

Antimicrobial Activity of exsalt™ SD7 Dressings: A Comparative Investigation

INTRODUCTION

Silver offers a unique advantage over antibiotics. With an antimicrobial activity that proceeds along several pathways, such as DNA binding, respiratory chain interference, and ion gradient disruption, silver has a lower potential for antimicrobial resistance.¹⁻⁴ But not all silver-containing antimicrobial agents are created equal: higher silver content does not necessarily improve efficacy. And, what's more, the type of active silver species has a great influence on efficacy.⁵⁻⁸ In this study, we investigate the antimicrobial efficacy of a series of silver wound care dressings against *Staphylococcus aureus* and compare the results to their total silver content.

METHODS

In this comparative study, six silver dressings were evaluated for antimicrobial activity and silver content. Silver content data was collected from internal testing and public sources, Figure 1.⁹⁻¹¹

An *in-vitro* log reduction assay was performed using maximum recovery diluent (MRD) as the simulated wound media. The dressings were pre-conditioned with a set volume of MRD, as determined by maximum absorbency capacity testing, to remove absorbency artifacts in the antimicrobial analysis. The dressings were then inoculated to a final concentration of 10⁶ CFU/ml *S. aureus* ATCC#6538, and incubated at 37 °C for four hours. A pass is defined as a log reduction of greater than four. The antimicrobial efficacy for each dressing is presented in Figure 2.¹¹

RESULTS

No correlation was observed between silver content, Figure 1, and antimicrobial activity, Figure 2. Only three of the dressings tested provide the efficacy required for a four log reduction of *S. aureus*: exsalt™ SD7, Silverlon® Easy Ag, and Acticoat® 7. Of these three dressings, exsalt™ SD7 was found to contain the lowest amount of silver per unit area. On average, this dressing is the most efficacious.

Product sources: Allevyn® Ag (Smith and Nephew), Mepilex® Ag (Mölnlycke Health Care), Aquacel® Ag (ConvaTec), Acticoat® 7 (Smith and Nephew), Silverlon® Easy Ag (Argentum Medical, LLC), and exsalt™ SD7 (Exciton Technologies Inc.)

Complete references available online at www.excitontech.com

Figure 1 - TOTAL SILVER CONTENT

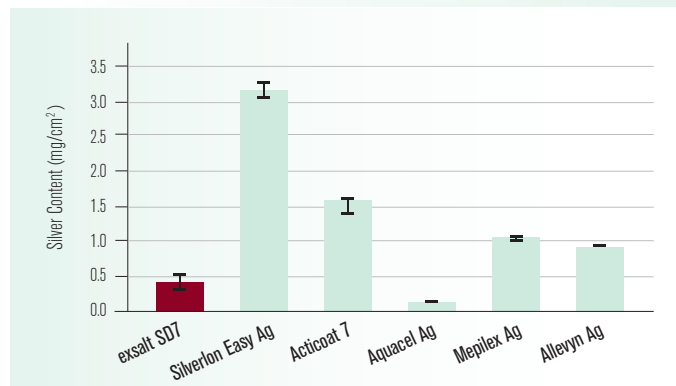
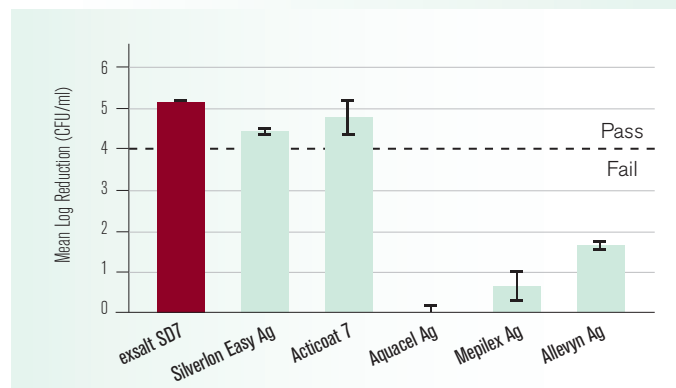


Figure 2 - ANTIMICROBIAL ACTIVITY



CONCLUSIONS

- exsalt™ SD7 offers superior antimicrobial efficacy with minimal silver content
- Silver content may not be directly related to efficacy