INFLUENCE OF SEEDS ROASTING CONDITIONS ON THE CONTENT OF SESAMOL IN SESAME OIL

Sylwia Smarzewska[1], Grażyna Chwatko[1], Monika Wypych[1], Michał Świderski[1], Łukasz Bogdański[2], Sylwia Grzondziel[2], Dariusz Guziejewski[1], Kamila Koszelska[1]

[1]University of Lodz, Faculty of Chemistry, Tamka 12, 91-403, Łódź
[2]Miramar Company, Nowa Wieś, 155, 58-308, Wałbrzych
monika.wypych@edu.uni.lodz.pl

Sesame oil is primarily associated with culinary arts, however, it has many pro-health properties, such as antiinflammatory, antioxidant, neuroprotective, hepatoprotective or even antidepressive effects. All these characteristics are associated with the sesamol content in sesame oil [1].

Sesamol (Fig. 1) is one of the most important ingredients of sesame oil. However, sesame seeds do not contain this compound under natural conditions. The sesamol content in sesame oils depends on oil production methods, seed origin, and sesame seed roasting conditions, such as roasting temperature and roasting duration [1,2].

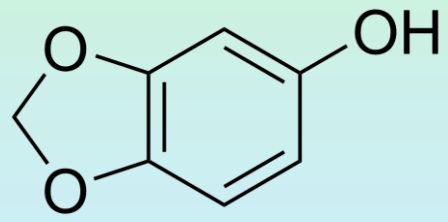

Fig. 1. Chemical structure of sesamol

Purpose of research

The purpose of this research was to examine the content of sesamol depending on roasting temperature and roasting duration of sesame seeds from which the sesame oil was produced. For this purpose, chromatographic and voltammetric techniques were used.

The nominal studies concentrated on the effect of the roasting temperature of sesame seeds on the content of sesamol in sesame oil. The results are presented in Table 1.

Roasting temperature [°C]	Roasting duration [min]	Sesamol content (Chromatography) [µmol/l]	Sesamol content (Voltammetry) [µmol/l]
170	20	3.53	-
190	20	6.51	-
200	20	15.64	14.97
210	20	9.03	9.69

Table 1. The content of sesamol in sesame oil based on roasting temperature of sesame seeds.

Secondly, focus was put on roasting time of sesame seeds at temperatures where sesamol content was the highest. The results are presented in Table 2.

Roasting temperature [°C]	Roasting duration [min]	Sesamol content (Chromatography) [µmol/l]	Sesamol content (Voltammetry) [µmol/l]
190	20	3.53	-
	40	49.00	46.97
200	10	2.21	-
	20	15.64	14.97
	40	65.14	64.59

Table 2. The content of sesamol in sesame oil based on roasting duration of sesame seeds.

Results

According to the results, both roasting temperature and roasting duration of sesame seeds affect the sesamol content of sesame oil.

The higher roasting temperature of sesame seeds is, the higher is sesamol content in sesame oil.

The longer roasting duration of sesame seeds is, the higher is sesamol content in sesame oil.

[1] J.M. Nzikou (et al.), *Advance Journal of Food Science and Technology,* 2009
[2] Y. Wan (et al.), *Society of Chemical Industry*, 2005