

Klearsen Corporation

## ***Peaceful Mountain Stomach Rescue***

Testing  
Summary Report  
9/5/03  
srf

### **Objective:**

The testing reported herein was intended to evaluate the effectiveness of the Klearsen Corp., Peaceful Mountain Stomach Rescue product against various bacteria known to cause gastrointestinal distress or "food poisoning".

### **In Vitro Test Method:**

Since most bacteria would die when exposed to the ionically deprived environment of the Stomach Rescue, a special assay needed to be developed. The Stomach Rescue product is essentially ionic silver in a colloidal aqueous suspension protected with peppermint oil. The tremendous difference in ionic balance (anions and cations) between the Stomach Rescue and the intracellular fluid of the bacteria causes a large osmotic pressure gradient which will ultimately cause the cell wall to burst.

Balancing the ionic gradient between the interior of the cell and the test solution was done with a buffered beef peptone solution. This protein and salt mixture is a standard for buffering bacteria in solution as it contains nutrients and the essential ionic balance of salts. This however, when added to the Stomach Rescue product causes a problem. The free silver ions of the Throat Spray bind with the anions of the beef peptone solution and precipitate out of suspension. This compounding and precipitation of the silver renders the Stomach Rescue product useless in 30 minutes.

Because of this interaction, standard MIC and MBC testing protocols could not be used to evaluate the effectiveness of a colloidal silver product.

The technique that was developed allowed the control groups of bacteria in distilled water and peptone solution to survive with very little attenuation in numbers. This allowed the calculation of a meaningful kill ratio.

Samples of the Stomach Rescue product and D.I. water for the control were mixed with enough beef peptone solution to bring the salt concentration to just below normal. Then, the prepared microbes were added at a known concentration. The microbial challenges were typically in the  $10^6$  to  $10^7$  range.

The samples were incubated at 37 deg. C for a period of 30 minutes. After this time, 0.1ml and 0.5ml samples were drawn from each tube and were plated on sheep blood agar. These agar plates were then incubated for 24 hours. At the end of this time, they were counted.

From the counts, CFU/ml and a kill ratio were calculated by comparison to the survivors in the control plates.

The tests were repeated a number of times in various gelling agents to simulate the mucopolysaccharide coating which could be expected in the stomach and intestine.

### Stomach Rescue Test Results:

<b>Challenge</b>	<b>Survival/ml</b>	<b>Control</b>	<b>Log<sub>10</sub>Kill/ml</b>
E. coli	<1	9.2x10 <sup>6</sup>	<b>6.96</b>
Salmonella	<1	1.4x10 <sup>6</sup>	<b>6.15</b>
C. sporogenes	<1	1.5x10 <sup>6</sup>	<b>6.18</b>

### Discussion:

On these common bacteria and mold, the Stomach Rescue killed all that were exposed. The exposure time was 30 minutes. The controls for each of these tests show that without the Stomach Rescue, the survival was quite significant.

Testing within a polysaccharide matrix showed only significant reduction of kill ratio in the C. sporogenes from a kill ratio of 6.18 to 2.11. All other gel-based testing showed insignificant variation.

### Summary Analysis:

The Stomach Rescue is clearly quite lethal to these common causes of food poisoning. Additionally, it has been shown experientially that the efficacy extends to infections which have progressed beyond the stomach environment. This has been addressed with the hypothesis that the absorption of the micro-particles into the blood stream have allowed the infectious agent to be accessed through direct contact in the vasculature of the intestines.

Another note of interest is that since the salts of the beef peptone buffer will cause the silver to precipitate within 30 minutes, all of the killing that is done by the Stomach Rescue product had to be accomplished in a very short period of time. It is this speed that is what makes the Stomach Rescue so impressive.