

## Chelating Effect of Black Tea Extract Compared to Citric Acid in the Process of the Oxidation of Sunflower, Canola, Olive, and Tallow Oils

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**Abstract :** Oxidation resistance is one of the important parameters in maintaining the quality of olive oil during its storage. Ensuring the stability of the quality of olive oil is one of the important concerns of the producers and consumers. Prooxidants such as iron and copper accelerate the oxidation reaction, and also anti-oxidants and chelating compounds delay it. In this study, chelating effect of tea extract which contains significant amounts of tannic acid is investigated in comparison with citric acid. To do it, 0.1 ppm copper was added to these four kinds of oil, sunflower, olive, canola, and tallow, and then chelating effect of citric acid (0.01%), tannic acid (0.01%) and tea extract (0.1%) were measured by adding to this composition. To this end, the resistance time of the oils against oxidation was measured at 120 °C and an air flow of 20 liters per hour. And the value of peroxide was measured by oven test in six periods of 24 hours at 105 °C. The results showed that citric acid, tannic acid and tea extract had chelating property and increased the resistance time of the studied oils. As a result, considering chelating property and increasing resistance of oil, tannic acid showed better effect than tea extract and tea extract had better effect than citric acid.

**Keywords :** tannic acid, chelate, edible oils, black tea extract, TBHQ

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