

LOPHANTUS ANISATUS (NETT.) BENTH. USED AS DRIED AROMATIC INGREDIENT



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Abstract

Lophanthus anisatus Nett. belongs to the Lamiaceae (Labiatae) family, and it is an aromatic, medicinal and honey plant. Due to its high content of substances with nutritional and sensory value, the powder obtained from the naturally dried plants can be used as aromatic and nutraceutical ingredients for vegetable chips. In addition to its sensory quality, this powder also stands out by having high antioxidant activity, with beneficial effects on the human body. The aim of this study was to obtain fine powder from natural dried lophanthus leaves, which can be further used as aromatic ingredient. The lophanthus powder was characterized in terms of dry matter content, total polyphenols, antioxidant activity using DPPH method, ascorbic acid, total pigments, and volatile compounds. The main compounds identified in the volatile oil were: methyl chavicol, methyleugenol, caryophyllene, and germacrene D.

Key words: aromatic ingredients, bioactive compounds, natural drying, powder

INTRODUCTION

Lophanthus anisatus (Nett.) Benth. (*Agastache foeniculum* (Pursh) Kuntze), with the common names "Blue Giant Hyssop", "Giant Hyssop", "Fragrant Giant Hyssop", "Anise Hyssop", "Wild Anise" and "Lofant popular", is a member of the family Lamiaceae (Luchian et al., 2020). It is a herbaceous, perennial plant (Ivanov et al., 2019; Kormosh et al., 2020), native to Asia (Vinătoru et al., 2017).

Due to their aroma, the plants are used in gastronomy as a popular seasoning in culinary products. Fresh and dried young shoots are used for baked products and spices for various dishes. It is an irreplaceable aromatic plant in many cuisines around the world (Kormosh et al., 2020). It has also proved to have great potential in the cosmetic and pharmaceutical industries (Kormosh et al., 2020; Luchian et al., 2020).

The aim of this paper was to highlight the benefits of the lophanthus plant powder for nutrition, in a healthy lifestyle.

MATERIAL AND METHODS

Samples consisted of organic natural dried *Lophanthus anisatus* from Sălcuța, Dâmbovița County. After natural drying the samples were crushed for approx. 30 sec at 9000 rpm using a Grindomix mill. The samples were analyzed for various nutritional attributes (dry matter, ascorbic acid, polyphenols, antioxidant activity and volatile oil composition) in the Research Center for Studies of Food Quality and Agricultural Products from USAMV Bucharest.

RESULTS AND DISCUSSIONS

The industrialization of the last century has brought many advantages for the mankind, and also several environmental and health related issues. Consequently, there was a significant increase in compounds potentially harmful for the human health in food products. In this regard, studies are being conducted to replace these compounds with different natural substances that bring no harm to the human health and, in addition, contain substances capable of contributing to restoring the balance in terms of the proper functioning of the body. The use of plants in different forms has contributed to the interest regarding diet renewal, used alone or combined, fresh or dry, aromatic plants are a common component of the daily diet (Kwaśniewska-Karolak & Mostowski, 2021). Plants are a valuable source of nutrients that efficiently influence the human body.

The results of the analysis of the *Lophanthus anisatus* species have been the following: 89.27% dry matter, 98.79 mg/100g ascorbic acid, 70.48 mg GAE/g total polyphenols and an antioxidant activity of 39.83 mg Trolox equivalent/g (Table 1), 14.93 mg/100g chlorophyll a, 6.8 mg/100g chlorophyll b, 21.73 mg/100g total chlorophyll, 4.08 mg/100g carotenes (Table 2).

Table 1. Nutrient content of *Lophanthus anisatus*

Results obtained in <i>Lophanthus anisatus</i>	
Dry matter (%)	89.27 ±0.4
Ascorbic acid content (mg/100 g)	98.79 ±2.50
Total polyphenols (mg GAE/g)	70.48 ±4.74
Antioxidant activity (mg equiv Trolox/g)	39.83 ±2.30

Table 2. Pigment content of *Lophanthus anisatus*

Results obtained in <i>Lophanthus anisatus</i>	
Chlorophyll a (mg/100g)	14.93 ±0.77
Chlorophyll b (mg/100g)	6.8 ±1.76
Total chlorophyll (mg/100 g)	21.73 ±2.53
Chl a / Chl b ratio (μg/ml of plant extract)	2.26 ±0.47
Carotenoids (mg/100g)	4.08 ±0.04

With regard to the composition of the volatile oil, there have been 1) identified 40 chemical compounds (Table 3), both in the leaves and in the flowers. The major common chemical compounds were as follows: methyl chavicol (73.56% - 84.29%), limonene (6.64% - 3.26%), methyl eugenol (5.93% - 3.48%), caryophyllene (4.49% - 2.79%) and germacrene D (2.17% - 1.53%), the weight being held by methyl chavicol which had a higher value for the volatile oil extracted from flowers (Figure 1).

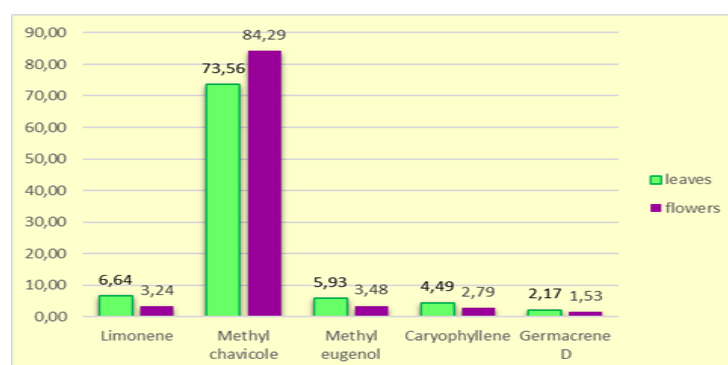


Figure 1. Major chemical compounds in *Lophanthus anisatus*

CONCLUSION

The variation in the chemical composition makes the study of the *Lophanthus anisatus* species of particular interest regarding the value of this plant both for medicine and gastronomy. Products which have in their composition powders obtained from lophanthus plants may thus contribute to improving life-style.

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