

# POTENTIAL USE OF PHAGES AS SANITIZING AGENTS TO REDUCE HOSPITAL PATHOGENS ON HARD SURFACES

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**Introduction:** Hospital-acquired infections (HAI) can be transmitted by pathogens persistently contaminating hospital surfaces,<sup>1</sup> often multidrug-resistant (MDR), and not efficiently controlled by conventional sanitation protocols, which indeed contribute to selection of drug-resistant strains.<sup>2</sup> Due to the selective killing of specific bacteria, bacteriophages have been repeatedly suggested as decontaminating agents.<sup>3,4</sup> This work was aimed to assess phage usability as sanitizing agents in routine hospital sanitation.

**Materials & Methods:** Phage activity was assessed *in vitro* and *in situ*, in aqueous buffer or probiotic eco-sustainable detergents,<sup>5</sup> on glass, plastic or ceramic surfaces artificially contaminated by *S. aureus*, *E. coli* and *P. aeruginosa*. Both ATCC strains and wild-type MDR hospital isolates were used, at a density consistent with what detected on hospital surfaces.

**Results:** Phage application significantly reduced (up to 90%) all tested bacteria on all treated surfaces. Notably, phages suspended in probiotic detergents not only retained their full activity, but resulted even more effective especially at later times.

**Conclusions:** Results suggest that phages might be successfully included in probiotic detergents currently used for hospital sanitation, potentially resulting in innovative products highly effective in the safe elimination of MDR nosocomial pathogens from the hospital environment.

## References:

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