



MICROBIOLOGY / BSL-3 TEAM

Edgewood Chemical Biological Center





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MISSION

As the focal point for the Non-Medical National Program on Threat-Biological Agents, to perform analysis, testing, development, and research involving human, animal, and vegetable pathogens requiring high containment.

METHODS DEVELOPMENT

PRODUCT TESTING/VALIDATION

High-Throughput ANALYSIS

THREAT AGENT RESEARCH

BACTERIOLOGY

VIROLOGY

Microbial TOXINS

BIOINFORMATICS

SURFACES FOOD WATER AEROSOLS



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Food/Water Safety

- To design the methodologies to identify Bioterrorism bacteria and toxins in food and water that can be used in testing laboratories
- Unknown sample testing when the threat of a terrorist attack is suspected

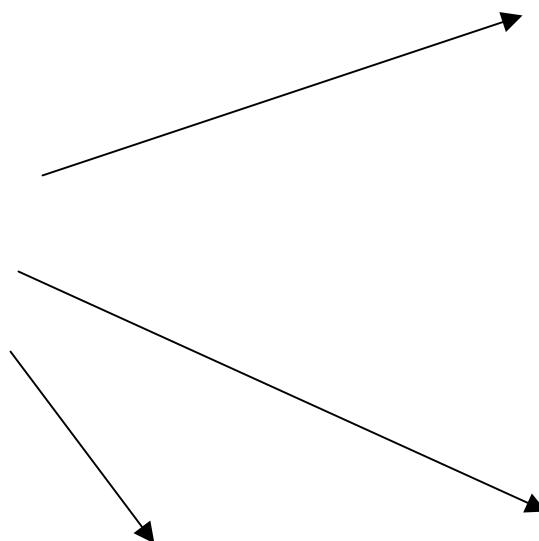
Anthrax
Plague
Brucella
Bot Toxin



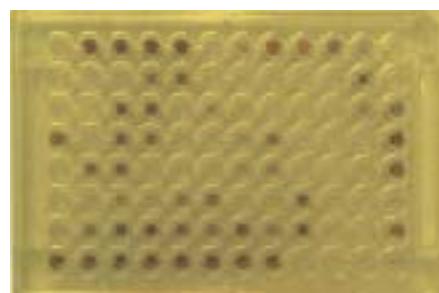


Food/Water Safety

Anthrax?



PCR



Biolog



Fatty Acid Analysis



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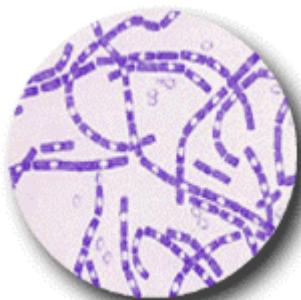


Fig 5. Sporicidal Effect on *Bacillus anthracis* Dried on HumVee Aluminum

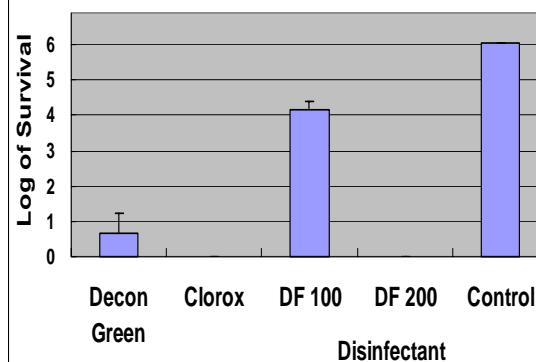
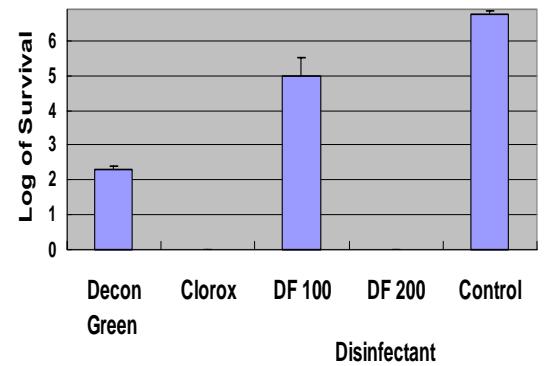


Fig 6. Sporicidal Effect on *Bacillus anthracis* Dried on Rubber Material



Testing of Decontamination Technologies Against Virulent Bioterrorism Agents



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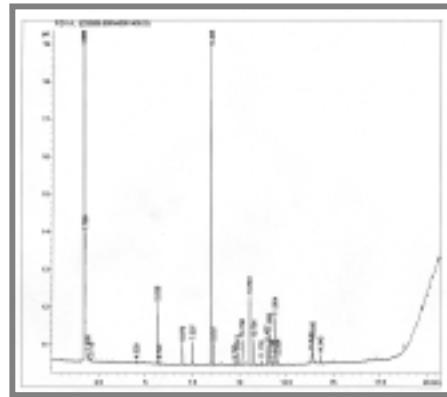
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Basic Research in Microbiology/Virology

Bacterial Identification

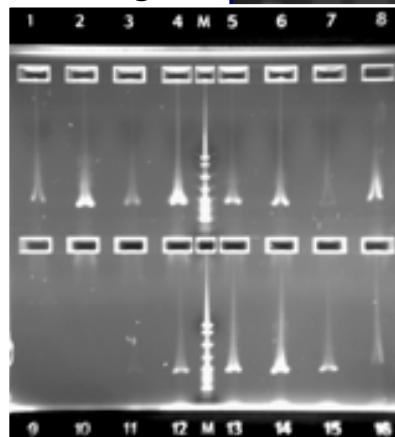
MIDI



Strain	Identification	+/n	Strain	Identification	+/n
<i>P. aeruginosa</i>	<i>P. aeruginosa</i>	6/6	<i>B. anthracis</i> CDC 471	<i>B. anthracis</i>	2/3*
<i>S. maltophilia</i>	<i>S. maltophilia</i>	6/6	<i>B. anthracis</i> CDC 684	<i>B. anthracis</i>	7/7
<i>B. anthracis</i> 1029 Albia	<i>B. anthracis</i>	6/7*	<i>B. anthracis</i> Colorado	<i>B. anthracis</i>	3/3
<i>B. anthracis</i> 1024 SK128	<i>B. anthracis</i>	3/3	<i>B. anthracis</i> EB1	<i>B. anthracis</i>	7/7
<i>B. anthracis</i> 1032M	<i>B. anthracis</i>	3/3	<i>B. anthracis</i> FLA U770	<i>B. anthracis</i>	3/3
<i>B. anthracis</i> 1087 Scotland	<i>B. anthracis</i>	3/3	<i>B. anthracis</i> G28	<i>B. anthracis</i>	2/3*
<i>B. anthracis</i> 1090	<i>B. anthracis</i>	3/3	<i>B. anthracis</i> LA1	<i>B. anthracis</i>	7/7
<i>B. anthracis</i> 1328	<i>B. anthracis</i>	3/3	<i>B. anthracis</i> NCTC 109	<i>B. anthracis</i>	3/3
<i>B. anthracis</i> 1928	<i>B. anthracis</i>	7/7	<i>B. anthracis</i> NCTC 7752	<i>B. anthracis</i>	3/3
<i>B. anthracis</i> 5444 St. Mary's	<i>B. anthracis</i>	3/3	<i>B. anthracis</i> Nebraska	<i>B. anthracis</i>	3/3
<i>B. anthracis</i> Albia 1024	<i>B. anthracis</i>	3/3	<i>B. anthracis</i> SK102	<i>B. anthracis</i>	3/3
<i>B. anthracis</i> B11LV-1-3	<i>B. anthracis</i>	4/4	<i>B. anthracis</i> ZIM 89	<i>B. anthracis</i>	3/3

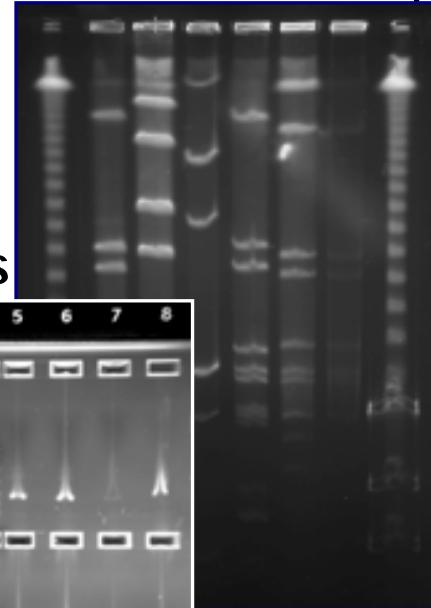
* no identification returned for 1 replicate

PCR Analysis



Genetic Analysis of Microbes

Pulsed-field Gel Electrophoresis



DNA

Sequencing

ntattggagagttgatc
ctgctcaggatcgctg
gccgtgcctatacatg
caatcgagcgaatgg
attaagagctgctctt
gaagtttagggcggac
gggtgagtaatgctca
ggatcgctggccgtgc
ctatacatgcaatcga
gcgaatggagcttgct
cttgaagttagggcgg
acgggtgagtaatgct
caggatcgctggccgt
gcctatacatgcaaag



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Detector Testing Against Live Agents





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