

## **Sterols Oxidation in Vegetable Oils upon Heating and Frying**

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The aim of this study was to measure the oxidation of endogenous  $\beta$ -sitosterol and campesterol in vegetable oils during heating at 180 °C and frying for different periods by analyzing the formation of phytosterols (**PS**) oxidation products (**POP**) and the amount of unoxidized PS using GC-MS method. Vegetable oils with different fatty acid and tocopherols profile (corn, sunflower, blended, palm and rapeseed oils) were studied. Upon heating, the total PS content decreased in all oils and the lowest degree of PS deterioration was found in corn oil, while blended oil recorded the highest degree. Generally, heating resulted in deterioration and/or decrease in the total  $\beta$ -sitosterol and campesterol amounts, wherein the highest decrease was measured after 8h of heating in blended oil (24.3%) followed by sunflower oil (19.2%), while corn oil recorded the lowest degree of deterioration accounting for only 12%. At the end of heating experiment, the highest amount of total oxides was found in rapeseed oil (250  $\mu\text{g/g}$ ) followed by sunflower oil (246  $\mu\text{g/g}$ ) and blended oil, respectively. 7-Ketositosterol, followed by 7 $\beta$ -hydroxysitosterol, 5,6-epoxy derivatives and 7 $\alpha$ -hydroxysitosterol were the main POP induced during heating. It was also noted that POP measured do not account for all the PS losses and a clear gap was found during heating