

# TABLE OLIVES





# 1. DEFINITION OF TABLE OLIVES



Table olives are the sound fruits of suitable varieties of the cultivated olive tree (*Olea europaea* L.) harvested at an appropriate stage whose volume, shape, flesh-to-stone ratio, fine flesh, taste, firmness, and ease of detachment from the stone make them particularly suitable for processing.



Treated to remove their bitterness and preserved by natural fermentation, or by heat treatment, with or without the addition of preservatives.



Packed with or without covering liquid.



## 2. TYPES OF OLIVES

The International Olive Council (IOC) classifies the table olive into three categories according to the degree of ripeness of the fresh fruits:

### **GREEN OLIVES:**

Fruits harvested during the ripening period, prior to coloring, and with normal size.

### **OLIVES TURNING COLOR:**

Fruits harvested before the stage of complete ripeness are attained, at the color change.

### **BLACK OLIVES (RIPE OLIVES):**

Fruits harvested when fully ripe or slightly before full ripeness is reached.





# 3. TRADE CLASSIFICATION OF PROCESSED TABLE OLIVES (IOC)

Olives may be offered in one of the following styles:

## **WHOLE OLIVES:**

Olives which have their natural shape and from which the stone (pit) has not been removed. They can be whole (natural shape and with or without stem), cracked, and split (whole but cut lengthwise into the skin).

## **STONED (PITTED) OLIVES:**

Olives from which the stone (pit) has been removed and which basically retain their natural shape. This category includes also: halved, quartered, divided, sliced (fairly uniform thickness) chopped (small and no definite shape), and broken olives (accidentally while being stoned or stuffed).

## **STUFFED OLIVES:**

Stoned olives stuffed either with one or more suitable ingredients (pimiento, onion, garlic almonds and carrot etc).

## **OLIVE PASTE:**

Exclusively olive flesh, finely crushed.

## **SALAD OLIVES:**

Whole broken or broken-and-stoned (pitted) olives with or without capers, plus stuffing material.

## **OLIVE WITH CAPERS:**

Whole or stoned (pitted) olives, usually small in size, with capers and with or without stuffing.





## 4. QUALITY CLASSIFICATION OF PROCESSED TABLE OLIVES (IOC)

Table olives ready for marketing must be uniform in color and shape, unblemished, clean, and without strange taste or aroma or any alteration or abnormal fermentation. Furthermore, they must not be affected by any harmful germs and toxins. They are classified into one of the following three trade categories of quality.

### **EXTRA:**

Whole, split, stoned, and stuffed olives of the best varieties are classified in this category.

### **FIRST-CLASS:**

All the types, preparations and styles of table olives are classified in this category, except for chopped or broken olives and olive pastes.

### **SECOND CLASS OR STANDARD:**

This category includes good-quality olives, which cannot be classified into the two previous categories.



# 5. PROCESSING METHOD

Table Olives should be processed under Good Hygienic and Manufacturing Practices.

## SORTING

- Table olives are sorted manually to remove the damaged, misshapen and infected fruits. The sorting machine divides the olives for size.
- The leaves are also removed during this phase. This step is very important in the classification of the final product.



## PROCESSING

- In the Mediterranean region, generally, table olives are put in brine with 8-10 % of salt, where a natural and spontaneous fermentation occurs. During this phase, the enzymes, produced by bacteria, and the salt get into the fruits and neutralize the bitter compound.
- Green table olives can be treated with a chemical method before putting them in brine: the Sevillian method treats the olives with a lye solution (1.5 – 2.4 % NaOH) for 8 – 12 h to remove the bitter taste, then the olives are washed to remove the lye from flesh and then the olives are put into salt solution (8-10% NaCl). After 8-10-30 days of fermentation.



The natural fermentation passes by the following steps:

**a. Fruit Washing:** The olives are washed to remove the dirt.



**b. Crushing:** The olives could be crushed or split deeply with a small knife. This phase of the process helps the brine to penetrate inside the fruits and allows the leak of the bitter compound.

**c. Brining and anaerobic fermentation:** Olives are fully immersed in brine (10 % of salt) at room temperature (20 -25°C). The tanks should be filled before with olives and then with brine. The salt solution must cover the olives. During the processing, the salt concentration should be maintained between 8 to 10%.

**d. Sorting, Stoning and stuffing:** Olives are sorted for the second time to remove the non-standard fruits. If required stoning and stuffing should be done before packaging.

**e. Packaging:** The mainly used packages are: plastic boxes, glass jars and tin containers. They can be used in different sizes from 250 g to 5 kg according to the final market target. Olives are covered with fresh brine (0.3 -0.5% lactic acid + 3- 6 % NaCl).



## BASIC SANITARY RULES



Carefully clean the working areas daily.



Walls should be tiled and lighting should be good to enable thorough cleaning.



Use filtered water for salt solution preparation.



Equipment must be cleaned daily and washed with water and detergent.



The hygiene of the workers should be maximum; they must wash their hands, wear gloves and caps; no rings and necklaces wearing.



Smoking is not allowed.

## 6. LABELLING

The final product should be labeled and where are reported:

### SORTING

- Ingredients
- Net and drained weight.
- Date of production and expiry date
- Bar code when available
- Name and address of the manufacturer, packer, supplier and country of origin.
- Nutritional Values may be also added in a separate label.



# 7. SOME ALTERATIONS IN TABLE OLIVES

A bad fermentation may cause spoilage and minimize the shelf life of table olives. It is very important throughout processing to monitor the brine pH, the salt levels and the microorganism levels, especially in the early stages of fermentation. When the process is not controlled, the olives lose their quality and change color, the flesh becomes soft and gassy.

## **a. Gas pocket formation (Fish eyes):**

Some microorganisms (Clostridium and Propionibacterium) cause fissures and the bags are filled with gases (CO<sub>2</sub>) in the pulp of the olives. This alteration occurs early during fermentation for the low salt concentration (< 7 %), high temperatures (>30°C) and the minimum hygienic practices.

**Control:** This defect can be controlled by intensifying the hygiene precautions, by reducing the pH value to 4 by adding the lactic acid and by regulating the salt concentration up to 9 %.

## **b. Putrid & Butyric fermentation:**

- The brine has a smell of rancid butter and the olives have a putrid odor.
- The butyric spoilage is caused by the growth of the anaerobic bacteria (Clostridium species) during the primary stage of fermentation when the pH value is near the neutral point.
- The putrid fermentation is caused by poorly-kept containers and dirty water.

**Control:** Putrid and Butyric fermentations are well controlled by ensuring the proper pH value.

## **c. Zapateria:**

- This alteration gives the olives an unpleasant smell and taste at the end of the fermentation process.
- It is produced by bacteria of the genus Propionibacterium and Clostridium which grow up when the pH value is higher than 4.2.

**Control:** This can be avoided by increasing the salt concentration up to 9 % at the end of the main lactic fermentation.



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