

## **THE COMBINED EFFECT OF LEMON ESSENTIAL OIL AND LEMON JUICE AS NATURAL PRESERVATIVES IN APPLE AND GRAPE JUICES**

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The desire for natural preservatives is motivated by the demand for safer, healthier, and more sustainable food products that meet modern consumer expectations. Lemon as a natural preservative in fruit juices have the potential to extend shelf life, and satisfy consumer demand for natural products and could potentially increase the antioxidant activity. Grape and pear can be found globally and are usually turned into juices for the everyday diet. The aim of this study is to examine the combined effect of two natural substances (lemon essential oil and lemon juice) in inhibiting microbial growth and extending the shelf life of the fruit juices. Different treatments were applied to the juices, including untreated juice, pasteurized juice, addition of lemon essential oil (0.25 µl/ml) and 1% lemon juice to untreated and heat-treated juice. To evaluate the effectiveness of the natural preservatives, cell number measurements were taken for 4 weeks under chilled conditions. The pH, antioxidant activity, and sensory evaluation of juices were also assessed. The results showed that combining lemon essential oil and lemon juice could inhibit the growth of bacteria and yeast while also influencing the antioxidant activity of pear and grape juices. Furthermore, sensory evaluations indicated that the treated juices with a combination of lemon essential oil and juice were acceptable to consumers. These findings imply that lemon essential oil and lemon juice can be used as natural preservatives in fruit juices while maintaining their sensory properties.