

Volatile Aroma Components of Virgin Seed Oils

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Virgin seed oils have gained more interest because of their content in bioactive compounds with potential benefits to health, and also due to the flavour of these oils as added-value for the consumers. In this study the content of volatile compounds of virgin oils from several sources were analyzed (i.e. safflower, sunflower, pine nut, sesame, niger, hemp, white perilla and pumpkin seeds). The virgin oils were extracted by pressing, cleaned by centrifugation and stored in dark glass bottles at 10°C and SPME-GC-MS analysis was carried out to identify and quantify volatile compounds.

The terpenic compounds were present in all virgin oils in different concentrations; with the major amounts in pine nut oil (28.5 mg kg⁻¹) followed by sunflower (14.5 mg Kg⁻¹) and hemp seed (12.6 mg kg⁻¹) virgin oils. The minor amounts of this type of compounds were observed in safflower (0.23 mg Kg⁻¹) and sesame (0.06 mg Kg⁻¹). The highest hydrocarbons concentration was found in abyssinia seed oil (23.1 mg kg⁻¹), while the sesame exhibited the lowest content (0.66 mg Kg⁻¹). The volatile alcohols concentration in the white perilla virgin oil was 9.50 mg Kg⁻¹ followed by the grape seed oil with 4.5 mg Kg⁻¹, while the sesame oil contained the lowest concentration (0.18 mg Kg⁻¹). The hemp oil showed the major concentration of volatiles aldehydes (10.1 mg Kg⁻¹) followed by the grape seed oil with 8.30 mg kg⁻¹, while the other oils showed concentrations between 0.0 and 4.77 mg Kg⁻¹. The ketones and esters only were detected in the hemp oil with concentrations of 1.83 and 0.16 mg Kg⁻¹ respectively.

The observed results showed the variety of volatile compounds present in virgin seed oils and their contribution to the flavour is discussed.

Keywords: Virgin seed oil; volatiles; flavour