

PRACTICE ABSTRACT n° 43

Co-malaxation of olives with orange by-product

To produce virgin olive oils, **olives** (good quality picked fruits, stored in small perforated boxes in a cool room for a maximum of 48 hours before processing) are **washed and milled to obtain the olive paste**. Next, the olive paste is kneaded (**malaxation phase**) and **centrifuged** to separate the olive oil from water and solids. The **temperature** is a key factor during the milling process; it affects both quality and yield. Temperatures below 30°C can be considered a good compromise between the oil yield and minor compounds enrichment (in terms of phenolic and volatile molecules). Also, **centrifugation systems** could impact phenolic content, usually higher in oils produced with a **two-phase decanter** (in comparison with a three-phase decanter in which water is added in significant amount to olive paste producing a loss of phenolic polar compounds in water). Nowadays, oil clarification is generally carried out by vertical centrifugation or/and natural settling (to remove suspended particles and impurities). Then, the virgin olive oil remains cloudy due to emulsion dispersed as microdroplets. **Filtration** is performed to separate the micro-emulsion.

The objective is the **production of a flavoured olive oil by using orange by-product in a sustainable view**.

General indications

- Olives storage before milling: max 48 h
- Malaxation temperature: max 27°C
- Centrifugation: two-phase decanter (working in continuous)
- Clarification: static decanting in tank (possibly under nitrogen)
- Filtration: by paper filter press
- Storage: in tank under nitrogen or in tins/bottles



Olives + orange by-product (peel) powder

(1 kg of olives + 10 g of by-product powder)



Add the orange by-product powder directly with olive paste during the malaxation phase.

Results

- Production of flavoured olive oil only by mechanical extraction process with specific compositional and sensory characteristics derived from the flavouring matrix.
- Re-use and valorisation of food by-products, to promote circular economy and sustainability.



Olives



Orange by-product
(peel) powder



Flavoured olive oil