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Effect of Frying and Reheating Processes on the Fatty acids and Antioxidants of Commonly Used Cooking oils in the Arabian Region: A Comparative Study

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ABSTRACT

Vegetable oils like extra virgin olive oil, *Moringa oleifera* oil, sunflower, and corn oils are regularly used for cooking purposes in the Arabian region. Additionally, the consumption of fried food is becoming increasingly popular in this region. The current study is to find out how temperature affects oils without using food of any kind. The fatty acid and antioxidant profiles of these four vegetable oils (extra virgin olive oil, *Moringa oleifera* oil, sunflower oil, and corn oil) have been investigated in terms of temperature during deep-frying and re-heating. In this process, an electric fryer is used for deep-frying and reheating oil without adding any kind of food. The collected vegetable oil samples were heated for six hours on five different time periods to a temperature of up to 175±5°C, and the fatty acid profiles were analysed before and after each cycle by using gas chromatography and were characterized by means of UV and FTIR techniques as well. The composition of oil fatty acids is more affected by re-heating than by deep-frying, as the results indicated. The antioxidant activity of the different oils was assessed using the diphenyl-1-picrylhydrazyl (DPPH) scan; the findings revealed that, whereas antioxidant activity dropped sharply in re-heated oils, it did so gradually for deep-frying samples.

Keywords: Cooking oils, Fatty acid, Antioxidant, Human's health, High temperatures, Stability.

INTRODUCTION

The use of fat or oil for frying is one of the most popular ways to prepare meals since deep-fried foods are a cornerstone of the diet and are readily available from sellers on the street. Despite the fact that fried foods should be avoided due to their high calorie, cholesterol, and saturated fat content, they are growing in popularity. Vegetable oils are a kind of lipid that frequently comes from