Photoactive Wound Dressing

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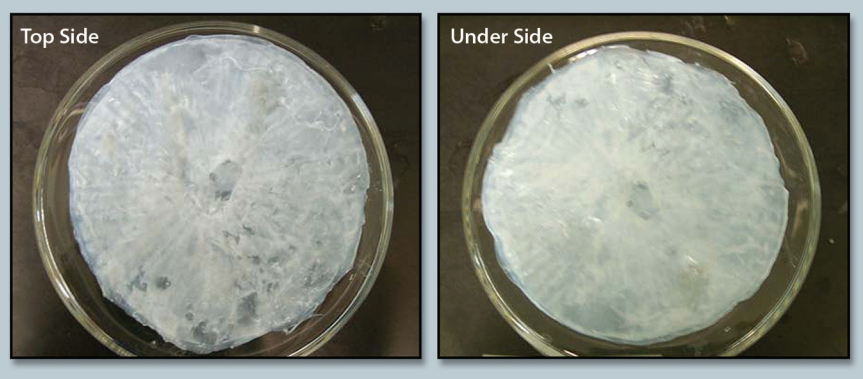

Hydrated Cellulose Loaded with 5-nm Anatase Titania

Technology Summary

Improved bacterial cellulose wound dressings were developed by ORNL researchers. Bacterial cellulose is already marketed as a wound dressing under the trade name Biofill. The ORNL invention extends and improves this product. This technology can be used to treat wounds, burns, and other types of skin trauma in both civilian and military settings.

Bacterial cellulose is useful for the treatment of tissue damage because its unique "nanostructured" surface can act as a scaffold for tissue regeneration. The ORNL invention adds an antiseptic property with the incorporation of titanium dioxide nanoparticles into the bacterial cellulose matrix. When the dressing is illuminated with long wavelength UV light, the excitation of the nanoparticles causes the release of antimicrobial oxygen radicals, enhancing the therapeutic effect of the dressing.

Advantages

- Protects the wound
- Sterilization promotes healing
- Does not introduce foreign material into the wound

Potential Applications

- Wound treatment
- Burn treatment

Patent

Hugh M. O'Neill, Barbara R. Evans, Santosh Limoye, and Shanthi Subramanian, *Photoactive Wound Dressing and Method Relating Thereto,* U.S. Patent Application 12/034,629, filed February 20, 2008.

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