

**ANTI BACTERIAL AND ANTIFUNGAL EFFECT OF POLYACRYLATE SUPERABSORBERS**

Cornelia Wiegand<sup>1</sup>, Martin Abel<sup>2</sup>, Peter Ruth<sup>2</sup>, Uta-Christina Hipler<sup>1</sup>

<sup>1</sup>*Department of Dermatology, University Medical Center Jena, Jena, Germany,* <sup>2</sup>*Lohmann & Rauscher GmbH & Co. KG, Rengsdorf, Germany*

**Aim:** Infection is a main cause of delayed healing. Infection risk increases when host defense mechanisms are impaired. Important pathogens of nosocomial infections are *Staphylococcus aureus*, *Klebsiella pneumoniae*, *Pseudomonas aeruginosa*, *Escherichia coli*, and *Candida albicans*. Pathogens' spread can only be inhibited through consistent hygiene sanctions and preventive disinfectant actions. Polyacrylate-superabsorber containing wound dressings are able to take up large quantities of exudates while keeping the wound environment moist; an additional inhibition of bacterial and fungal growth would be a beneficial attribute. We have tested a wound dressing containing polyacrylate-superabsorber\* according to the JIS L 1902 for antibacterial and antifungal activity.

**Methods:** *S.aureus*, *Klebsiella pn.*, *P.aeruginosa*, *E.coli*, and *C.albicans* were chosen to monitor the antimicrobial effect. According to the JIS L 1902 standard samples of 400 mg of the polyacrylate-superabsorber containing wound dressing\* were used for testing. The samples were incubated with the experimental pathogens up to 24h at 37°C under aerobic conditions.

**Results:** The polyacrylate-superabsorber showed a strong inhibitory effect (cfu log reduction >3) on *Klebsiella pneumoniae*, *Pseudomonas aeruginosa* and *Escherichia coli*. It was also able to inhibit the growth of *Staphylococcus aureus* and *Candida albicans* significantly (cfu log reduction > 1 to ≤ 3).

**Conclusions:** The polyacrylate-superabsorber containing wound dressing\* exhibit a distinct antibacterial and antifungal activity. Its use could be supportive for the treatment of wound infections by entrapment of the microorganisms in the forming gel on exudates' uptake and inhibition of their growth.

\*Vliwasorb®/Lohmann&Rauscher