PREVENTING THE SPREAD OF HANTAVIRUS EMPLOYING DUST ABATEMENT TECHNIQUES

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SEAP Project
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HANTAVIRUS

- Identified in 1993
- Very rare, but very deadly
- Found within New World Rodents in North and South America
Transmission

Places Susceptible to Virus

- Droppings
- Urine
- Saliva
- Bitten
Terrorist Tactics

Winds Can Carry Spores For Miles

Terrorists Delivery Methods

Military Base Camp
Current Solutions

- Prevent rodent-living areas
- Set up mouse traps
- Store all food in rodent-proof containers
- No known medical treatments
Surtac, a dust abatement product, could prevent the spread of bacteria; mainly, the hantavirus.
Experimental Design

Diagram:
- **Air Flow**
- **Petri Dish**
- **Sand**
Experimental Procedure

1. Collected, dried, and sifted sand with a 0.5mm sieve

2. Prepared bacteria spores

3. Treated soil with bacteria (2.5 x 10^6 cfu/g of sand)
Experimental Procedure

4. Treated surfaces with Surtac™ and Soiltac™ products and induced air flow

6. Incubated and counted colonies present on petri dishes

7. Performed a Gram stain
Anthrax Sterne Strain
## Results

<table>
<thead>
<tr>
<th></th>
<th>Trial 1</th>
<th>Trial 2</th>
<th>% Reduction</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Surtac™</strong></td>
<td>172</td>
<td>203</td>
<td>&gt;81</td>
</tr>
<tr>
<td><strong>Soiltac™</strong></td>
<td>608</td>
<td>810</td>
<td>&gt;29</td>
</tr>
<tr>
<td><strong>Control</strong></td>
<td>»1000</td>
<td>»1000</td>
<td>0</td>
</tr>
</tbody>
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Number of Colony Forming Units (cfu) Present After Incubation Period of 24h
Acknowledgements

- James Wynne
- Chris Lloyd
- Will Straube
- Arthur Snow
- NRL SEAP program