

SPME-GC-MS Evaluation of Oxidation Marker in Pure Saturated Fats and in Foods

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Lipid oxidation had been widely studied in unsaturated fats and oils mainly when they are used in foods when thermal treatment are applied.

In those cases, off flavours are quickly released and organoleptic acceptability dramatically drops.

Saturated fats are used in foods, too, in some formulations in rather high amounts and at room or low temperature. In such conditions, oxidation is usually believed not to be a problem, however, off flavours are developed, too.

The problem is rather serious as time of off flavour development may be long and organoleptic acceptability drops when fat is already used in food formulation or food is already traded and reached consumers.

In this paper, pure saturated fat (palm) and formulated (chocolate crème) that underwent to organoleptic unpleasant modifications (sometimes described as “cardboard”) were studied by head space SPME-GC-MS.

Calibration was developed for trans-2-nonenal and for some other aldehydes, while about 170 compounds were separated and most of them identified. Some trials were also developed, with the aim of look for relationship between concentration of selected volatiles and organoleptic assessment of off flavours.