



Environmentally Benign Synthesis, Characterisation and Antimicrobial Activities of Co (II)-Amino Acid Complexes

K.P. Srivastava* and Anuradha Singh

*Department of Chemistry, N.L.S. College, Jaitpur- Daudpur (Saran)
Jai Prakash University, Chapra-841301, Bihar, **INDIA**

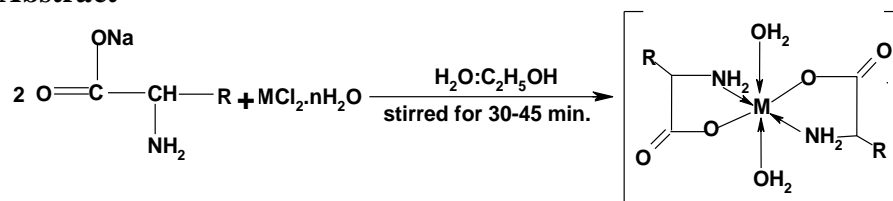
Email: gscdrkpsritprin@gmail.com, kpsritchemjpu@gmail.com

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ABSTRACT

A rapid, clean and environmentally benign exclusive synthesis of some novel Co(II) complexes with non-essential biologically active α -amino acids vis. L-Asparagine (Asn or N), L-Glutamine (Gln or Q) and L-Aspartic acid or Aspartate (Asp or D) efficiently in aqua-ethanol medium with excellent yields has been described here. The elemental analysis and conductometric measurement of the investigated complexes reveal their 1:2 metals to ligand stoichiometry and non-electrolytic nature. The spectrochemical studies reveal that the complexation of mono-negative bidentate ligands with Co (II) ion undergoes through N of α -amine and β -carboxylate oxygen yielding six coordinated complexes with octahedral geometry around the central metal ion. The synthesized complexes were found to be more active compared with their respective free ligands against the same microorganisms and under the identical experimental conditions and in some cases better activity compared to the standard.

Graphical Abstract



Keywords: Cobalt (II) complexes, α -amino acids, antimicrobial activity, octahedral geometry.