

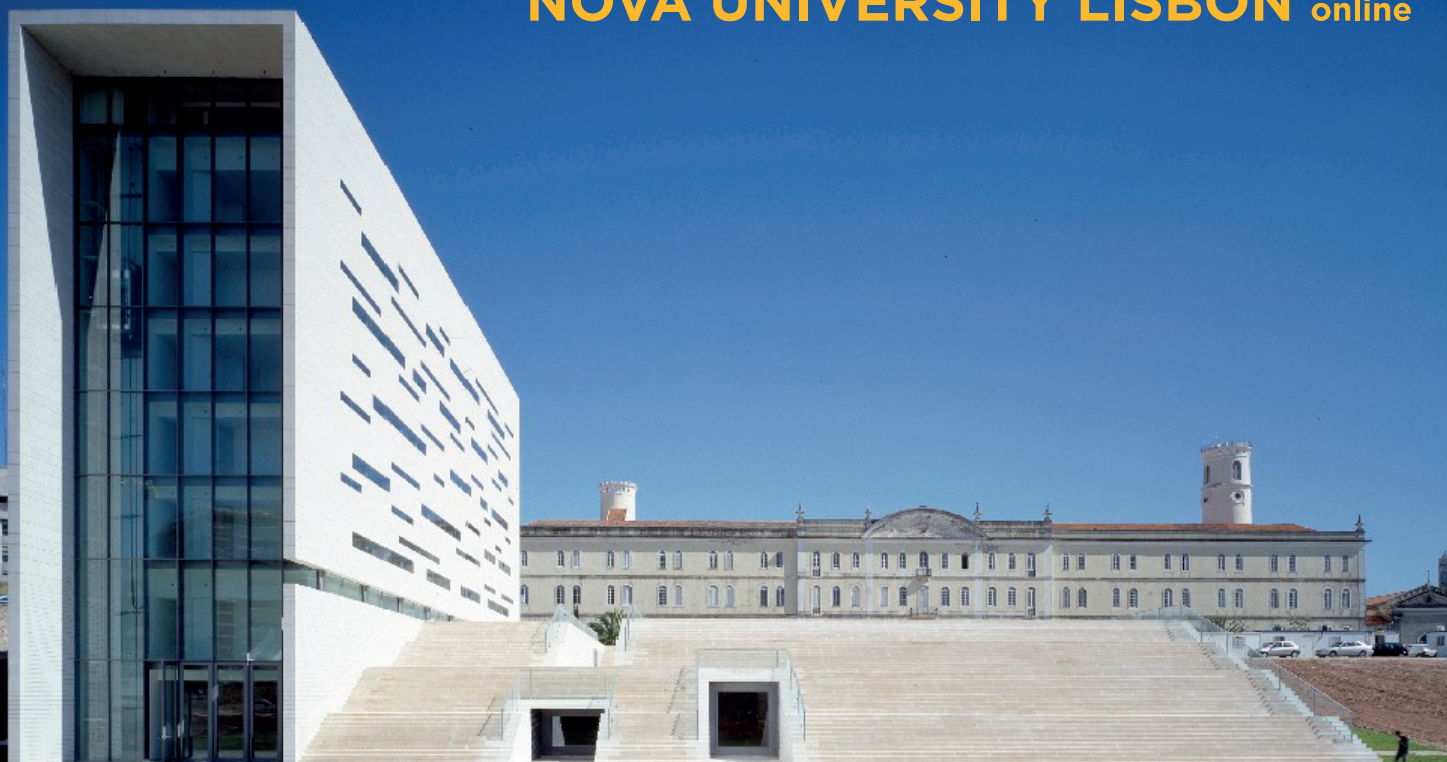
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Preliminary characterization of a novel antimicrobial surface coating against significant pathogens

Maria Teresa Bento de Carvalho, Joana Barbosa, Paula Teixeira*

Universidade Católica Portuguesa, CBQF - Centro de Biotecnologia e Química Fina –
Laboratório Associado, Escola Superior de Biotecnologia, Rua Diogo Botelho 1327,
4169-005 Porto, Portugal; *pcteixeira@ucp.pt

The spread of antimicrobial resistance is one of the challenges of the 21st century. Resistance to antimicrobial agents has a rising tendency, reaching dangerously high levels worldwide, threatening the treatment, as well as effective prevention of common foodborne infectious diseases casting a severe health crisis problem.

The aim of this study was to characterize a novel commercial surface antimicrobial coating. For that, its antimicrobial efficacy, killing contact time and durability on three different surfaces - polyvinyl chloride (PVC), glass and stainless steel - against three pathogens - *Escherichia coli* ATCC 25922, *Acinetobacter baumannii* ESB260 and *Listeria monocytogenes* Scott A - were tested according to the current antimicrobial treated surfaces efficacy test (ISO22196:2011). Its cytotoxicity was also evaluated to measure the metabolic activity of human colon adenocarcinoma Caco-2 cells after contact with residual concentrations of coating (simulating cross-contamination between surfaces and food).

The antimicrobial coating proved to be effective against all the pathogens used, with > 5.0 log CFU/cm² reductions in less than one minute for the three surfaces. In addition, the compound was not cytotoxic to Caco-2 cells at residual concentrations and its durability was less than one week on all the surfaces.

Although promising, the preliminary results obtained in this study need to be complemented, extending the study to more pathogens and surfaces. Also, the efficacy of this antimicrobial coating when the pathogens are incorporated within a food matrix as well as their possible acquired antimicrobial resistance should be the focus of further studies.