

Determination of the Effect of Essential Oil Extract from Clove (*Syzygium aromaticum*) Leaves and Buds on the Thermal Stability of the Coconut Oil

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Abstract

Coconut oil is used in deep fat frying to make delicious foods. The oxidation process during deep fat frying produces chemical compounds that affect oil flavor, nutrition, rancidity, shelf life of fried food and oil, reusability, and most significantly, human health. In this study different ingredients were used to reduce oxidation in oil. Four treatments: pure coconut oil, coconut oil + vit. E, coconut oil + clove buds, and coconut oil + clove leaves. Each treatment was deep-fried and then kept refrigerated, room temperature with lid, and room temperature without lid conditions. Free fatty acid (FFA), Peroxide Value (PV), Iodine Value (IV) and Saponification Value (SV) were tested in both before deep-fry and after 30 days of storage conditions. Initial values of FFA, PV, IV and SV were acceptable and 0.78 %, 1.6 meq/kg, 8.2 g/100g and 249.22 mg KOH/g respectively. In the comparison of oxidation, coconut oil at room temperature without a lid was high (5.87±0.29% (FFA), 7.85±0.91 meq/kg (PV), 6.13±0.31g/100g (IV), 451.56±0.26 KOH/g (SV)) and coconut oil + clove bud oil under refrigeration was low (1.19±0.14% (FFA), 3.99±0.02meq/kg (PV), 8.04±0.45 g/100g (IV) and 281.29±0.02 KOH/g (SV)). From the findings, addition of clove buds' oil to coconut oil affected the oxidative stability during deep fat frying.

Keywords: Free fatty acid value, Hydrolysis, Iodine value, Oxidation, Polymerization, Peroxide value, Saponification value