SCREENING OF PHYSICO-CHEMICAL PARAMETERS OF COMMERCIAL EXTRA VIRGIN OLIVE OILS TO VERIFY THEIR COMPLIANCE WITH EU REGULATION

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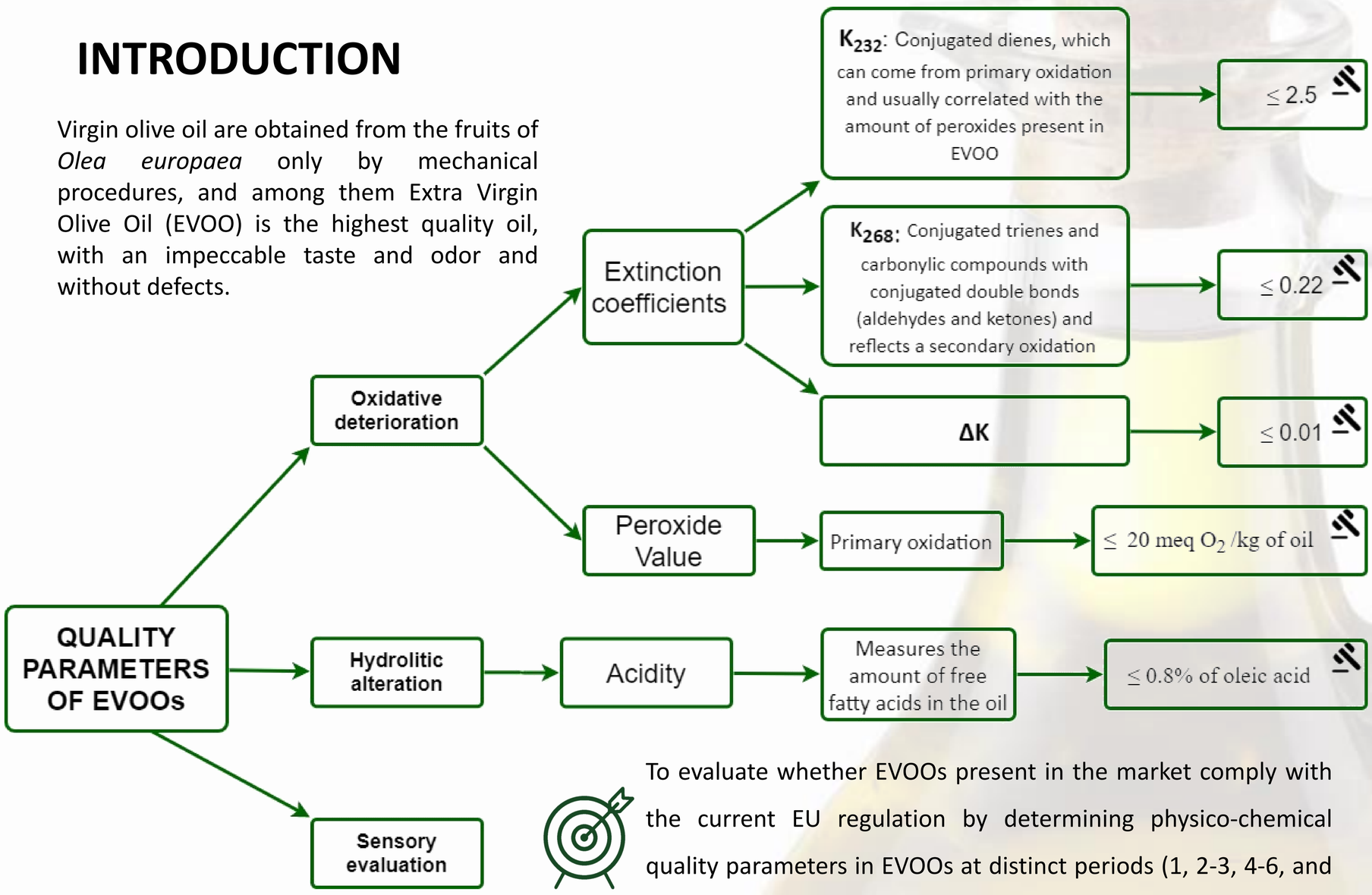
INTRODUCTION

Virgin olive oil are obtained from the fruits of *Olea europaea* only by mechanical procedures, and among them Extra Virgin Olive Oil (EVOO) is the highest quality oil, with an impeccable taste and odor and without defects.



Commission Regulation (EEC) 2568/91 of 11 July 1991 on the Characteristics of Olive oil and Olive-Residue Oil and on the Relevant Methods of Analysis and subsequent modifications.

EVOO: with an excellent flavour, acidity in oleic acid ≤0.8 gram per 100 grams,
K_{232} ≤ 2.50, K_{268} ≤ 0.22, PV ≤ 20 mEq O_2/kg.

VOO: similar conditions of EVOO, except for the tolerance for slight sensory defects, the acidity in oleic acid, which must be a maximum of 2 grams per 100 grams,
K_{232} ≤ 2.60, K_{268} ≤ 0.25 , PV ≤ 20 mEq O_2/kg.

LOO: with defective flavour or the physico-chemical parameters exceeding limits fixed for VOO.

To evaluate whether EVOOs present in the market comply with the current EU regulation by determining physico-chemical quality parameters in EVOOs at distinct periods (1, 2-3, 4-6, and 7-8 months) before the "best-before" date declared in the label.

MATERIALS AND METHODS

41 oils from different supermarkets were analysed at different periods depending on the "best-before" date.

PARAMETERS	TIME REMAINING TO THE "BEST-BEFORE" DATE	n	
K_{232}	1 month	15	55
K_{268}	2-3 months	10	
ΔK	4-6 months	24	
PV	7-8 months	6	
Acidity	1 month	7	41
	2-3 months	10	
	4-6 months	18	
	7-8 months	6	

RESULTS AND DISCUSSION

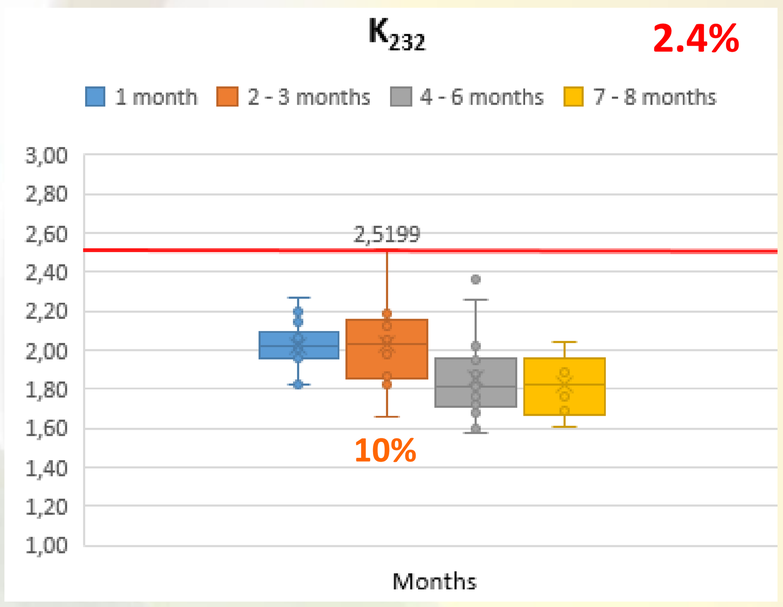


Figure 1. Distribution of K_{232} values according to the time remaining to the "best-before" date. The red line marks the maximum limit allowed by EU regulation for EVOOs.

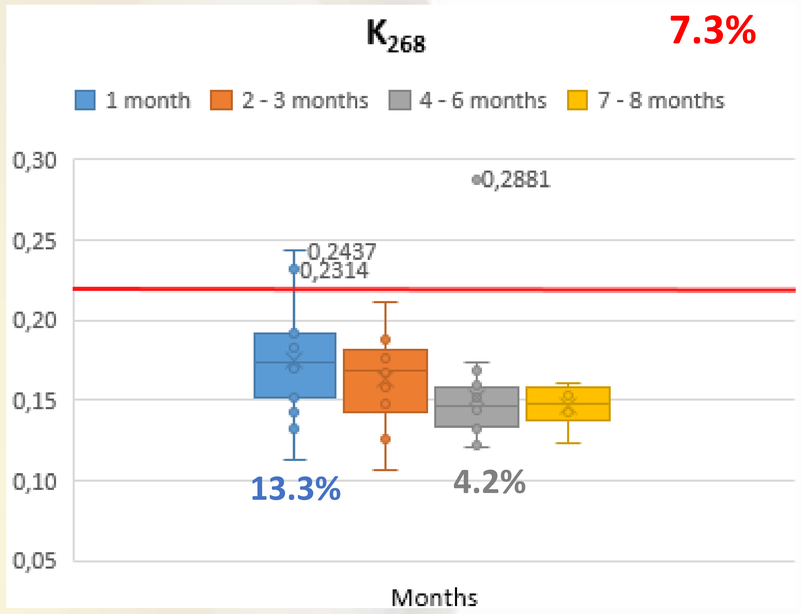


Figure 2. Distribution of K_{268} values according to the time remaining to the "best-before" date. The red line marks the maximum limit allowed by EU regulation for EVOOs.

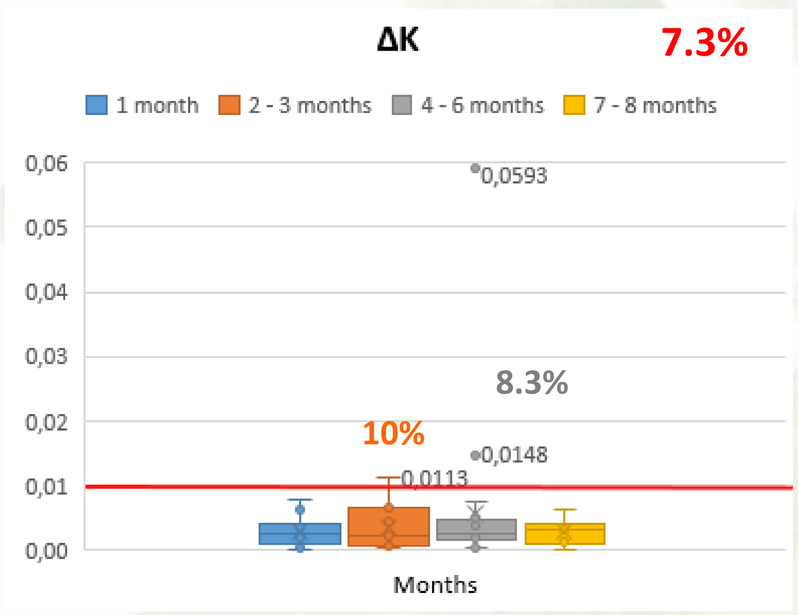


Figure 3. Distribution of ΔK values according to the time remaining to the "best-before" date. The red line marks the maximum limit allowed by EU regulation for EVOOs.

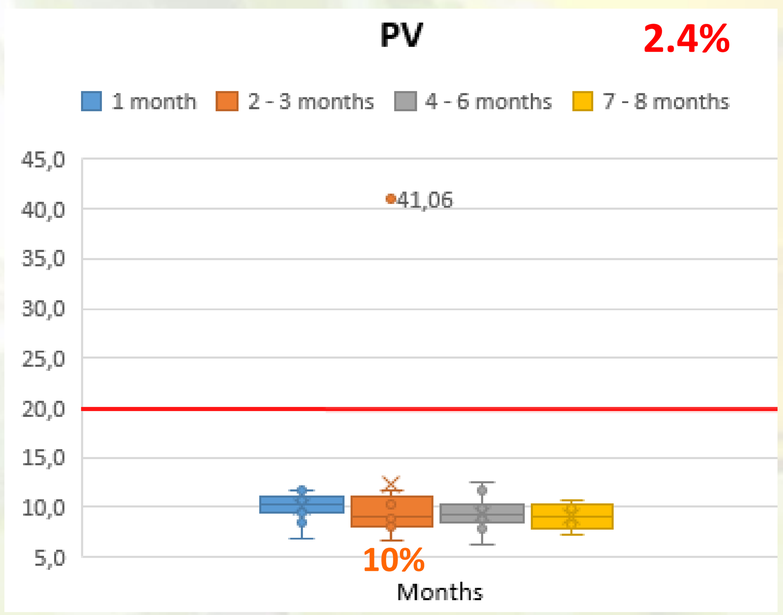


Figure 4. Distribution of PV values according to the time remaining to the "best-before" date. The red line marks the maximum limit allowed by EU regulation for EVOOs.

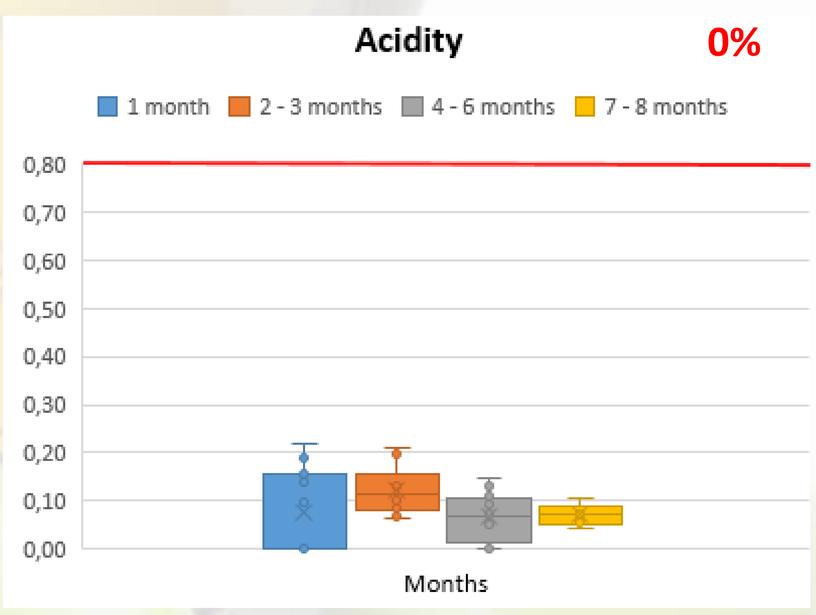
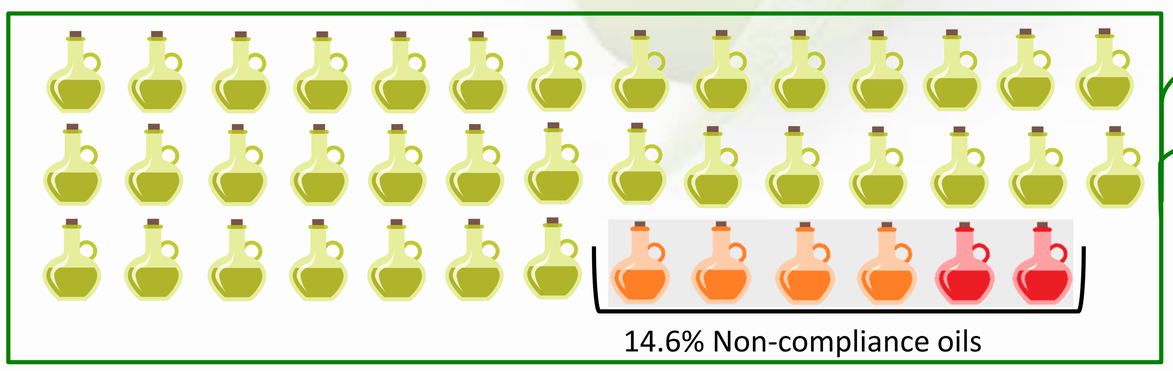


Figure 5. Distribution of Acidity values according to the time remaining to the "best-before" date. The red line marks the maximum limit allowed by EU regulation for EVOOs.

CONCLUSIONS



41 oils → 2.4% of EVOOs do not comply for K_{232} and PV; 7.3% of EVOOs do not comply for K_{268} and ΔK

41 oils → Acidity values are far from the limit values

Non-compliance of the EVOO samples → oxidative parameters analysed → optimal storage conditions