

January, 1, 2016

Lab Testing Data

PATH AWAY ANTI-FUNGAL SOLUTION® is a broad spectrum antimicrobial compound synthesized from naturally occurring substances. PATH AWAY ANTI-FUNGAL SOLUTION® is an extremely potent and effective broad spectrum bactericide, fungicide, antiviral and anti-parasitic compound. PATH AWAY ANTI-FUNGAL SOLUTION® is environmentally safe with a low toxicity to man and animals. It is tested, proven and approved for humans, plants and animals.

Studies indicate that the antimicrobial activity of PATH AWAY ANTI-FUNGAL SOLUTION® is in the cytoplasmic membrane where the uptake of amino acids is prevented and disorganization of the cytoplasmic membrane and leakage of low molecular weight cellular contents. PATH AWAY ANTI-FUNGAL SOLUTION® is biodegradable according to the "Standard Test Methods for Determining the Anaerobic Biodegradation Potential of Organic Chemicals", ASTM Standards, Section 11, Water and Environmental Technology, Procedure E 1196-2, pp. 879-901,1993.

PATH AWAY ANTI-FUNGAL SOLUTION® (as a natural extractive) has components listed as GRAS (Generally Recognized as Safe) under the Code of Federal Regulations as 21 CFR 182.20. PATH AWAY ANTI-FUNGAL SOLUTION® has been tested for safety in both human and animal, including the environment. PATH AWAY ANTI-FUNGAL SOLUTION® is considered non-toxic and a non-irritant at dilutions up to 5%. PATH AWAY ANTI-FUNGAL SOLUTION® is also considered non-corrosive. Ingredients are FDA compliant.

PATH AWAY ANTI-FUNGAL SOLUTION® is BioGro Certified Organic and IFOAM approved as well as MPI-OOAP-USDA, MPI-OOAP-EU, MPI-OOAP-Taiwan and JAS.

Materials and Methods.

PATH AWAY ANTI-FUNGAL SOLUTION® liquid is a proprietary product of Global Infection Control Consultants LLC, a Bluffton South Carolina USA based company. The SOLUTION™ is of rather high viscosity with a slight yellow color. The product is transparent with no detectable sediment. Preparation of various dilutions of the stock SOLUTION™ (100%) indicate that the SOLUTION® is readily and completely water soluble. There is no discernible unpleasant aroma.

Serial dilution test data.

The test compound was diluted serially in Trypticase Soy Broth by halving concentrations (i.e., two-fold dilutions) starting at an appropriate concentration for the organisms involved and diluting out to as many tubes as desired. The tubes were then inoculated with a drop of the appropriate organism, incubated at appropriate temperature (37 C for the bacteria and 26 C for the fungi) for an appropriate time period (48 hrs. for the bacteria and up to 14 days for the fungi), and read for presence or absence of growth. The lowest concentration at which no

growth of the test organism was observed following the indicated incubation period constituted the minimal inhibitory concentration for that organism. For the bactericidal and fungicidal endpoints, three loopfuls of broth taken from each of the tubes in the above static test were sub cultured into 10ml of fresh Trypticase Soy Broth at 24 Hrs. for the bacteria and 72 hrs. for the fungi. These subculture tubes were then read after 48 hrs. and up to 14 days, respectively. ***Testing is conducted by both “serial dilution” method as well as “EPA Approved” method.***

Initial Test Organisms.

Bacteria: 24 hrs. Trypticase Soy Broth cultures of:

- A. Staphylococcus aureus, ATCC # 6538
- B. Pseudomonas aeruginosa PRD-10, ATCC # 15442
- C. Escherichia coli, ATCC # 11229

Fungi: 10 day old cultures of:

- A. Aureobasidium pullulans, ATCC # 9348 on Emmon’s Agar
- B. Penicillium requeforte, ATCC # 6989 on Czepek Dox Agar
- C. Chaetomium globosum, ATCC # 6205 on Mildew Test Medium
- D. Aspergillus flavus, ATCC # 9643 on Czepek Dox Agar

The fungal slants were rinsed off with 10 ml sterile distilled water. This suspension was mixed well and then filtered through sterile double-thickness cheese cloth. ***The success of initial testing has led to testing on numerous pathogens over the years. A current list is attached.***

Properties and efficacy as a disinfectant.

In regard to PATH AWAY ANTI-FUNGAL SOLUTION® liquid, significant progress has been made in our evaluation of this product as a disinfectant. Numerous studies have been conducted. Field and/or laboratory studies verifying efficacy have been conducted by:

- 1 Aerobiology Laboratory, USA
- 2 EMLAB P&K USA
3. EMSL Laboratory USA
4. Erduran Laboratories, Cyprus
5. New Zealand Food Safety Authority

6. New Zealand Plant & Food Laboratory
7. New Zealand Environmental Protection Authority Approval (2)
8. Elan Food lab. Nicosia, Cyprus

The following information is important when understanding the efficacy of the product.

(1) The toxicological data indicates that this product and the active ingredient possess very low toxicity. This is important because most disinfectants that are currently used in either animal or human environments have moderate to high toxicity and extreme care must be exercised when these products are used. The lack of any significant toxicological properties of PATH AWAY ANTI-FUNGAL SOLUTION® is also impressive when one views the efficacy data where extremely small concentrations of the product can be used with marked beneficial results.

(2) In view of the reports discussed, the wide spectrum of activity that PATH AWAY ANTI-FUNGAL SOLUTION® offers (antiviral, antibacterial, both gram- and gram+, antimycotic and antiprotozoan) will undoubtedly aid in its acceptability.

(3) The fact that this product has a very pleasant aroma will aid in the overall acceptability. When used in the laboratory, comments pertaining to the "fresh" smell have been numerous. This may be considered a subtle point however, we feel that it is important.

Attached are some of the recent tests conducted and an up to date list of fungi, bacteria, yeasts and viruses that the PATH AWAY ANTI-FUNGAL SOLUTION® has proven efficacy on.

PATH AWAY ANTI-FUNGAL SOLUTION® is specifically formulated for various pathogens with the MIC designated for proper efficacy by our expert staff of scientists.

Any additional items not on this list can be evaluated and a phone call to our corporate office at 1-800-356-1256 will generate a quote for you.

Most respectfully

Arthur V. Martin, President

Arthur V. Martin, President
Principal Research Scientist

Additional Test Organisms as of 1 January, 2016

Organism	Origin	Strain #	< 5 Min Kill
Aerobacter aerogenes	CITM	413	Yes
Alcaligenes faecalis	A		Yes
Brucella abortus	NCTC	8226	Yes
Brucella melitensis	A		Yes
Brucella intermedia	A		Yes
Brucella suis	A		Yes
Cloaca cloacae	NCTC	8155	Yes
Escherichia coli	NCTC	86	Yes
Escherichia coli	ATCC	9663	Yes
Escherichia coli	NCTC	9001	
Haemophilus influenza	A		Yes
Klebsiella edwardsii	NCTC	7442	Yes
Klebsiella aerogenes	NCTC	8172	Yes
Klebsiella pneumoniae	Isolate		Yes
Legionella pneumoniae	Isolate		Yes
Loefflerella mallei	NCTC	9674	Yes
Loefflerella pseudomallei	NCIB	10230	Yes
Moraxella duplex	A		Yes
Moraxella glucidolytica	A		Yes
Neisseria catarrhalis	NCTC	3622	Yes
Pseudomonas capacia	C-175		Yes
Pasteurella septica	NCTC	948	Yes

Pasteurella pseudotuberculosis	C-G		Yes
Proteus vulgaris	NCTC	8313	Yes
Proteus mirabilis	A		Yes
Pseudomonas aeruginosa	NCTC	1999	Yes
Pseudomonas aeruginosa	ATCC	12055	Yes
Pseudomonas fluorescens	NCTC	4755	Yes
Salmonella choleraesuis			Yes
Salmonella enteritidis	A		Yes
Salmonella gallinarum			Yes
Salmonella typhimurium	NCTC	5710	Yes
Salmonella typhi	NCTC	8384	Yes
Salmonella paratyphi A	NCTC	5322	Yes
Salmonella paratyphi B	NCTC	3176	Yes
Salmonella pullorum	ATCC	9120	Yes
Serratia marcescens	A		Yes
Shigella flexneri	NCTC	8192	Yes
Shigella sonnei	NCTC	7420	
Shigella dysenteriae	NCTC	2249	Yes
Vibrio cholerae	A		Yes
Vibrio eltor	NCTC	8457	Yes

Fungi and Yeasts	Origin	Strain #	< 5 Min Kill
Acremonium sp	A		Yes
Alternaria sp.	A		Yes
Arthrinium sp	A		Yes
Acospores sp	A		Yes
Aspergillus niger	ATCC	6275	Yes
Aspergillus fumigatis	ATCC	9197	Yes
Aureobasidium sp.	A		Yes
Basidiospores sp.	A		Yes
Beauveria sp.	A		Yes
Bipolasis dreschlera	A		Yes
Botrytis sp.	A		Yes
Calcarisporium sp.			Yes
Candida albicans	A		Yes
Candida albicans	ATCC	10259	Yes
Cercospora sp.	A		Yes
Chaetomium sp.	A		Yes
Chromelosporium sp.	A		Yes
Curvularia sp.	A		Yes
Drechlera group	A		Yes
Epococcum sp			Yes
Epidermmophyton floccosum	ATCC	10227	Yes
Exiophiala sp	A		Yes
Fusarium sp.	A		Yes
Geotrichum sp.	A		Yes
Keratinomyces	A (ajelloi)		Yes

Lasiodipolodia theobromae	A		Yes
Memmnoiella sp.	A		Yes
Microstroma sp.	A		Yes
Monilia albicans	A		Yes
Mucor sp.	A		Yes
Myrothecium sp.	A		Yes
Nigrospora sp.	A		Yes
Nodulisporium sp.	A		Yes
Oidium sp.	A		Yes
Paecilomyces sp.	A		Yes
Penicillium sp.	A		Yes
Periconia sp.	A		Yes
Peziza sp.	A		Yes
Phoma sp.	A		Yes
Pithomyces sp.	A		Yes
Polythrincium sp	A		Yes
Rhizopus sp.	A		Yes
Saccharomyces cerevisiaq	A		Yes
Saccharomyces sp.	A		Yes
Schizophyllum sp.	A		Yes
Scopulariopsis sp.	A		Yes
Spegazzina sp.	A		Yes
Sporothrix sp.	A		Yes
Sporotrichum sp.	A		Yes
Stachybotrys chartarum atra	A		Yes
Stachybotrys sp.	A		Yes
Stemphylium sp.	A		Yes
Taeniolella sp			Yes
Tetraploa sp.			Yes
Torula sp.			Yes
Trichoderma sp.			Yes
Tricholcladium sp.			Yes
Trichosporon sp.			Yes
Trichophyton	ATCC (mentagrophytes)	9533	Yes

Trichophyton rubrum	A	Yes
Trichophyton tonsurans	A	Yes
Tritiachium sp	A	Yes
Ulocladium sp	A	Yes
Ustilago sp.	A	Yes
Wallemia sp.	A	Yes
Zygosporium sp.	A	Yes

Gram + Bacteria	Origin	Strain #	< 5 Min Kill
Bacillus cerues var. mycoies	A		Yes
Bacillus cereus	A		Yes
Bacillus megatherium	A		Yes
Bacillus subtilis	NCTC	8326	Yes
Clostridium botulinum	NCTC	3805	Yes
Clostridium difficile	NCTC		Yes
Clostridium tetani	NCTC	9571	Yes
Cornybacterium diptheriae	NCTC	6917	Yes
Cornybacterium	A (diptheriae)		Yes

Cornybacterium diphtheriae	NCTC	3984	Yes
Cornybacterium minutissium	ATCC	6501	Yes
Diplococcus pneumoniae	NCTC	7465	Yes
Lactobacillus arabinosus	ATCC	8014	Yes
Lactobacillus casei	CITM	707	Yes
Listeria monocytogenes	atcc	15313	Yes
Mycobacterium phlei	A		Yes
Mycobacterium smegmatis	NCTC	8152	Yes
Mycobacterium tuberculosis	A		Yes
Sarcina lutea	NCTC	196	Yes
Saecena ureae	ATCC	6473	Yes
Staphylococcus aureas	NCTC	7447	Yes
Staphylococcus aureas	NCTC	4163	Yes
Staphylococcus aureas	NCTC	6571	Yes
Staphylococcus aureas	NCTC	6966	Yes
Staphylococcus aureas	ATCC	13709	Yes
Staphylococcus aureas	ATCC	6358	Yes
Staphylococcus albus	NCTC	7292	Yes
Staphylococcus albus	C-G		Yes
Streptococcus	Isolate		Yes

Streptococcus agalactiae	A	8181	Yes
Streptococcus faecalis	NCTC	8619	Yes
Streptococcus faecalis		ATCC	Yes
Streptococcus haemolyticus		10541	Yes
Streptococcus pyogenes	NCTC	8322	Yes
Streptococcus viridans	Isolate		Yes

Additional Items Tested

Item	Origin	Srrain #	< 5 Min Kill
Avian influenza	A		Yes
Burrelia	A		Yes
Campylobacter jejuni	A		Yes
Chlamydia trachomatis	A		Yes
Coccidiosis	A		Yes
Collyricium Faba	A		Yes
Entamoeba Histolytica	A		Yes
Erysipenas	A		Yes
Galisepticum	A		Yes
Giardia lamblia	A		Yes
H1N1 Virus	A		Yes
Hawaii virus	A		Yes

Heliobacter pyloria	A	Yes
Herpes simplex	A	Yes
Histomoniasis	A	Yes
Hexamita	A	Yes
Influenza A2	A	Yes
Lencocytozoon	A	Yes
Lonsdale virus	A	Yes
Marek's disease	A	Yes
Mycoplasma sp.	A	Yes
Newcastle disease	A	Yes
Norovirus sp.	A	Yes
Norwalk virus	A	Yes
Pasteurella	A	Yes
Pseudomonas syringae	A	Yes
Retroviridae	A	Yes
Southampton Virus	A	Yes
Snow mountain virus	A	Yes
Trichomonas	A	Yes