TEMPLE UNIVERSITY
A Commonwealth University

School of Podiatric Medicine

Eighth at Race Street
Philadelphia, Pennsylvania 19107-2496
Phone: 215.629.0300

April 23, 2013

RE: Evaluation of HCL Sauveur Units

Dear Mr. Nonaka:

The initial stages of evaluating the acidic and alkaline products of electrolyzed generated solutions have been completed by a research team at Temple University under my supervision, with consultations from Jim Furmato, DPM, PhD, Gilbert Hice, DPM, MS and others. The two HCL Sauveur units, electrolyzed solution generators that we obtained from private sources as contributions, have functioned reliably to produce both acidic and alkaline solutions, using .1%, .2% and .3% NaCl /distilled water solutions. We directed our analyses to the comparison of inter-unit solution production and post-production solution stability using parameters of Oxidation Reduction Potential (ORP), pH and electrical conductivity, while controlling light and temperature over approximately 3 weeks per cycle.

Our research data to date has determined that: 1) inter-unit and intra-unit production levels of electrolyzed water products were consistent between tests and units, also in accord with advertised claims regarding the HCL Sauveur units, with minimal data inconsistencies in solution analysis primarily attributable to human error, 2) concentrations of studied parameters in acidic solution remained within concentration levels considered anti-microbial (as describe in the literature) for at least 21 days in all three solution concentrations, 3) ORP levels in the alkaline solution changed significantly within 48 hours after production indicating a relatively brief but very dynamic electro-chemical energy state where a significant positive millivolt potential characterizes the alkaline solution.

Various studies from around the world have evidenced the anti-microbial capacity of the electrolytic generated "super-oxidized" acidic solution, in-vitro and clinically, to be an effective topical antiseptic with no appreciable toxic effect upon "higher" multi-cellular organisms. "Super-oxidized" solutions have been and continue to be used in many countries, to a lesser degree in the United States, to mediate and prevent spread of pathogenic contamination and diseases in various domestic, medical and business situations. Data and observations (including MRI) demonstrate reductions in viable micro-organism/spore counts (viral, fungal and bacterial) and support the acidic solution's antiseptic benefits, which result from multiple reactive compounds, elements and other solution qualities (i.e. high ORP, decreased pH). For example, a superoxide anion (O2-) can be formed, reacting to form singlet oxygen molecules and H2O2 with which a chloride ion (Cl-) generates HOCl (hypochlorous acid) in an electrolytic solution that is potentially capable (by active or passive diffusion) of vigorously striping electrons and/or protons from a micro-organism's cell wall membrane or other cellular components creating a localized termination event. It has also been suggested that altering a pathogen's cellular membrane by acidic solution contact initiates a cascading disruption of cellular integrity, creating osmotic differentials that expand the cell, killing the micro-organism by bursting it. Facilitating the anti-microbial effect in the acidic solution includes a list of identified compounds already used by the human body to combat disease, including hydrogen peroxide, the chloride ion and hypochlorous acid -- though the exact mechanism of the effect of acidic electrolyzed water on single-celled micro-organisms does not appear to be clearly understood, the antiseptic effect itself has been established. In addition to its super-oxidizing effect, the acidic electrolyzed solution has a relatively low pH that can, especially in certain medical instances (i.e. pseudomonas infection), provide an anti-microbial effect, which historically is relatively non-toxic to humans. Further, it has been evidenced that by using alkalinized solution as a pre-treatment to acidic solution application, the alkaline solution (with concentrated hydroxyl, OH- and a high positive ORP) enhances the antimicrobial effect of the acidified solution, perhaps making the cellular membrane more susceptible to the antiseptic oxidizing acidic

solution's effect, as evidenced in organic mediums against biofilms by United States' food industry studies. This multi-layered, disinfecting benefit of electrolyzed NaCl water solutions has been presented by extensive world-wide research to be efficacious for treating food for safe consumption, increasing food perishables' shelf life by reducing decay rate, killing dangerous pathogens on inert surfaces without leaving a perpetual toxic residue and by treating medically compromised patients, i.e. burn trauma and skin ulcerative disease, without the concern for patient toxicity or pathogen resistance.

Recently, these electrolytic (acidic and alkaline) solutions have been less favored by the medical industry because they have been labeled "corrosive" for sensitive medical instruments and too short-lived to be economically advantageous in medicine. As a result, non-acidic "super-oxidized" solutions have been featured as a necessary antiseptic substitute for such "corrosive electrolytic acidic" solutions in the medical armamentarium. However, as the literature reports, the recently marketed "neutral pH" super-oxidized solutions have a significantly lower ORP than featured by electrolyzed acidic solutions. Also, the "neutral" solutions may have a higher chloride ion concentration (chloride ion being noted for possible human cellular toxicity at higher levels) when compared (by documentation) to equally effective electrolyzed acidic solutions (electrolyte concentration easily modified .1%-.3% to lower chloride ion concentration); further, "neutral" solution proponents have not apparently proposed in the literature integrating an alkaline-generated electrolytic component into any treatment regimen with their product, compared to acidic solutions research which has shown significantly enhanced effectiveness against biofilms, even in an organic medium, in concert with using an electrolyzed alkaline solution.

It is the intent of the research presently being conducted by Temple University's School of Podiatric Medicine's research team to further evaluate and establish, if possible, benefitting limb preservation protocols for clinical treatment using electrolyzed solutions; whereby, the research protocol will generate fresh electrolytic solutions that can be evaluated for facilitating wound healing, using both alkalized and acidic solutions singly and in concert to the benefit of the patient, with due consideration of concerns for corrosive metal potential, shelf life and effectiveness in treating wound-complicating biofilms -- analyzing multiple applications to benefit the patient having critical needs, without consideration of marketing or economic bias.

T.U.S.P.M.'s research team, having confirmed the reliability of the two Sauveur electrolytic solution generating units and having characterized in part the nature of the electrolytic solutions, are now in the process of executing further research directed toward eventual human trials and eventual treatment protocols. The use of generated electrolysis solutions requires better understanding and determination of specific clinical protocols within which the apparent outstanding antiseptic and nontoxic benefits of the electrolysis solutions can be applied to a maximum potential-- particularly of interest are those patients suffering with infected diabetic ulceration and prognostic limb loss. The Sauveur units are integral to our research.

Thank you for your continued interest in this project.

Sincerely,

Kendrick A. Whitney, DPM
Associate Professor
Department of Podiatric Medicine and Orthopedics
Temple University School of Podiatric Medicine