Confirmation of the antibacterial activity of a superabsorbent wound dressing[1] in vitro

Claudia Feldkamp[1], Martin Abel[1], Cornelia Wiegand[2],

[1]Lohmann & Rauscher GmbH & Co. KG (Clinical Regulatory Affairs, Neuwied, Germany)
[2]Department of Dermatology, University Hospital Jena, Jena, Germany

AIM:

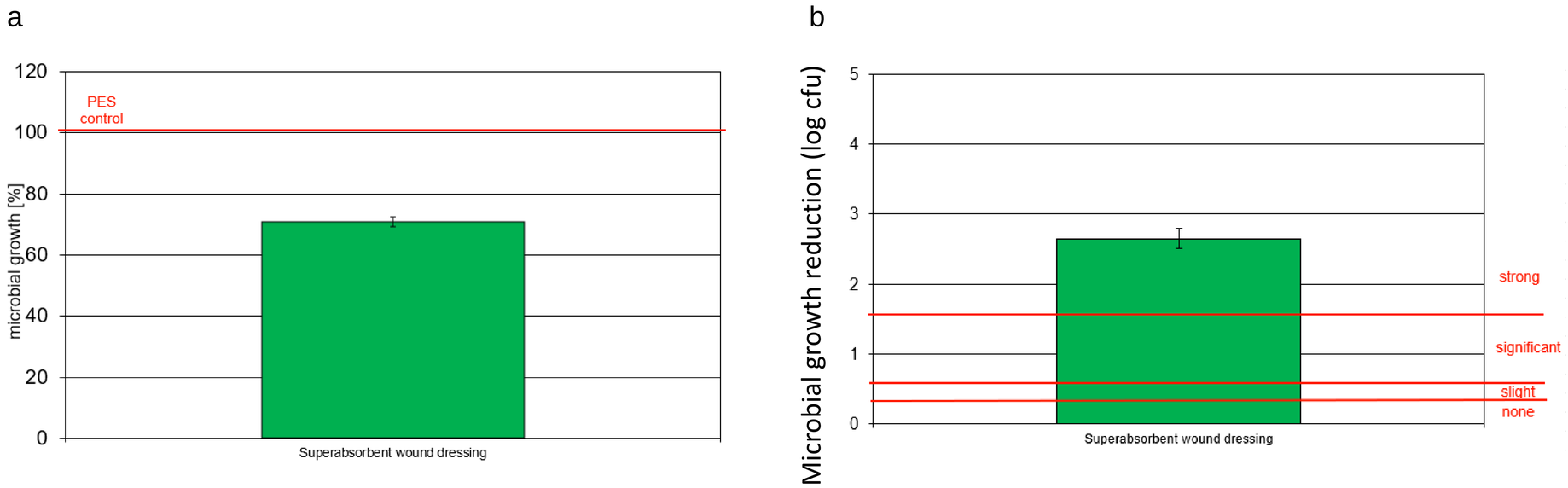
The objective of this study was to confirm the antibacterial activity of a superabsorbent wound dressing[1] in vitro

METHOD:

The antibacterial activity against E. coli was investigated in vitro according to JIS L 1902:2015 with polyester material as growth control. Furthermore, an experimental E. coli biofilm was treated with the dressing for 24h. Biomass was then quantified by determination of the bacterial respiratory activity after removal of the dressings and compared to an untreated control without dressing. The release of endotoxins during treatment of planktonic and biofilm E. coli as well as the binding of endotoxins were investigated via absorbance measurements on a plate photometer and compared to a control.

RESULTS:

The superabsorbent[1] wound dressing **reduced the growth of E. coli bacteria significantly** (2.65 log cfu vs. control: 0.00 log cfu reduction).



GRAPH 1: Antimicrobial activity
Reduced growth of *Escherichia coli* under the influence of the superabsorbent[1] wound dressing over 24 hours (a) and strong reduction of microbial growth (2.65 log cfu vs. control: 0.00 log cfu) according to JIS L 1902 (b).

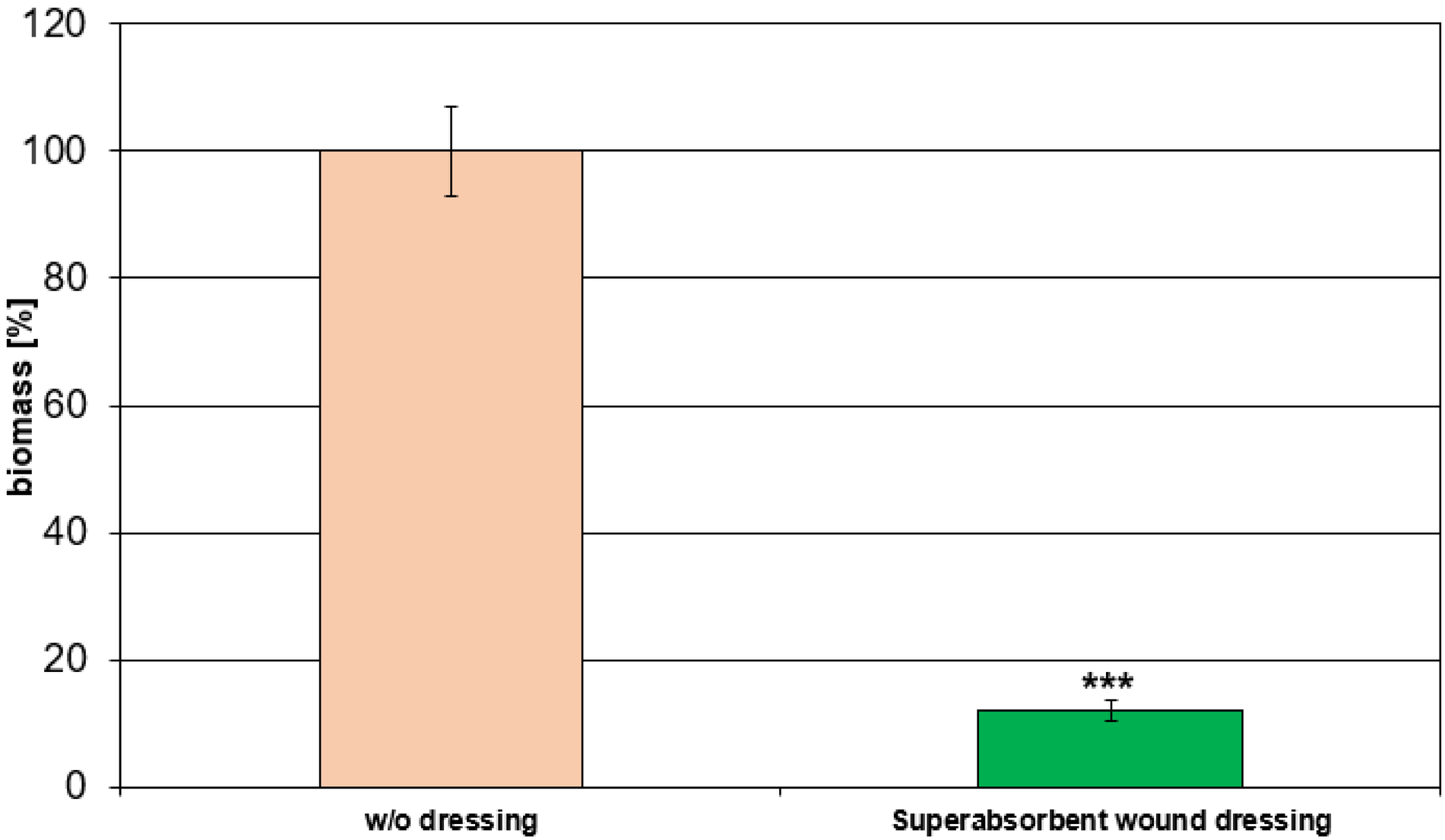
THE JOINT EWMA-GNEAUPP 2025 CONFERENCE
BARCELONA, SPAIN • 26–28 MARCH 2025

[1]Vliwazell® Pro – Lohmann & Rauscher GmbH & Co. KG

Confirmation of the antibacterial activity of a superabsorbent wound dressing[1] in vitro

RESULTS:

Treatment of and experimental E. coli biofilm with the dressing **significantly reduced biomass** (87.8% reduction compared to untreated control).



GRAPH 2: Biofilm

The superabsorbent[1] wound dressing significantly reduced E. coli biofilm biomass compared to the control without dressing (87.8% reduction).

[1]Vliwazell® Pro – Lohmann & Rauscher GmbH & Co. KG

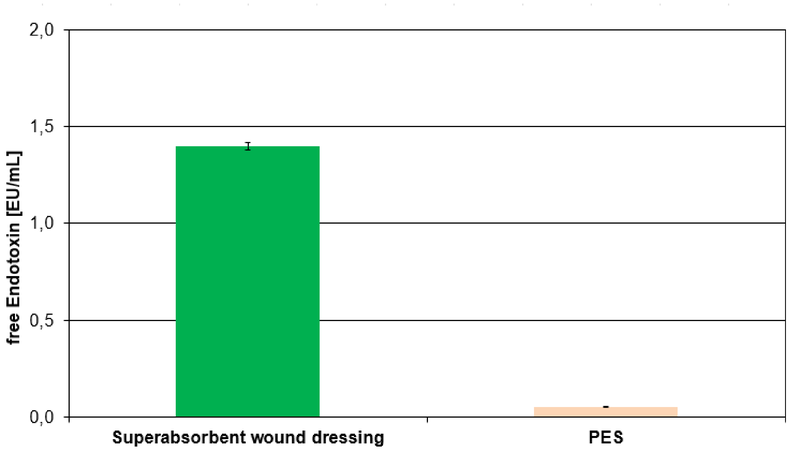
Confirmation of the antibacterial activity of a superabsorbent wound dressing[1] in vitro

RESULTS:

Release of endotoxins was **low** after treatment of planktonic E. coli (1.40 EU/mL; polyester control: 0.05 EU/mL) and an E. coli biofilm (1.38 EU/mL; untreated control: 1.46 EU/mL).

GRAPH 3: Endotoxin release after treatment of planktonic E. coli

Release of endotoxins was low after treatment of planktonic E. coli with the dressing (1.40 EU/mL; polyester control: 0.05 EU/mL).



GRAPH 4: Endotoxin release after treatment of Biofilm E. coli

Release of endotoxins was low after treatment of biofilm E. coli with the dressing (1.38 EU/mL; untreated control: 1.46 EU/mL). No significant differences between endotoxin release after treatment with the dressing and untreated biofilm were found.

[1]Vliwazell® Pro – Lohmann & Rauscher GmbH & Co. KG

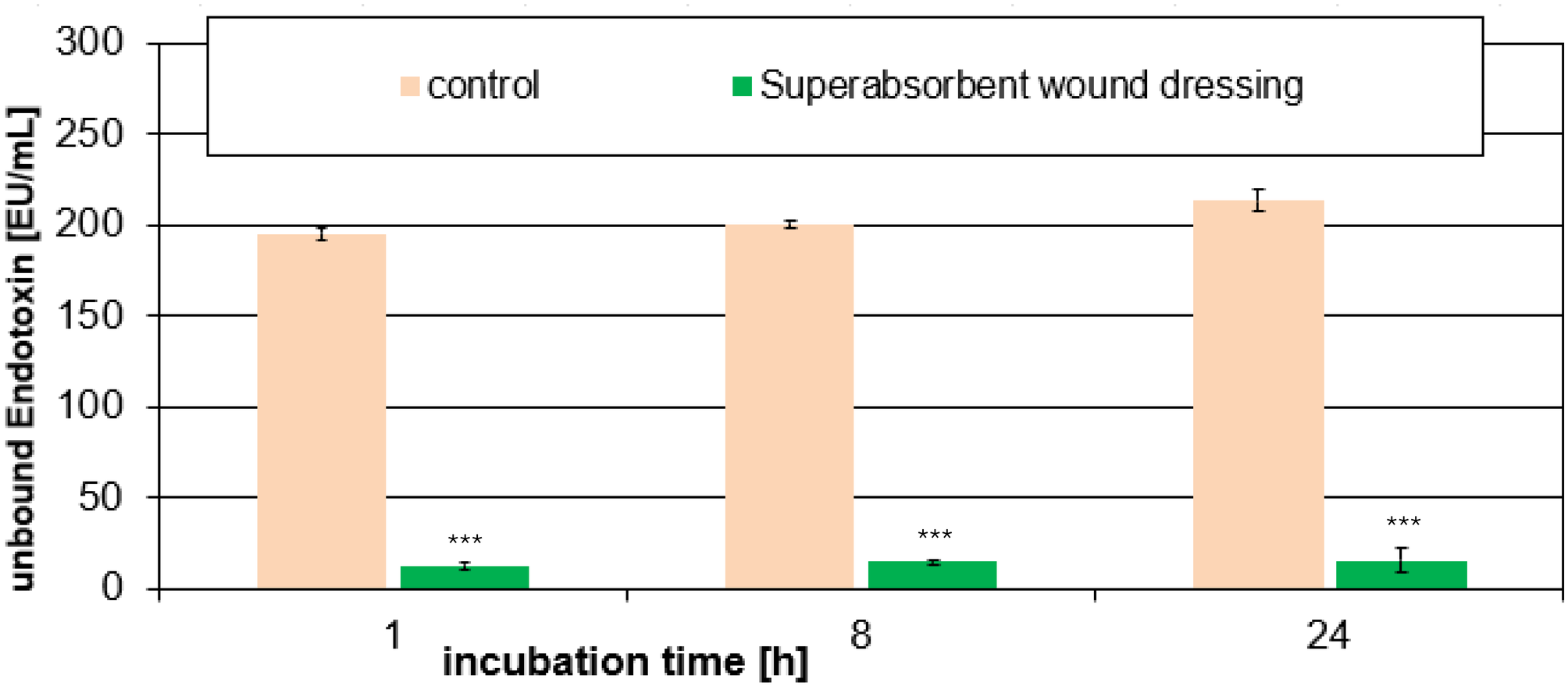
Confirmation of the antibacterial activity of a superabsorbent wound dressing[1] in vitro

RESULTS:

The superabsorbent[1] wound dressing **bound significant amounts of E. coli endotoxin** and **reduced its concentration in the simulated wound fluid**. After 1h the endotoxin reduction was already >90% compared to the Control.

CONCLUSION:

Test results indicate that the superabsorbent[1] wound dressing **significantly reduces microbial growth and biomass** in vitro. The dressing **binds endotoxins rapidly and efficiently**, with a **low release of endotoxins** after treatment of planktonic E. coli and an E. coli biofilm.



GRAPH 5: Binding of E. coli endotoxin

The amount of unbound endotoxin in simulated wound fluid was significantly reduced after treatment with the dressing compared to the control.

[1]Vliwazell® Pro – Lohmann & Rauscher GmbH & Co. KG

Confirmation of the antibacterial activity of a superabsorbent wound dressing[1] in vitro

Claudia Feldkamp[1], Martin Abel[1], Cornelia Wiegand[2],

[1]Lohmann & Rauscher GmbH & Co. KG (Clinical Regulatory Affairs, Neuwied, Germany)
[2]Department of Dermatology University Hospital Jena, Jena, Germany

AIM:

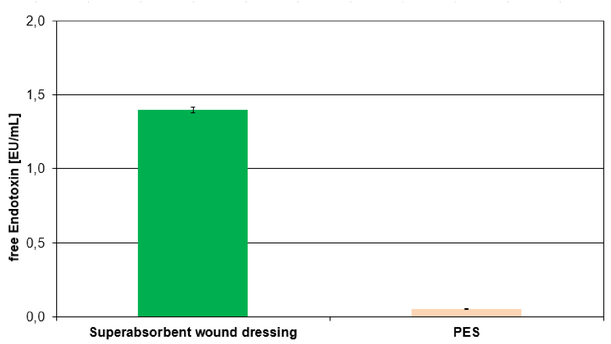
The objective of this study was to confirm the antibacterial activity of a superabsorbent wound dressing[1] in vitro.

METHOD:

The antibacterial activity against E. coli was investigated in vitro according to JIS L 1902:2015 with polyester material as growth control. Furthermore, an experimental E. coli biofilm was treated with the dressing for 24h. Biomass was then quantified by determination of the bacterial respiratory activity after removal of the dressings and compared to an untreated control without dressing. The release of endotoxins during treatment of planktonic and biofilm E. coli as well as the binding of endotoxins were investigated via absorbance measurements on a plate photometer and compared to a control.

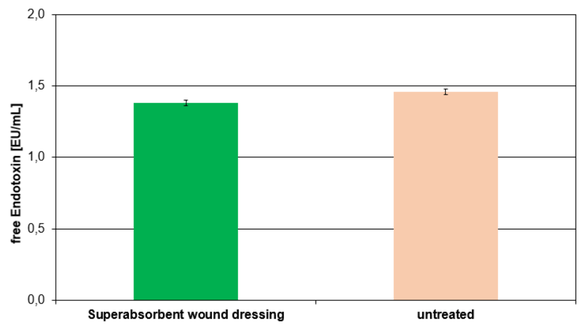
RESULTS:

The superabsorbent[1] wound dressing **reduced the growth of E. coli bacteria significantly** (2.65 log cfu vs. control: 0.00 log cfu reduction). Treatment of and experimental E. coli biofilm with the dressing **significantly reduced biomass** (87.8% reduction compared to untreated control). **Release of endotoxins** was **low** after treatment of planktonic E. coli (1.40 EU/mL; polyester control: 0.05 EU/mL) and an E. coli biofilm (1.38 EU/mL; untreated control: 1.46 EU/mL) and the dressing **bound significant amounts of E. coli endotoxin** and **reduced its concentration in the simulated wound fluid**. After 1h the endotoxin reduction was already >90% compared to the Control.



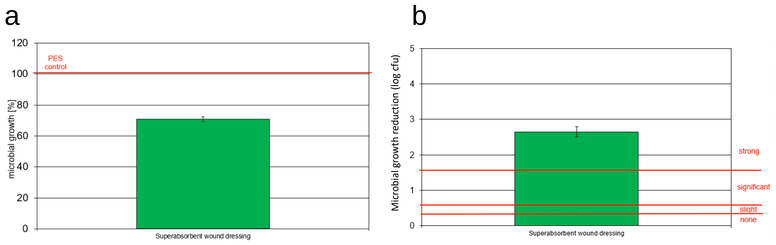
GRAPH 3: Endotoxin release after treatment of planktonic E. coli

Release of endotoxins was low after treatment of planktonic E. coli with the dressing (1.40 EU/mL; polyester control: 0.05 EU/mL).



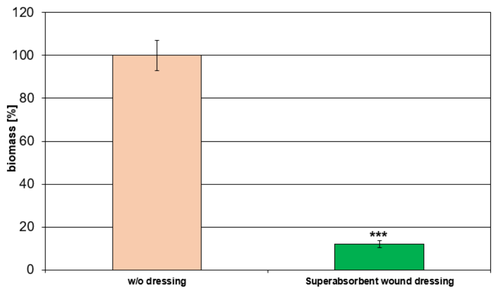
GRAPH 4: Endotoxin release after treatment of Biofilm E. coli

Release of endotoxins was low after treatment of biofilm E. coli with the dressing (1.38 EU/mL; untreated control: 1.46 EU/mL). No significant differences between endotoxin release after treatment with the dressing and untreated biofilm were found



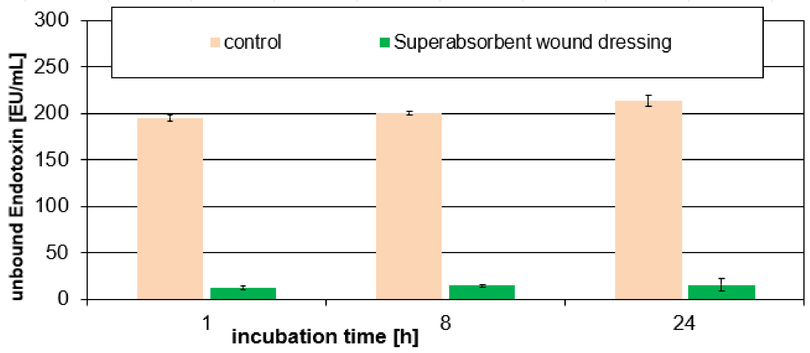
GRAPH 1: Antimicrobial activity

Reduced growth of *Escherichia coli* under the influence of the superabsorbent[1] wound dressing over 24 hours (a) and strong reduction of microbial growth (2.65 log cfu vs. control: 0.00 log cfu) according to JIS L 1902 (b).



GRAPH 2: Biofilm

The superabsorbent[1] wound dressing significantly reduced E. coli biofilm biomass compared to the control without dressing (87.8% reduction).



GRAPH 5: Binding of E. coli endotoxin

The amount of unbound endotoxin in simulated wound fluid was significantly reduced after treatment with the dressing compared to the control

CONCLUSION:

Test results indicate that the superabsorbent[1] wound dressing **significantly reduces microbial growth and biomass** in vitro. The dressing **binds endotoxins rapidly and efficiently**, with a **low release of endotoxins** after treatment of planktonic E. coli and an E. coli biofilm.

THE JOINT EWMA-GNEAUPP 2025 CONFERENCE

BARCELONA, SPAIN • 26–28 MARCH 2025

[1]Vliwazell® Pro – Lohmann & Rauscher GmbH & Co. KG