



Olive Pomace oil: an forgotten source of vitamin E

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INTRODUCTION

Olive-pomace oil (OPO), obtained from the solid by-product generated during olive oil extraction (figure 1), is nutritionally relevant due to its high oleic acid (C18:1) content and a wide range of minor bioactive components, such as the powerful antioxidant vitamin E. In Europe, EFSA established the recommended intake of vitamin E for adults at 13 and 11 mg/day for men and women, respectively. As worldwide dietary values are below these recommendations¹, strategies to cover the daily recommendations of this vitamin are essential. Therefore, this situation represents an opportunity for OPO.

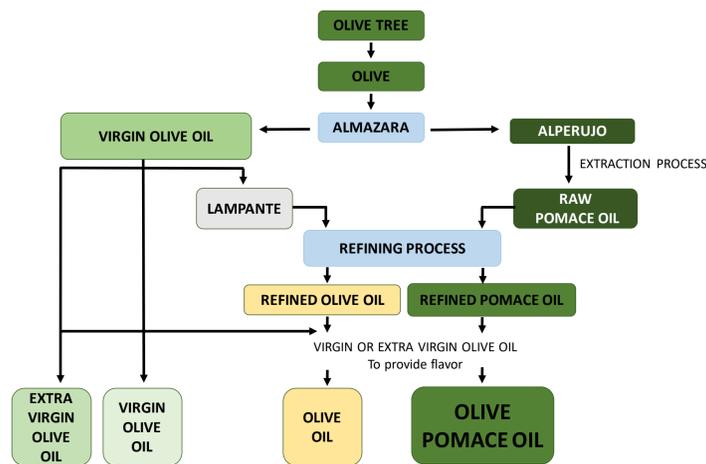


Figure 1. Flow chart olive-pomace oil production process

MATERIALS AND METHODS

A human study to evaluate the possible beneficial role of OPO on cardiovascular health and associated pathologies in comparison with high oleic sunflower oil (HOSO) was carried out in 34 normocholesterolaemic (<200 mg/dL) and 30 hypercholesterolaemic (200-280 mg/dL) men and women, aged 18-55 y with BMI 18-30 kg/m².

The study was a : randomized, cross-over, controlled clinical trial consisting of two 4-week interventions with OPO and HOSO preceded each by 3-week basal/wash-out steps (Table 1). Participants consumed daily 50 mL of OPO or HOSO, to meet the nutritional requirements of fat intake and restricted the consumption of nuts, avocado, olives and other dietary fat different from that the provided in the study was restricted. Dietary and lifestyle habits were controlled during the study. Intake of macronutrients and micronutrients was analyzed using DIAL software (Faculty of Pharmacy, Complutense University of Madrid). In addition, a sensory analysis was performed to assess the acceptability of OPO.

	3 weeks	7 weeks	3 weeks	7 weeks
HYPERCHOLESTEROLAEMIC	Basal	OPO	Washing	HOSO
	Basal	HOSO	Washing	OPO
HEALTHY	Basal	OPO	Washing	HOSO
	Basal	HOSO	Washing	OPO

Table 1. Chronic study design with Olive Pomace Oil (OPO) and High Oleic Sunflower Oil (HOSO)

RESULTS

The basal intake of vitamin E by volunteers was of only 9.61 mg/day, below EFSA recommendations, showing the inadequate consumption of this important antioxidant micronutrient.

During the study, the intake of macronutrients, micronutrients and energy did not show significant changes. Noteworthy, results showed an increased average vitamin E consumption, reaching to up to 17.76 mg/day and 18.45 mg/day after OPO and HOSO, respectively. This reflects the high content of this vitamin in OPO and HOSO (357 and 420 ppm vitamin E, respectively).

	BASAL	Olive Pomace Oil	High Oleic Sunflower Oil	Product	G*P
VITAMIN E (mg/day)	9,61 ± 0,58	17,76 ± 0,97	18,45 ± 1,05	0,001	N.S

Table 2. Data represents oil intake in different groups. Mean ± SEM (n=64); N.S indicate not significant differences between groups.

Sensory analysis showed that consumers preference for OPO was higher compared to HOSO. OPO was well accepted and, thus, may constitute an important dietary source of vitamin E covering the recommended daily intake. It is worth considering OPO as part of a healthy diet .

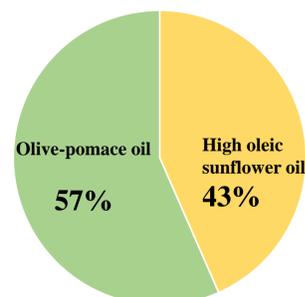


Figure 2. Sensory analysis survey

CONCLUSION

Olive pomace oil constitutes an important dietary source of vitamin E covering the recommended daily intake

REFERENCES

[1] Péter, S., Friedel, A., Roos, F. F., Wyss, A., Eggendorfer, M., Hoffmann, K., & Weber, P. (2016). A systematic review of global alpha-tocopherol status as assessed by nutritional intake levels and blood serum concentrations. *Int. J. Vitam. Nutr. Res.*, 14, 1-21

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