

Hydrogel

Abstract: Synthesis of Bi-Metallic Nanoparticle Hydrogel with Antimicrobial Properties for Burn Wound Healing

In the treatment of burns, inert hydrogels are an essential component of first aid. If there is no access to clean water or if the burns are severe, hydrogel dressings may be used to cool burn wounds instead of running water. Hydrogels that have a high percentage of water content may help to disperse the heat that accumulates on the skin because of their properties. This will not only alleviate the pain, but it will also keep the region clean and guard it from any further damage.

The primary objective of current research work is to provide a method for producing bimetallic Ag-Ni nanoparticles using a plant extract as the starting material. After that, these nanoparticles are mixed into a PVA/AA hydrogel that has a property that makes it appropriate for use in medical applications. Because of the antibacterial properties possessed by the nanoparticles found in hydrogel, the two substances working together may be used to hasten the healing process. The PVA/AA medical-grade polymer that was utilised in the creation of the hydrogels does not cause skin irritation and does not cause damage to the natural environment. We used environmentally friendly, one-pot green synthesis approach to synthesise Ag-Ni nanoparticles in a PVA/AA matrix. They function as antibacterial agents that are particularly efficient owing to the size of the particles, which is 12 nm, and their goal is to help in the quick healing of burn wounds and provide protection against E. coli.



