

Disinfectant of pummelo (*Citrus Grandis* L. Osbeck) fruit juice using gaseous ozone

ABSTRACT

This work studied the effectiveness of gaseous ozone disinfection on pummelo (*Citrus Grandis* L. Osbeck) fruit juice components. Unfiltered and filtered pummelo fruit juices were treated with gaseous ozone for up to 50 min with ozone concentration fixed at 600 mg/h. A microbiological and physicochemical properties analysis were conducted on the ozone-treated fruit juices samples. It was found that the survival rate of aerobic bacteria, yeast and mold in unfiltered pummelo fruit juice were higher compared to filtered juice, as the juice components acted as protective barriers to the microorganisms. The microorganisms' inactivation in pummelo fruit juices was also observed to have increased as the ozone treatment time increased. Significant effects on total colour difference, ascorbic acid content, and total phenolic content were also observed over increased ozone-treatment time. However, ozone was shown to be ineffective in activating PME activity in both types of juice. The experimental results of this study indicated that pummelo fruit juice components had significant effects on the effectiveness of gaseous ozone, however, the degree of the effects depends on the different fruit components (total soluble solids, total phenolic content). As a conclusion, filtered juice showed better quality characteristics in comparison to unfiltered juice post-ozone treatment.

Keyword: Gaseous ozone; Pummelo fruit juice; Fruit juice components; Aerobic plate count; Antioxidant activity

