DWC Disrupts Bacterial Cell Walls

***(Pseudomonas a* / 30 sec/ 10X)**

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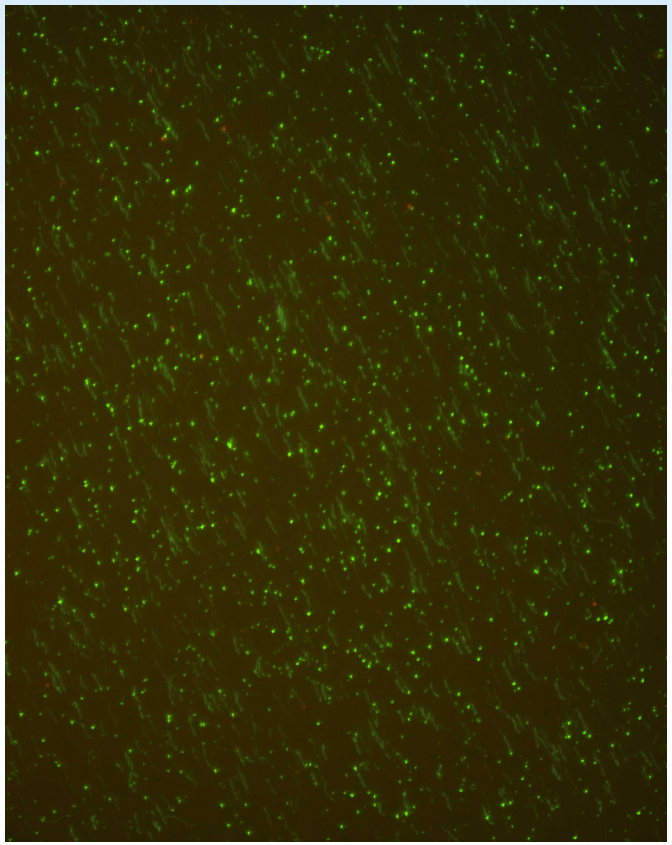
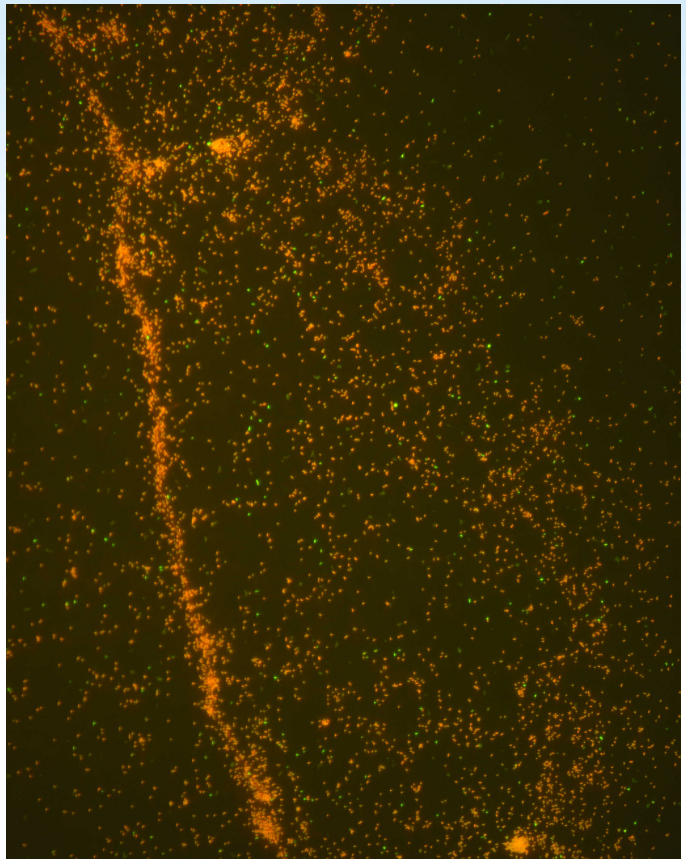
Before DWC
(green alive)



After DWC
(red death)



Thatcher E, Taketa M, Estrella O, *et.al.* - Sonoma University, 2006

Antimicrobial Activity Suspension Tests

Organism	Result (reduction)
Staphylococcus aureus	5 log10 in 15 s 8 log10 in 30 s
Staphylococcus epidermidis	5 log10 in 15 s
Enterococcus hirae	5 log10 in 15 s
Escherichia coli	5 log10 in 15 s 8 log10 in 30 s
Pseudomonas aeruginosa	5 log10 in 15 s 8 log10 in 30 s
Salmonella typhi	8 log10 in 30 s
Candida albicans	8 log10 in 30 s
HIV I	3 log10 in 5 min
Bacillus atrophaeus	>4 log10 in 2 min 6 log10 in 3 min

Bactericidal (carrier test)

AOAC UDM = AOAC Use Dilution Method
AOAC ACT = AOAC Available Chlorine (* not a carrier test)
FCS = Fetal Calf Serum
AOAC Germ = AOAC Germicidal Test (* not a carrier test)

Bacteria	Method	cfu/carrier	Result	Exposure time (minutes)
Staphylococcus aureus	AOAC UDM	5x104	> 4 log 10	10
Salmonella cholerasuis	AOAC UDM	6x105	> 5 log 10	10
Escherichia coli	AOAC UDM (5% FCS)	1x105	5 log 10	1
Pseudomonas aeruginosa	AOAC UDM	6x104	> 4 log 10	10
Salmonella typhi	AOAC ACT	4x108/ml*	Equivalent to 100ppm NaOCl	1
MRSA	AOAC UDM	9x105	> 5 log 10	10
VRE	AOAC UDM	1x106	6 log 10	10
Mycobacterium tuberculosis	AOAC Germ (5% FCS)	-*	> 7 log 10	5

Anti-microbial Effect

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In-vitro Time-Kill Method (BSL, Montana - ATS Labs) Neutralization Study – ASTM E 1054

	ATCC	Reduction / 15 s
Haemophilus influenzae	10211	5 Log_{10}
Moraxella catarrhalis	25240	> 99.9888
S pneumoniae (penicillin resistant)	51915	> 99.931
S pyogenes (gp A)	19615	> 99.99

Anti-microbial Effect

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Viral Inactivation Studies (APPTEC- ATS Labs)

	Strain	Reduction Log_{10}	
Influenza A Virus	A/HK68	> 5	1 min
		> 6.46	15 min
Rhinovirus type 37	ATCC VR 1147	2.75	15 sec
		3.25	30 sec
		>4.75	5 min
Human corona virus	ATCC VR-740	> 3.25	15-30 sec

DWC Works Faster than Antibiotic Irrigations *in vitro*

Average Log reduction

(20 sec exposure)

	Bacitracin (33 U/mL)	Dermacyn
B atrophaeus 2.55×10^6	0	4
S aureus 8.65×10^6	0	4
P aeruginosa 1.55×10^7	0	5

Micromed Labs., 2005

DWC destroys biofilms

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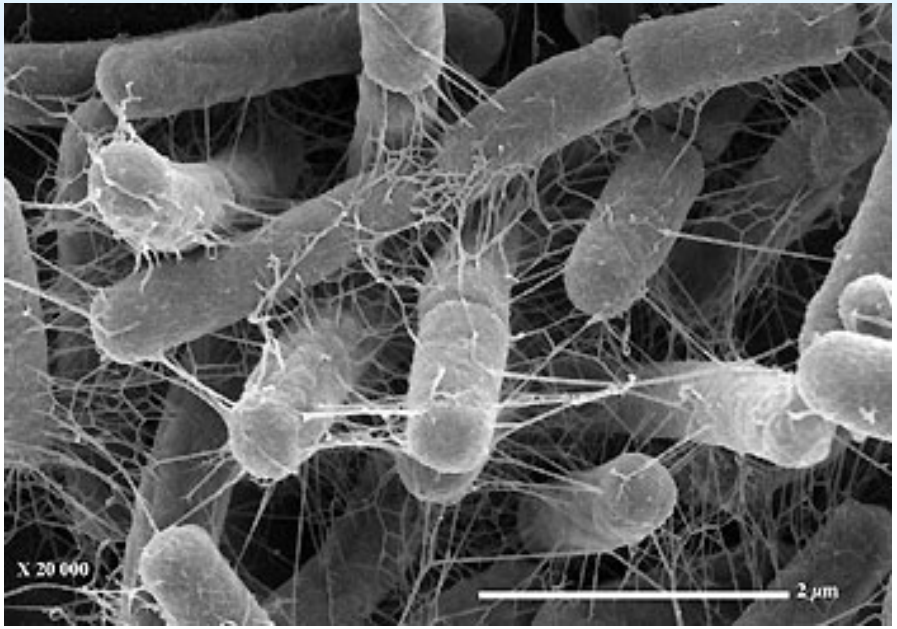

DWC destroys *Pseudomonas* and *E coli* biofilms *in vitro*

Sauer K *et.al.,* New York State University, 2008

Microcyn® solutions destroy *Pseudomonas* biofilms

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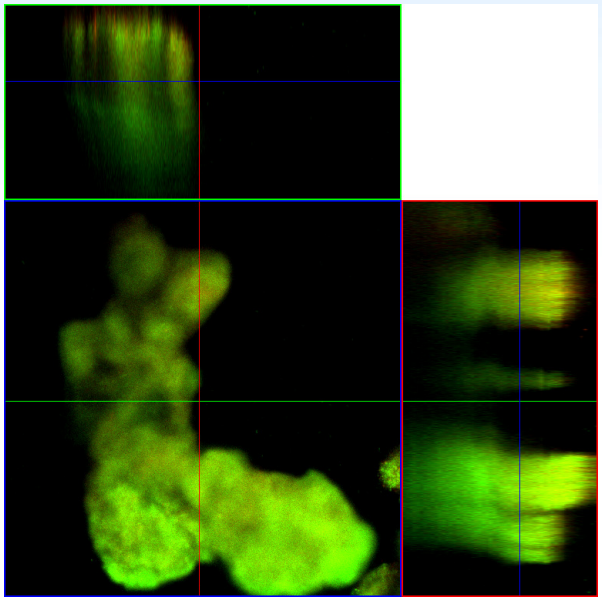
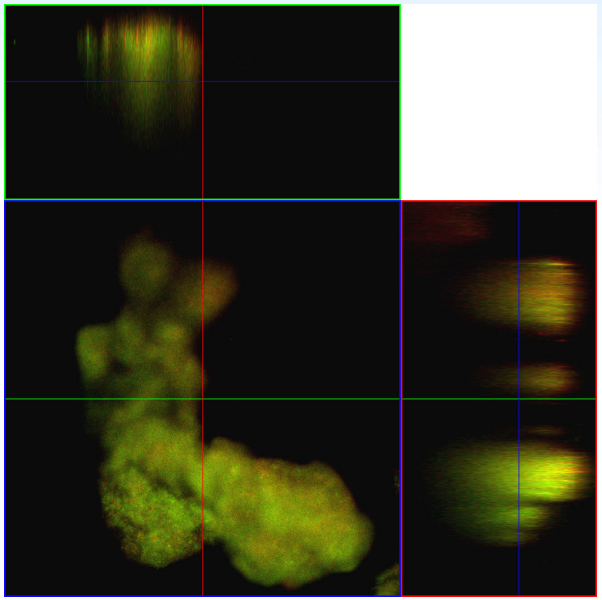
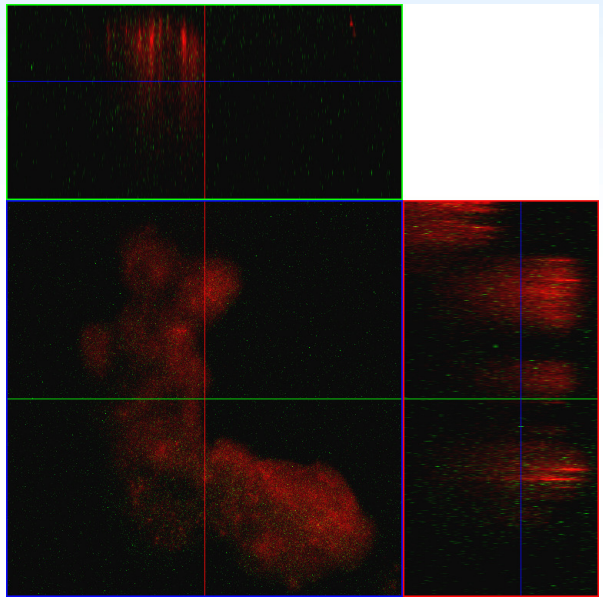
0-5 min



15-20 min



30-35 min



Anti-microbial Effect

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A single mL of Microcyn is able to reduce 20X a high endotoxin load (Implications in burns, abdominal sepsis, etc.)