

## **OBTAINING AND CHARACTERIZING THE VOLATILE OIL FROM *PETROSELINUM CRISPUM* (PARSLEY) SEEDS**

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### **Abstract**

*The volatile oil from parsley (*PETROSELINUM CRISPUM*) seeds was obtained from steam training, some physical and chemical features being established later. The results were correlated with dates from the specialty literature, compatible values being obtained.*

**Key words:** *parsley, volatile oil, extraction.*

### **Introduction**

Volatile oils are products typical to the vegetable kingdom and characterized by a greater or smaller volatility, isolated from plants or organs of aromatic plants through a physical procedure, having an aroma specific to the vegetal source they belong to. Volatile oils are the active principles in the aromatic plants.

Parsley volatile oil is a praised component part in food industry, having a spicy role in meat products, tinned food, soups, sauces and spicy mixtures.

Also, this oil has hypotensive, laxative and fortifying muscular properties. It is used cautiously because of its great quantity of miristicine, which has a psychotropic effect and because of the furocumarines, which have a phototoxic effect. (Alexan, Bojor, 1983; Ciulei, 1993)

The proceedings that were used for the separation of odorants and aromatics are based on the quality of odorant and aromatizing components of being trained by water steam and soluble in some solvents. The main methods of separation are:

- Steam training (hydrodistillation);
- Extraction using organic solvents;

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- Extraction using animal fats;
- Extraction using liquid gas;
- Separation through pressing;
- Adsorption on adsorbent material;
- Specific methods of obtaining aroma from fruit juice (vacuum distillation, cryoconcentration, concentration in electromagnetic field etc.). (Hădărugă, 2003)

Parsley volatile oil can be obtained from dried fruits through steam training or from green leaves. (Gherman, 1972)

This paper presents the extraction of parsley volatile oil from seeds through the hydrodistillation method, method that is minutely described in the specialty literature. Also, the main physical and chemical characteristics of the volatile oil were determined.

### **Experimental**

With a view to obtaining the volatile oil, *Petroselinum crispum* (parsley) seeds were used; they were obtained from the western part of Romania (Timiș, Arad and Bihor counties).

The extraction was realized by means of a *Soxhlet* extraction. The whole system was warmed up and brought to boiling by means of an electric heater, and the distillate was collected and dried on anhydrous CaCl<sub>2</sub> and then filtered with a crease filter. The quantity of volatile oil was measured and the efficiency raw oil was established, as well as the physical and chemical characteristics. Thus, the density of the oil was determined by means of a picnometer. The refraction index was determined at 20°C, using the *Abbé* refractometer. The acidity and the ester indexes were determined using the classic method quoted in the specialty literature, that is 0.1 NaOH alcoholic solution titration, in the presence of phenolphthalein, for approximately 0.1 g weight of samples.

### **Results and discussion**

From the sample used in extraction (300 g of parsley seeds) 1.2g (1.14 ml) of volatile oil was obtained, having an efficiency of 0.4%,

comparable with the values found in the specialty literature (Rusnac, 1995).

The physical characteristics of the parsley volatile oil (appearance, color, odor and taste) were determined organoleptically and are presented in table 1.

**Table 1.** Physical characteristics of the parsley volatile oil

| Characteristic | Physical characteristics |
|----------------|--------------------------|
| Appearance     | Clear liquid             |
| Color          | Yellow-greenish          |
| Odor           | Characteristic, typical  |
| Taste          | Flavored                 |

The values of the main physical and chemical characteristics thus obtained are shown in table 2 and compared with the dates quoted in literature.

**Table 2.** The values of the determined physical and chemical properties

| Determined physical and chemical property | Obtained results | Values given in the specialty literature |
|---|------------------|--|
| Relative density                          | 1.052            | 1.043-1.083 (Rusnac. 1995)               |
| Refraction index                          | 1.5190           | 1.5100-1.5220 (Rusnac. 1995)             |
| Acidity index                             | 4.26             | $\leq 6$ (Rusnac. 1995)                  |
| Ester index                               | 7.48             | $\leq 11$ (Rusnac. 1995)                 |

## Conclusions

The obtaining efficiency of the parsley volatile oil from the sample used during the extraction as well as the determined physical and chemical characteristics are within the limits given in the specialty literature.

Due to benefic qualities, the volatile oil could be recommend to be used in the food industry (having a seasoning role in meat products, tinned food, soups, sauces and spicy mixtures, flavor for beverages,

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sweets and pastry products), in medicine (hypotensive, laxative, muscular tonic), perfumery and cosmetics.

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