DR. BRILL + DR. STEINMANN
INSTITUT FOR HYGIENE AND MICROBIOLOGY

P200

Activity of surface disinfectants against Multi-Drug-Resistant Organisms isolated in the University Hospital Hamburg-Eppendorf (UKE)

F. H. H. Brill[1], J. Lenz[3], M. Schmidt-von Kegler[3], C. Bantelmann[1], K. Waldendy-Gnirß[1], E. Mönch[4], J. K. Knobloch[2]

[1] Dr. Brill + Partner GmbH Institut für Hygiene und Mikrobiologie, Hamburg
[2] Universitätsklinikum Hamburg-Eppendorf (UKE) – Institut für Medizinische Mikrobiologie, Virologie und Hygiene, Hamburg
[3] Chemische Fabrik Dr. Weigert GmbH & Co. KG, Hamburg
[4] BODE Chemie GmbH, Hamburg

INTRODUCTION & AIM

The raising challenge of Multi-Drug-Resistant Organisms (MDRO) in the clinical field causes questions to what extend surface disinfectants present with reduced activity. Another scientific question is if the susceptibility of laboratory strains mentioned in the European Standards (EN) are representing clinically isolated strains.

MATERIAL & METHODS

The study was performed based on a bactericidal suspension assay described in the EN 13727 with 4 commercially available surface disinfectants under the following conditions:

Product code	Active agent/s (product type)	Contact time	Soiling conditions
A1	High alcohol (ready to use RTU)	1 min	Clean
B5	Amine (concentrate)	5 min	Dirty
C1	Alcohol + ampholyte (RTU)	1 min	Dirty
D5	Quaternary ammonium compound QAC + amine (concentrate)	5 min	Dirty
D60		60 min	

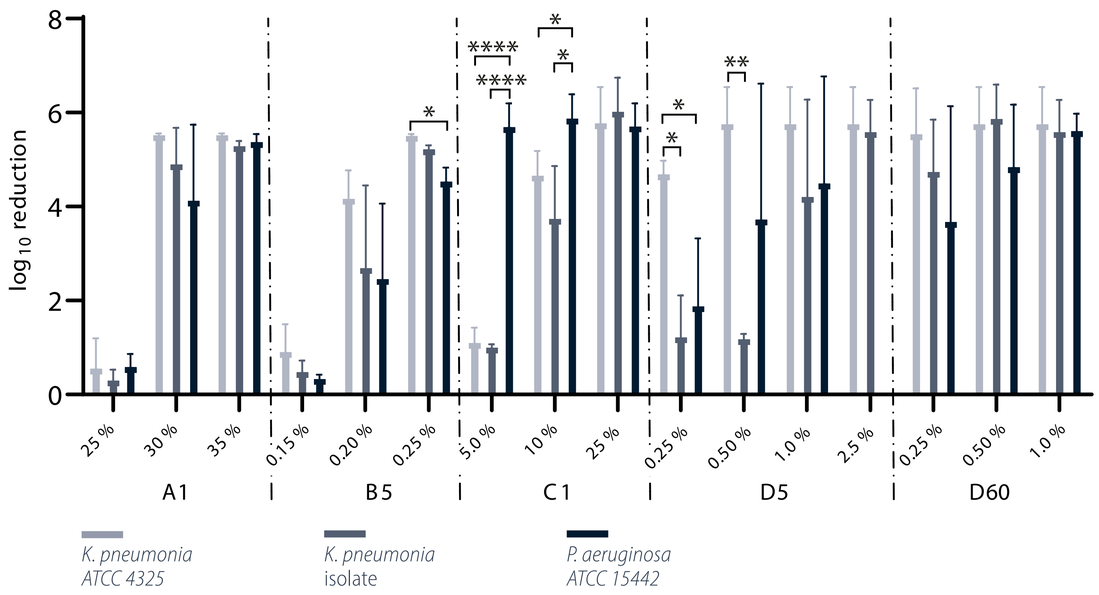
The tests were performed with the laboratory reference strains and clinical strains isolated by the UKE.

Laboratory strain	Clinical isolate	Resistances
Pseudomonas aeruginosa (ATCC 15442)	*P. aeruginosa*	Carpabenemase formers, qac positive*, Imipenem-Resistance
Staphylococcus aureus (ATCC 6538)	CA-MRSA 01	Methicillin-Resistance, CA (community acquired)
	CA-MRSA 02	Methicillin-Resistance, CA (community acquired)
Enterococcus hirae (ATCC 6057)	*E. faecium*	VRE (Vancomycin-resistent Enterococci) Linozelid-Resistance
Enterococcus faecium (ATCC 10541)		
Acinetobacter baumanii (ATCC 19606)	*A. baumanii*	Imipenem-Resistance
Klebsiella pneumoniae (ATCC 4352)	*K. pneumoniae*	Imipenem-Resistance

*Quaternary ammonium compound-resistance protein

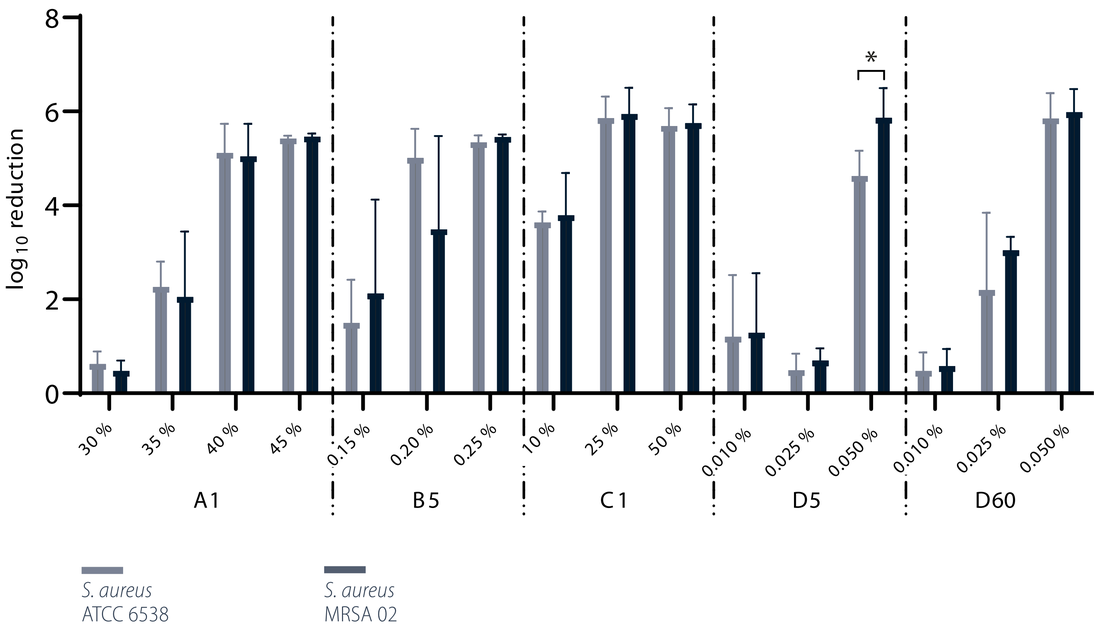
Statistical analyses were performed using unpaired t-tests and, for non-normal data, the Mann-Whitney test.

RESULTS



Activity of surface disinfectants based on EN 13727 against *Klebsiella pneumoniae* ATCC 4325 and clinically isolated strains in comparison to the gram-negative reference bacteria *Pseudomonas aeruginosa* ATCC 15442.

Pseudomonas aeruginosa was less susceptible compared to one or both *Klebsiella*-strains for product C (10 %). In contrast, for the products B and D in some concentrations (0.25 % of B, 0.25 and 0.5 % in 5 min of D) one or both *Klebsiella* strains were less susceptible compared to *P. aeruginosa*.



Activity of surface disinfectants based on EN 13727 against clinically isolated MRSA 02 in comparison to the gram-positive reference bacteria from EN 13727 *Staphylococcus aureus* ATCC 6538

Only in one concentration (product D at 5 min and 0.05 %) the clinical isolate CA-MRSA was more susceptible than the reference *Staphylococcus aureus* strain.

CONCLUSIONS

There were no significant differences between the laboratory strains and the clinical isolates under use conditions, only in lower product concentrations. The data show that MDRO were not more resistant to surface disinfectants under use conditions than MDSO. Therefore, the standard reference strains from EN still represent a sufficient activity level *in-vitro*.