

**CHEMICAL AND SENSORY EVALUATION OF
BUTTER INCORPORATED WITH ANTIOXIDANT
EXTRACT OF CITRUS (*Citrus sphaerocarpa*) PEEL**

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ABSTRACT

Butter is a dairy product, which contains at least 80% fat, and 15–17% water. Butter turns rancid quickly when it is left to the open air for longer periods. Rancidity is the most common form of spoilage in butter. The incorporation of natural ingredients like citrus peel which contain antioxidant properties and polyphenols can lower the rancidity in butter. The objective of this research was to lower the rancidity of butter made with low moisture content by the addition of citrus peel extract. (*Citrus sphaerocarpa*) citrus peel extract was prepared by extracting the powdered peel at 70°C using distilled water for 5 hrs. The extract was analysed for total phenolic content and antioxidant activity (AOA) using folin-ciocalteu method and DPPH method respectively. Total phenolic content of the citrus peel extract was 13.428 mg of Gallic Acid Equivalent per gram and effective concentration of citrus peel extract at 50% inhibition level was 45.5 µg/ml. Butter was prepared by incorporating citrus peel extract at 1, 2, and 3% (w/w). Sensory evaluation was done using 30 untrained panellists based on 9 point hedonic scale. It was found that citrus peel extract can be incorporated in to the butter formulation up to 2% (w/w) without altering the sensory attributes. Changes in peroxide value, and free fatty acids values were monitored at weekly intervals. Microbiological studies for total plate count, yeast and mold were done at one week interval during one month storage period. The butter incorporated with citrus peel extract had lower levels of peroxide value, free fatty acids value and low microbial count, compared to control butter. This research shows that citrus peel extract can be used to produce an antioxidant rich butter.

Keywords: Antioxidant, butter, rancidity, peroxide value, free fatty acid