
Abstract No. 24

PaperTitle **Prevention of Fruit Juice Spoilage by Species of Alicyclobacillus Using a Novel UV Treatment**

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ABSTRACT

The use of UV wavelengths of 200 - 280 nm will inactivate bacteria and bacterial spores. The mechanism involves the absorption of photons of UV energy by the DNA, which fuses the DNA and prevents replication. Liquids such as water, milk and fruit juice have been successfully treated with UV radiation. The treatment is non-thermal and organoleptic properties may be enhanced with limited changes to the nutrients of the beverages. Alicyclobacillus species are acid-tolerant and heat-resistant bacteria that cause spoilage of heat-treated fruit juices stored at room temperature. These endospore-formers have been shown to survive pasteurisation conditions of 95°C for 2 min and grow at a pH range of 2.5 to 6.0. The aim of this study was to evaluate the effectiveness of UV radiation for reducing alicyclobacilli counts in water and fruit juice concentrates. Water and grape concentrate of 68° Brix was inoculated with a strain of *A. acidoterrestris* that was isolated from spoiled grape juice. Results indicate that the UV treatment reliably achieves a greater than 5 log reduction in alicyclobacilli vegetative cells and spores in water and concentrate. This suggests that the use of UV radiation is a viable alternative to traditional thermal pasteurisation.