iJRASET
International Journal For Research in Applied Science and Engineering Technology

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY

Volume: 6 **Issue:** III **Month of publication:** March 2018

DOI: http://doi.org/10.22214/ijraset.2018.3540

www.ijraset.com

Call: 08813907089 | E-mail ID: ijraset@gmail.com

International Journal for Research in Applied Science & Engineering Technology (IJRASET)
ISSN: 2321-9653; IC Value: 45.98; SJ Impact Factor: 6.887
Volume 6 Issue III, March 2018- Available at www.ijraset.com

Chemistry of Amino Acids with Aqueous Electrolytes

Shahnawaz Mahmood[1]
[1]*Associate Professor and Head of the Department of Applied Sciences & Humanities Mewat Engineering College Palla, Nuh, HARYANA - 122107*

Abstract: Our aim has been to synthesize new alkali metals complexes and to identify the various structural features in the ligands, which enhance their selectivity for complex formation with alkali metals icons.
Keywords : electrolyte, biological molecule, amino acid, electropositive manner

I. INTRODUCTION

For the knowledge of water, electrolytes and amino acid interactions it is necessary to know the role of biological molecules in the living organism. During the denaturation process, various structural changes occurs in amino acid solutions. The knowledge of solute-solvent and solute-solute interactions in various solvent in this prerequisite to understanding the process of denaturation. The studies of structural and biological interactions of amino acids in pure aqueous and mixed electrolytes at different temperature and very significant and useful for investigation their physicochemical and biological behavior. The physicochemical and biological behavior of such systems can also be understood in thermodynamics and acoustic parameters. Amino acids are complex organic molecules whose behavior in mixtures in affected to a large extent by the presence of metal electrolytes. The nature of interactions between metal electrolytes in aqueous and non-aqueous medium is of prime important since they play a vital role in physiological systems fluids are not pure water but solution of electrolytes. Amino acid when dissolved in aqueous solution from several ionic species due to ionization of their carboxyl and amino group and the structural changes by amino acid in aqueous electrolytes, the unique hydration of these solutes has been reported as follows:

NH_3+ and COO^- terminal in this solute are in an electropositive manner whereas the intervening backbone is hydrated as per its nature which may hydrophobic.

Electrostriction of NH_3+ group is greater than the COO^-

The overlap of hydration ecosphere of terminal NH_3^+ and COO^- group adjacent to them result in volume change.

Ion-ion interaction such as hydrogen bonding electrostatic interaction, and hydrophobic interaction are very important in biological system. In aqueous electrolytes and amino acid residue of polypeptide chain interact with each other and with the surrounds water through these non-covalent forces and ino-ion interactions between opposite poles. Consequently, the characterization of the thermodynamics between effect of amino acid hydration can assists in the understanding of the conformational stability and unfolding is study them by using model compounds which contaion the relevant amino acids side chain and peptide groups. From the alone description it can be understood, that the aconstic and thermodynamics about the solute-solute and solute-solvent interactions in the systems

A. Adducts Of Alkali Metal Salts Of Picolinic Acid With O-Hydroxyacetophenone Phenylhydrazone

Alkali metal salt of picolinic acid and the ligand O-hydroxyacetophenone phenylhydrazone were taken in a molar proportions (1:1) in a conical flask. About 30c.c. of absolute ethanol was added to it. The contents were refluxed. A clear solution was obtained. It was refluxed for about 6 hours. It was concentrated and cooled, when coloured crystals came apart. It was filtered, washed with the solvent and then dried in an electric oven at 120^0c.

1) *LiPicA .OHAPz*

Found : C, 67.59 ; H, 5.44; N, 11.70%

$C_{20}H_{18}N_3O_3Li$ requires

: C, 67.60 ; H, 5.07 ; N, 11.83%

2) *NaPicA.OHAPz*

Found : C, 64.14 ; H, 5.19; N, 11.12 ; Na, 6.00%

$C_{20}H_{18}N_3O_3Na$ requires

: C, 64.69 ; H, 4.85; N, 11.32 ; Na, 6.19%

3) *KPicA.OHAPz*

Found : C, 62.24 ; H, 4.94; N, 10.78; K, 10.00%

$C_{20}H_{18}N_3O_3K$ requires

: C, 62.01 ; H, 4.65; N, 10.85; K,10.08%

B. Adducts With Alkali Metal Salts Of Quinaldinic Acid With O-Hydroxyacetophenone Phenylhydrazone

Equimolar proportions of alkali metal salt of quinaldinic acid and O-hydroxyacetophenone phenylhydrazone were taken in a 150ml conical flask. About 30ml of absolute ethanol was added to it. The contents were refluxed on an electrically maintained hot plate, while constantly stirring the solution with the help of a magnetic stirrer. In half an hour, a clear solution was obtained. It was filtered, washed with the solvent and then dried in an electric oven at 120^0c.

1) *LiQuinA.OHAPz*

Found : C, 71.48 ; H, 5.32; N, 10.25%

$C_{24}H_{20}N_3O_3Li$ requires

: C, 71.11 ; H, 4.94 ; N, 10.37%

2) NaQuinA.OHAPz

Found : C, 68.54 ; H, 4.84; N, 9.78 ; Na, 5.25%

$C_{24}H_{20}N_3O_3Na$ requires

: C, 68.41 ; H, 4.75; N, 9.98 ; Na, 5.46%

3) *KQuinA.OHAPz*

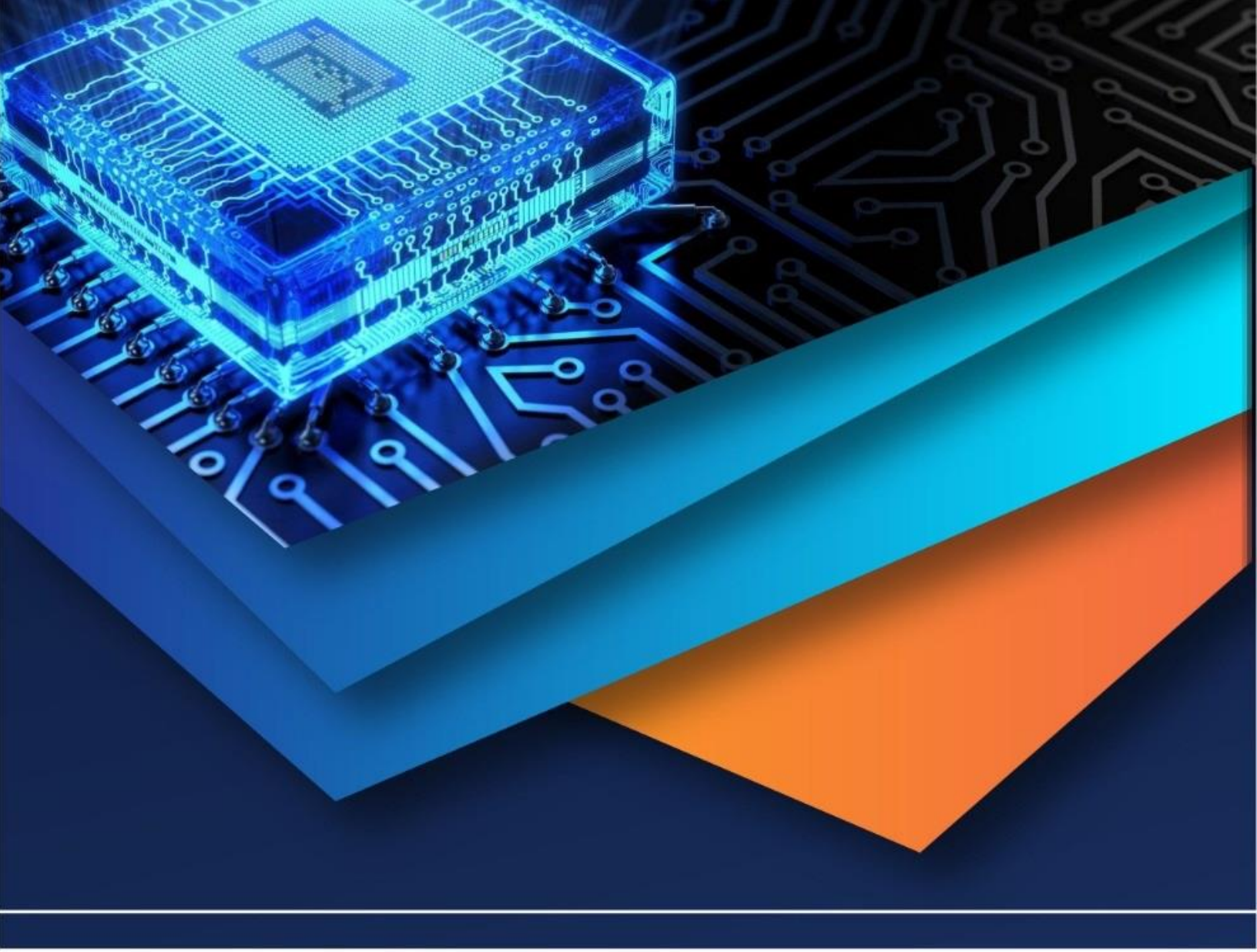
Found : C, 66.39 ; H, 4.81; N, 9.50; K, 8.80%

$C_{24}H_{20}N_3O_3K$ requires

: C, 65.90 ; H, 4.58; N, 9.61; K,8.92%

REFRENCES

[1] N.V. Sidgwick and F.M. Brewer : J. Chem. Soc., 1925, 127, 2379
[2] F.M. Brewer : J. Chem. Soc., 1931, 361
[3] C.L. Brady and M.D. Porter : J. Chem. Soc., 1933, 840
[4] A.K. Banerjee, A.J. Layton, R.S. Nyholm : Nature, 1968, 217, 1147
[5] A.K. Banerjee, A.J. Layton, R.S. Nyholm and M.R. Truter : J. Chem Soc (A), 1969, 2536
[6] A.J.K. Kolombos : Ph. D. Thesis, University of London,, 1970
[7] M.A. Bush, H. Luth and M.R. Truter : J. Chem. Soc. (A), 1971, 740
[8] A.K. Banrjee, D. Prakash and S.K. Roy : J. Indian Chem. Soc., 1979, 53, 773
[9] D.L. Hughes and M.R. Truter : J. Chem, Soc. (Dalton), 1979, 1520
[10] D. Prakash and S.P. Singh : J. Indian Chem. Soc., 1981, 58, 1143
[11] D. Prakash and S.P. Singh : Polyhedron, 1984, 3, 243



10.22214/IJRASET

45.98

IMPACT FACTOR: 7.129

IMPACT FACTOR: 7.429

INTERNATIONAL JOURNAL FOR RESEARCH

IN APPLIED SCIENCE & ENGINEERING TECHNOLOGY