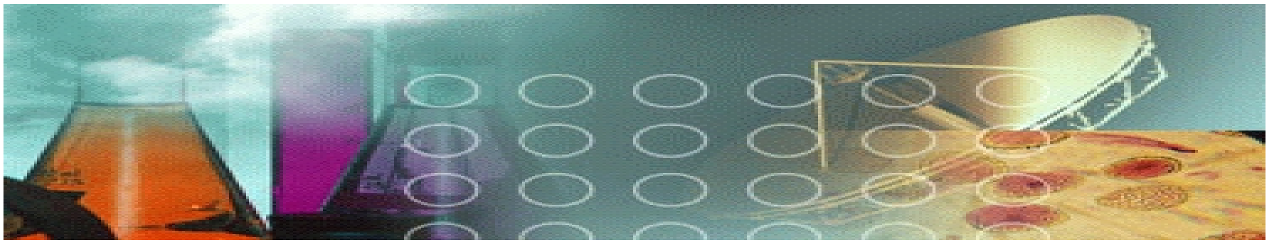

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THE WORLD OF MICROBES
Dangers Of Antibiotics

The World of Microbes represents as complicated a biological system, with as complex interrelationships, and with as many varied applications, as the world of higher animals or plants. There is no field of human endeavor, whether it be in agriculture or in industry, whether it be in the conservation of animal and human health and the combating of disease or in preparation of food, where the microbe does not play an important and often a dominant part.

Prior to the discovery of antibiotics, the treatment of infectious diseases was empirical, at best. Even in the early part of the twentieth century, therapy for infectious diseases was based essentially on patient isolation and chicken soup. True anti-microbial therapy became available only in the 1930's with the discovery of sulfonamides. Surprisingly, no infectious disease has been eliminated by the use of antibiotics. Many of the bacteria that caused human suffering pre-1950, still make people sick today. We have come to the woeful realization that the use of **antibiotics contained in household cleaners** has even contributed to the recent phenomenon of emerging infections. Any cleaner or product that is labeled "anti-bacterial" or "insecticide / pesticide" contains antibiotics.

The use of antibiotics has certainly changed public perceptions of infectious disease and its treatment. **This change has not been an entirely positive development** in the sense that some people regard antibiotics as a panacea, employing them for so many different purposes. Through the use of antibiotics in non-human applications such as the daily routine of feeding antibiotics to livestock animals even when not sick in an attempt to prevent disease, and manufactured into our everyday household cleaners, antibiotic resistant microbes are near ubiquitous. The widespread distribution of such microorganisms has many implications, not only in terms of the maintenance of the resistance gene pool, but also in contributing to the spread of antibiotic - resistant organisms in the food chain.

The release of millions of metric tons of household cleaners (containing antibiotics) into the biosphere over the last few decades has surely brought profound consequences for the microbial population. Might some microbial species have disappeared, especially in those areas of greatest exposure to the use of antibiotic cleaning agents, such as farms, homes and hospitals?

Even today it is not possible to assess the deadly effects of exposure to household cleaners containing antibiotics on the totality of a population of microbial species. Some microbial species undoubtedly are lost in certain areas, including species, which possibly played key roles in the microbial community, perhaps involved in ecological functions or organic recycling. The incredibly rapid development of antibiotic resistance in particular is having a profound impact on food and medical safety. Most microbes that survive exposure to antibiotic cleaning agents change into either mutants or recombinants, **and are potentially very dangerous to animals, humans and even some plants**.

No discussion of the past 50 years of antibiotic history can overlook the mortal combat between terrestrial microbes and the cleaning agents containing antibiotics that humans have released into the environment. In one sense, the past half-century provides a capsule of microbial warfare, the survival of the oldest living organisms in the face of yet another catastrophic situation.

By now, however, the consequences of extensive use of cleaners containing antibiotics are now painfully evident. Resistance is rampant in the microbial population, and many of the most effective agents are becoming useless. We may be reverting to the pre-antibiotic era. That is, sometimes no useful therapeutic agents will be available for treatment of specific infectious disease. In the case of infection with certain infectious diseases, in the case of infection with certain types of organisms, such as vancomycin-resistant enterococci, this prediction is now close to being realized.

It is thru self-frustration that we now hope that we have learned the message and that we will teach future generations to be more prudent in their use of household cleaners containing ineffective antibiotic agents. Key signs indicate that we are at a critical point in the history of antibiotic use.

With this in mind, I would like to discuss with you the results of a recent experiment I performed on products manufactured by ***SOLUTIONS-4-YOU, LTD***. The protocol for performing this test is based on a series of dilutions carried out to the point of determining the Minimum Inhibitory Concentration and Minimum Bactericidal Concentration of the Ultra-Safe Solutions that would inhibit or kill the growth of K-12 E. coli & Bacillus subtilis.

Based upon the scientific data the Ultra-Safe Solutions are Bactericidal on all gram (-) negative bacteria, members of the Enterobacteriaceae family (e.g. Citrobacter, Edwardsiells, Enterobacter, Escherichia coli, Hafnia alvei, Klebsiella, Morgan Ella, Proteus, Providencia, Salmonella, Serratia, Shigella), at a full strength 3:1 ready-to-use dilution. Bacteria belonging to the family Enterobacteriaceae are the most commonly encountered organisms isolated from clinical specimens. They are gram (-) negative bacilli, able to grow readily on all supportive media including blood, cerebrospinal fluid, gastrointestinal tract, respiratory tract, soft tissue, sterile body fluids, urinary tract, and in a variety of loci in immunocompromised hosts.

Based upon the scientific data the Ultra-Safe Solutions are Bactericidal on all gram (+) positive bacteria, members of the Micrococcaceae family (e.g. Micrococci, Staphylococci, Stomatococci) and **will be effectively killed with the Ultra-Safe Solutions at a full strength 3:1 ready-to-use dilution**.

CONTROL OF MICROBIAL GROWTH

Specific control measures can be used to kill or inhibit the growth of microorganisms. A procedure which leads to the death of cells is broadly termed cidal, whereas, a procedure which only inhibits growth is termed static. If the organism that is being killed is a bacterium, the term used is bactericidal. Cidal measures are used when it is important that living microorganism be completely eliminated. Static measures are used when the organisms need not be killed but when their growth must be slowed or stopped.

Many chemicals are used to control microbial growth. The modes of action of growth-controlling chemicals vary, but the most common actions are disruption of cell membranes or interference with nucleic acid or protein synthesis. Some of the most commonly used chemicals are classified as antibiotic, antiseptics, or disinfectants. Antiseptics are chemicals, which kill or inhibit growth of microorganisms and are safe to use on animal and human tissue. Antiseptics may be used to treat wounds or as mouth washes. Disinfectants are chemicals that are able to kill microorganisms, are not safe to use on animal or human tissue.

SOLUTIONS-4-YOU, LTD formulas are made with micelle technology, which is based on an attraction of molecules that are similar in charge to each other. The mode of action appears to disrupt cell membranes, which would normally be classified as an “antiseptic.” Since the formulas do not contain antibiotics, antiseptics or disinfectants they are not labeled as an antiseptic.

NO antibiotic resistance should develop.

The use of the Solutions-4-You products should be a superb product for your everyday cleaning, personal care and personal hygiene needs and will help make this a better and safer planet on which to live.

Methods for Testing Anti-Microbial Effectiveness

Protocol for performing this test is found in the National Committee for Clinical Laboratory Standards (NCCLS) publication M7-T2.

Test #2

March 19, 2001, Received Sample Bottle B, Ultra-Safe Solution Regular cc at Laboratory.

One part of Ultra-Safe Solution Regular cc was mixed and vortexed with three parts distilled water to make test sample. Broth Dilution method, decreasing concentrations of the Ultra-Safe Solution Regular cc to be tested, are placed in tubes of a broth medium that will support growth of K-12 E. coli & Bacillus subtilis.

Test procedure: 1 ml. of Ultra-Safe Solution Regular cc was placed into #1 test tube, 9/10 ml. into #2, 8/10 ml. into #3, 7/10 ml. into #4, 6/10 ml. into #5, 5/10 ml. into #6, 4/10 ml. into #7, 3/10 into #8, 2/10 ml. into #9, 1/10 ml. into #10.

9/10 ml. of distilled water was placed into #10, 8/10 ml. into #9, 7/10 ml. into #8, 6/10 into #7, 5/10 ml. into #6, 4/10 ml. into #5, 3/10 ml. into #4, 2/10 ml. into #3, 1/10 ml. into #2.

ALL TUBES CONTAIN 1 ML. LIQUID AT THIS POINT

1/10 Dilution with Distilled Water (1 ml. of Ultra-Safe Solution Regular cc is Diluted with 9 ml. Distilled Water then Vortexed).

Test procedure: 1 ml. of Ultra-Safe Solution Regular cc at 1/10 was placed into #1 test tube, 9/10 ml. into #2, 8/10 ml. into #3, 7/10 ml. into #4, 6/10 ml. into #5, 5/10 ml. into #6, 4/10 ml. into #7, 3/10 ml. into #8, 2/10 ml. into #9, 1/10 ml. into #10.

9/10 ml. of distilled water was placed into #10, 8/10 ml. into #9, 7/10 ml. into #8, 6/10 ml. into #7, 5/10 ml. into #6, 4/10 ml. into #5, 3/10 ml. into #4, 2/10 ml. into #3, 1/10 ml. into #2.

ALL TUBES CONTAIN 1 ML. LIQUID

1/100 Dilution with Distilled Water (1 ml. of Ultra-Safe Solution Regular cc at 1/10 Dilution with Distilled Water Sample, is Diluted with 9 ml. Distilled Water then Vortexed).

Test procedure: 1 ml. of Ultra-Safe Solution Regular cc at 1/100 was placed into #1 test tube, 9/10 ml. into #2, 8/10 ml. into #3, 7/10 ml. into #4, 6/10 ml. into #5, 5/10 ml. into #6, 4/10 ml. into #7, 3/10 ml. into #8, 2/10 ml. into #9, 1/10 ml. into #10.

9/10 ml. of distilled water was placed into #10, 8/10 ml. into #9, 7/10 ml. into #8, 6/10 ml. into #7, 5/10 ml. into #6, 4/10 ml. into #5, 3/10 ml. into #4, 2/10 ml. into #3, 1/10 ml. into #2.

ALL TUBES CONTAIN 1 ML. LIQUID

1/1000 Dilution with Distilled Water (1 ml. of Ultra-Safe Solution Regular cc at 1/1000 Dilution with Distilled Water Sample, is Diluted with 9 ml. Distilled Water then Vortexed).

Test procedure: 1 ml. of Ultra-Safe Solution Regular cc at 1/1000 was placed into #1 test tube, 9/10 ml. into #2, 8/10 ml. into #3, 7/10 ml. into #4, 6/10 ml. into #5, 5/10 ml. into #6, 4/10 ml. into #7, 3/10 ml. into #8, 2/10 ml. into #9, 1/10 ml. into #10.

9/10 ml. of distilled water was placed into #10, 8/10 ml. into #9, 7/10 ml. into #8, 6/10 ml. into #7, 5/10 ml. into #6, 4/10 ml. into #5, 3/10 ml. into #4, 2/10 ml. into #3, 1/10 ml. into #2.

ALL TUBES CONTAIN 1 ML. LIQUID

1 ml. Nutrient broth added to all tubes.
0.1 ml. of test organism suspension (1 x 10 x 6 CFU/ml.) is added to tubes containing 1 ml. broth and 1 ml. of concentrations of Ultra-Safe Solution Regular cc.

All tubes contain 2.1 ml. Liquid with 2.5 x 10 x 4 CFU/ml. Immediately 0.001ml. from control tube is subcultured to agar, after overnight incubation + 250 colonies.

ALL TUBES CONTAIN 2.1 ML. LIQUID WITH 2.5 X 10 X 4 CFU/ML.

Immediately 0.001 ml. from control tube is subcultured to agar, after overnight incubation = 250 colonies.

OVERNIGHT TEST TUBE INCUBATION AT 35C
+ = Turbid (growth) - = Nonturbid (no growth)

Tube	1 -	2 -	3 -	4 -	5 -	6 -	7 -	8 -	9 -	10 -
1/10 dilution	1 -	2 -	3 -	4 -	5 -	6 +	7 +	8 +	9 +	10 +
1/100 dilution	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	10 +
1/1000 dilution	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	10 +

0.001 ML. FROM CONTROL TUBE SUBCULTURED TO AGAR = 250 CFU

March 20, 2001 - Negative growth in all tubes, except 6 -10 of the 1/10 which contained 5% - 1% of the Ultra-Safe Solution Regular cc. Minimum inhibitory concentration (MIC) = .6 ml. of the 1/10 Ultra-Safe Regular cc Solution + .4 ml. Nutrient broth + (1 ml. Nutrient broth added to all tubes) + 0.1 ml. of test organism suspension = 02.7%.

March 20, 2001 - Visual turbidity is noted, and 0.1 ml. from nonturbid tubes is subcultured to Muller - Hinton agar.

MINIMUM INHIBITORY CONCENTRATION (MIC) = 02.7% OF ORIGINAL FORMULATION

OVERNIGHT PLATE INCUBATION AT 35C
+ = Turbid (growth)   - = Nonturbid (no growth)

Tube	1 -	2 -	3 -	4 -	5 -	6 +	7 +	8 +	9 +	10 +
1/10 dilution	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	10 +
1/100 dilution	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	10 +
1/1000 dilution	1 +	2 +	3 +	4 +	5 +	6 +	7 +	8 +	9 +	10 +

March 20, 2001 - CFU on subcultures made from nonturbid tubes are determined.

MINIMUM BACTERICIDAL CONCENTRATION = 31.6% OF ORIGINAL FORMULATION

The (MIC) measures the ability of the anti-microbial agent to inhibit multiplication of the organisms. Thus, organisms in the inoculums are merely inhibited by the anti-microbial agent and will be able to recommence growing if the anti-microbial agents influence is removed.
Agents that are usually bacteriostatic are:
(Chloramphenicol, Erythromycin, Nalidixic, Acid, Sulfonamides, and Tetracycline’s).

The (MBC) measures the ability of the anti-microbial agent used to KILL the organisms!!

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