. (2012) Recent progress on fluorescent chemosensors for metal ions, *Inorganica Chimica Acta* 381, 2-14.
2. Torvinen M., Neitola R., Sansone F., Baldini L., Ungaro R., Casnati A., Vainiotalo P., Kalenius E. (2010) Glucosylthioureidocalix[4]arenes: Synthesis, conformations and gas phase recognition of amino acids, *Organic Biomolecular Chemistry* 8: 906.
3. Ahuja R., Singhal N. K., Ramanujam B., Ravikumar M., Rao C. P. (2007) Experimental and Computational Studies of the Recognition of Amino Acids by Galactosyl-imine and -amine Derivatives: An Attempt to Understand the Lectin-Carbohydrate Interactions *Journal of Organic Chemistry* 72: 3430.
4. Mitra A., Chinta J. P., Rao C. P. (2010) 1-(d-Glucopyranosyl-2'-deoxy-2'-iminomethyl)-2-hydroxybenzene as chemosensor for aromatic amino acids by switch-on fluorescence, *Tetrahedron Letters* 51: 139.
5. Sah A. K., and Soni K. (2012) Synthesis of cupric acetate selective receptor derived from alanyl glycoconjugate and their application in selective oxidation of benzylic alcohols, *Catalytic Communication* 28: 120-123.
6. Acharya A., Ramanujam B., Mitra A., Rao C. P. (2010) Nanofibers Formed Through  $\pi$ •••  $\pi$  Stacking of the Complexes of Glucosyl-C 2-salicyl-imine and Phenylalanine: Characterization by Microscopy, Modeling by Molecular Mechanics, and Interaction by  $\alpha$ -Helical and  $\beta$ -Sheet Proteins *ACS Nano* 4: 4061

### Biography

Kiran Soni was born in Haryana, India in 1983. She received her PhD. (2014) from the BITS Pilani. After completing postdoctoral research at University of Delhi, She joined the faculty at Maitreyi College, University of Delhi in 2017 where She is currently working as Assistant professor. Kiran Soni has her proficiency in synthesis of glycoconjugates, nano materials and their use in organic transformation as well as in metal ion sensing and in molecular recognition. Her work is based on the synthesis of all the natural moieties which does not hazard to our environment. Now a days She is using different nanoparticles also for purifying water and in HER reaction. In the above mentioned work She has synthesized the N<sub>2</sub>O<sub>2</sub> types ligands which are helpful for the sensing different metals ion and amino acids in water.