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Hawani Choudhary, *Deepak Pathania*
Department of Environment Sciences, Central University of Jammu,
*Rahya Suchani(Bagla) Samba , Jammu, Jammu & Kashmir ,181143, India*Corresponding Author: Hawani Choudhary hawanichoudhary9@gmail.com
Abstract
Green synthesis of nanomaterials has emerged as an eco-friendly, cost-effective and sustainable alternative to conventional chemical and physical methods. In the present study nanomaterials were synthesized using plant-based biological extracts as reducing and stabilizing agents, eliminating the use of toxic chemicals. The antimicrobial efficacy of the green-synthesized nanomaterials was evaluated against selected pathogenic bacteria and viruses. Antibacterial activity was assessed using the well diffusion method, and zones of inhibition were measured to determine the effectiveness of the nanomaterials at different concentrations. The results demonstrated significant inhibitory activity against both Gram-positive and Gram-negative bacteria, indicating strong antimicrobial potential. Additionally antiviral activity showed promising pathogen suppression, highlighting the therapeutic relevance of this nanomaterial. The study concludes that green-synthesized nanomaterials possess potent antibacterial and antiviral properties and can serve as a promising alternative for the treatment and management of pathogenic infections in biomedical applications.
Keywords: Green synthesis, nanomaterial, antibacterial activity, well diffusion method , Biomedical applications

Author: CHOUDHARY, Hawani (DEPARTMENT OF ENVIRONMENTAL SCIENCES, CENTRAL UNIVERSITY OF JAMMU)

Presenter: CHOUDHARY, Hawani (DEPARTMENT OF ENVIRONMENTAL SCIENCES, CENTRAL UNIVERSITY OF JAMMU)