

IAF/IAA SPACE LIFE SCIENCES SYMPOSIUM (A1)
Biology in Space (8)Author: Prof.Dr. BRIJ TEWARI
University of Guyana, GuyanaCONTROVERSY ON ENDOGENOUS AND EXOGENOUS BIO-RESOURCES FOR THE ORIGIN OF
FIRST LIFE ON PLANET EARTH**Abstract**

The interaction of organic matters with its inorganic environment is an important aspect of chemical evolution. The origin and dispersion of life in the universe is a long debated scientific and philosophical issue. One of the biggest puzzles of all time is how did first life begin. According to first hypothesis first life originate from endogenous sources such as silicates, metal ferrocyanides and clays, which have been proposed as possible condensing agent for biomolecules during the course of chemical evolution on primitive earth. According to second hypothesis, exogenous theory of origin of life, it was suggested that molecular precursors needed for origins of life transferred from space to the primitive earth. According to third hypothesis which is midway between first and second suggests that precursors for first life on primitive earth was input of both endogenous and exogenous bio-resources. In the present work adsorptive interaction of aniline (A), ortho- nitroaniline (ONA), meta – nitroaniline (MNA) and para – nitroaniline (PNA) with cadmium ferrocyanide (CdFc), antimony ferrocyanide (SbFc) and zirconium ferrocyanide (ZrFc) was studied at room temperature (29 °C). A neutral pH (7.0 ± 0.01) was chosen to study the adsorptive interaction of amines with possible prebiotic minerals in the concentration range of 10⁻³ – 10⁻⁴ M. The progress of adsorption was followed spectrophotometrically by measuring the absorbance of amines at their corresponding max. The desired pH was maintained by concentrated NaOH and HCl solutions. The adsorption of amines on metal ferrocyanides follow Langmuir adsorption isotherm. Langmuir constants, b and Q_0 values were calculated. The adsorption trend follow the order ONA > MNA > PNA > A with all three metal ferrocyanides studied. Adsorption also follow the trend CdFc > SbFc > ZrFc with all amines studied. This study suggests the importance of metal ferrocyanides in the stabilization of bio- molecules through their surface activity in primeval seas on the early earth. Present study supports the hypothesis of endogenous resources for the origins of life. Detail will be presented.