

**Title** Effectiveness of electrolyzed water on reducing microorganisms for Asian vegetables  
**Author** C.S. Lin, J.Y. Yeh and F.K. Saalia  
**Citation** Book of Abstracts, 2004 IFT (Institute of Food Technologists) Annual Meeting and Food Expo, 13-16 July 2004, Las Vegas, Nevada, USA. 321 pages.  
**Keywords** leafy vegetable; ultrasonication; sanitizer

#### **Abstract**

Microbial infection and spoilage of low acid fresh vegetables is a source of concern to both the industry and to consumers. Electrolyzed oxidizing water has high oxidative-reduction potential (ORP) and possesses hypochlorous acid (HOCl), which provides strong bactericidal effects. The objective of this study was to evaluate the efficacy of electrolyzed oxidizing water to reduce the microbial load on three Asian leafy and fruit vegetables harvested in a sub-tropical environment. Vegetables were soaked, then shaken or ultrasonicated in boiled water or electrolyzed oxidizing water for specified time periods. Aerobic plate count (APC) and coliforms were enumerated. Formation of brown spots on leafy and fruit vegetables was avoided when they were soaked in Acid electrolyzed oxidizing (AC) water for less than 9 and 15 min, respectively. Soaking in alkaline electrolyzed water (AK) water for 30 min did not affect appearance. The effectiveness of boiled water or AK water on APC reduction was limited to only 0.5 log CFU/g. AC water effectively reduced APC of leafy vegetables and fruit vegetables by 1.0-1.5 log CFU/g. Soaking in AC water, followed by AK water further reduced APC by 0.5 log CFU/g and 0.7 log CFU/g on leafy cabbage and green pepper, respectively. Continuously changing electrolyzed water with either shaking or ultrasonication effectively reduced APC by 2-2.5 log CFU/g. Electrolyzed oxidizing water was more effective than boiled water in elimination microorganisms on vegetables. The efficacy of electrolyzed oxidizing water in reducing the microbial load on vegetables and makes it a promising sanitizer in the food industry.