World Academy of Science, Engineering and Technology
International Journal of Bioengineering and Life Sciences
Vol:11, No:07, 2017

Synthesis, Characterization and Anti-Microbial Study of Urethanized Poly Vinyl Alcohol Metal Complexes

Authors : Maha A. Younus, Dhefaf H. Badri, Maha A. Al Abayaji, Taha M. Salih

Abstract : Polymer metal complexes of poly vinyl alcohol and Cu (II), Ni (II), Mn (II) and Co (III) were prepared from the reaction of PVA with three different percentages of urea. The compound was characterized by fourier transform infrared spectrometry (FTIR) analysis and differential scanning calorimetric (DSC) Analysis. It has been established that the polymer and its metal complexes showed good activities against nine pathogenic bacteria (Escherichia coli, Klebsiellapneumonae, Staphylococcusaureus, Staphylococcus Albus, Salmonella Typhoid, Pseudomonas Aeruginosa, Shigella Dysentery, Proteus Morgani, Brucella Militensis). The polymer metal complexes show activity higher than that of the free polymer. The increasing activities were in the order (polymer < pol-Mn< pol-Co < pol-Ni ‹ pol-Cu). The ability of these compounds to show antimicrobial properties suggests that they can be further evaluated for medicinal and/or environmental applications.

Keywords : antimicrobial activity, PVA, polymer-metal complex, urea
Conference Title : ICBCSE 2017 : International Conference on Biological and Chemical Systems Engineering
Conference Location : Paris, France
Conference Dates : July 20-21, 2017