

Microbiology and Nanotechnology as Support of the Conservation of Cultural Heritage

Microbial deterioration represents one of the major challenges in the conservation of cultural heritage, as bacteria, fungi and microalgae can colonize and progressively damage a wide range of historical and cultural materials. Understanding the microorganisms involved in biodeterioration and developing effective and sustainable strategies for their control are therefore essential for the preservation of cultural heritage.

In this context, the integration of microbiological approaches with nanotechnology offers new opportunities for the development of innovative conservation strategies. Nanostructured materials can provide specific antimicrobial properties while offering the possibility of designing targeted and potentially less invasive treatments for cultural heritage applications.

This presentation will provide an overview of the role of microbiology and nanotechnology in the study and control of microbial deterioration, with particular emphasis on nanocellulose-based materials as promising antimicrobial systems. The potential of nanocellulose as a sustainable and versatile platform for the development of innovative approaches to prevent or control microbial colonization of cultural heritage materials will be discussed.