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BOOK OF ABSTRACTS

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P4.75 - CHLORHEXIDINE AND BENZALKONIUM CHLORIDE ACTIVITY AGAINST *STAPHYLOCOCCUS AUREUS* AND *STAPHYLOCOCCUS PSEUDINTERMEDIUS* FROM SKIN AND SOFT TISSUE INFECTIONS IN COMPANION ANIMALS

Carolina Ferreira [1(*)&], Catarina Morais [1(**)&], Paula Zacharias [1], Patrícia Abrantes [1], Constança Pomba [2,3], Sofia Santos Costa [1], Isabel Couto [1]

[1] *Global Health and Tropical Medicine, GHTM, Associate Laboratory in Translation and Innovation Towards Global Health, LA-REAL, Instituto de Higiene e Medicina Tropical, IHMT, Universidade NOVA de Lisboa, UNL, Lisbon, Portugal*

[2] *Laboratory of Antibiotic Resistance, CIISA, Faculty of Veterinary Medicine, University of Lisbon, Lisbon, Portugal*

[3] *GeneVet, Laboratório de Diagnóstico Molecular Veterinário, Lisbon, Portugal*

[&] *These authors contributed equally to this work*

[(*)] *e-mail: carolinaf@ihmt.unl.pt;* [(**)] *e-mail: a21000758@ihmt.unl.pt*

ABSTRACT

Staphylococcus pseudintermedius and *Staphylococcus aureus* are important agents of skin and soft tissue infections (SSTIs) in companion animals. Antiseptics chlorhexidine (CHX) and benzalkonium chloride (BAC) are commonly used for the treatment of these infections.

This study analyzed the effectiveness of CHX and BAC against *S. pseudintermedius* and *S. aureus* causing SSTIs in companion animals.

CHX time-kill assays were performed according to the European Standard norm EN 1040[1] for reference strains *S. aureus* ATCC25923, *S. pseudintermedius* DSM21284 and for methicillin-resistant, multidrug-resistant clinical strains of *S. aureus* and *S. pseudintermedius*, corresponding to relevant clonal lineages previously identified in our studies; ST22/ST105 (*S. aureus*), ST71/ST118 (*S. pseudintermedius*). BAC time-kill assays were performed for *S. aureus* only. Assays were performed at 38□C (dog skin temperature). Antiseptics were tested in concentrations ranging from ½ MIC to the in- use concentration at different exposure times (1 min to 24h), including the recommended exposure times (5/10 min).

All biocides exhibited bactericidal activity at their in-use concentration. However, at lower concentrations, bacterial growth was still observed at the recommended exposure time (5/10 min). For some *S. aureus* and *S. pseudintermedius* clinical strains, no significant bactericidal effect was detected after 1h of exposure and/or bacterial growth was still observed at lethal concentrations (MIC) after 24h of exposure to CHX.

These results suggest that inappropriate use of antiseptics (e.g., insufficient rinsing) could potentially select for strains with reduced susceptibility towards these antiseptics, particularly CHX, as well as to antibiotics that share the same resistance mechanisms, promoting AMR dissemination in these relevant bacterial pathogens.

References:

1. Association Française de Normalisation. NF EN 1040 – Essai quantitative de suspension pour l'évaluation de l'activité bactericidé des antiseptiques et des désinfectants chimiques. 2006. AFNOR, La Plaine, France.

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