

Volatile compounds emissions from three unconventional Sudanese oils during alkali-refining and frying

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Abstract:

Volatile compounds formed during frying and during different processing steps of *Sclerocarya birrea* oil (SCO), *Aspongubus viduatus* melon bug oil (MBO) and *Agonoscelis pubescens* Sorghum bug oil (SBO) were adsorbed onto tenax and analyzed by GC after thermal desorption. During different processing steps of SCO, MBO and SBO, hexanal was the most prominent volatile compound. The total amount of volatiles in MBO seems to be higher than that of SCO and SBO; which can be shown by the number and thickness of the peaks. The total amount of volatiles as well as the amount of hexanal decreased during different processing steps in all samples, total amount decreased by more than 98%. The least total amount of volatiles was found in deodorization step, as volatiles do not exist in larger amount in the deodorized oil for the effect of the high-vacuum and temperature treatments. During frying, the total amount of volatiles decreased with frying time and the following aldehydes were identified in SCO and SBO: Pentanal, hexanal, heptanal, octanal, nonanal, trans-2-hexenal, trans-2-heptenal, trans-2-octenal, trans-2-nonenal, trans-2-decenal, trans-2-undecenal, and decadienal, with nonanal and trans-2-nonenal as the most prominent volatile compounds.

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