DIPARTIMENTO DI BIOLOGIA
E BIOTECNOLOGIE
CHARLES DARWIN

SAPIENZA
UNIVERSITÀ DI ROMA

UNIVERSITÀ DI ROMA
"LA SAPIENZA"
CISTeC
Centro di Ricerca
Scienza e Tecnica per la Conservazione
del Patrimonio Storico-Architettonico

Evaluation of antimicrobial efficacy of Airlite product

The tests were performed in the lab of Prof. Daniela Uccelletti

The following bacterial strains were tested:
Staphylococcus aureus MRSA
Pseudomonas aeruginosa
Enteroccoccus faecalis
Listeria monocytogenes
Bacillus cereus
Klebsiella pneumoniae
Acinetobacter baumanii
Streptococcus agalactiae
Serratia marcescens
Salmonella tiphymurium

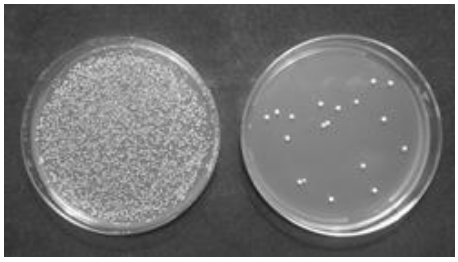
The Test Method was based on JIS Z 2801:2000 with minor modifications:

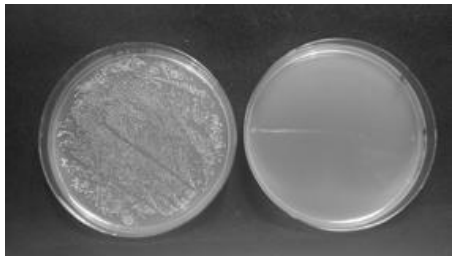
1. Test pieces (size 5X5 cm) were UV filter sterilized for 1 hour.
2. 700 μl of sterilized H_2O_{dd} were added to the pieces, evenly distributed with a small roller (in e.g. Pasteur pipette) and allowed to dry.
3. Then 400 μl of bacterial cells suspendend in 1:500 dilution of the culture medium were added to the pieces and distributed as in step 2.
4. Pieces were then incubated at 25 °C for 0 (control) 2 or 4 hours in the dark or under TRUE- LIGHT® exposition at about 90 cm distance.
5. After the incubation period each piece was transferred in a sterile bag and the bacterial cells extracted with 10 ml of sterilized H_2O_{dd} and the suspension transferred in a sterile tube.
6. Different dilutions of the suspensions were either spotted or plated on the growth medium and incubated for 16 hours at 37 °C.

Each strain was tested in triplicate in the dark and the percentage of reduction was expressed referred to time 0 from the inoculum and the results reported in the following table. Identical results were obtained when the samples were exposed to light for the same time of period.

		% Reduction
Strains	2 hrs	4 hrs
Staphylococcus aureus ATCC 25923	99.9%	99.9%
Pseudomonas aeruginosa ATCC 15692	96.0%	99.9%
Enteroccoccus faecalis ATCC4352	99.5%	99.9%
Listeria monocytogenes ATCC 19115	98.5%	99.9%
Bacillus cereus ATCC 14579	99.9%	99.9%
Klebsiella pneumoniae ATCC13883	99.9%	99.9%
Acinetobacter baumanii ATCC19606	97.6%	99.9%
Streptococcus agalactiae ATCC13813	99.9%	99.9%
Serratia marcescens ATCC13813	97.3%	99.9%
Salmonella tiphymurium ATCC29630	99.8%	99.9%

In the figure are shown the results obtained after 0 (left plate) or 2 hours postinoculum (right plate) of Lis. monocytogenes (left panel) and Staph. aureus (right panel)





Daniela Uccelletti, PhD
Associate Professor
Dpt Biology and Biotechnology C. Darwin