



# GOORAMADDA OLIVES

*(Extract from GOORAMADDA OLIVES TABLE OLIVES WORKSHOP 16 APRIL 2011)*

I will try to explain the different processing methods in use in the industry today. For those who have only a small amount of olives to process, you can skip all this theory and go straight to the end of this document and look under "Home preparation of Table Olives"

The topics covered in here are:

1. Definitions
  2. Desirable and undesirable olive attributes
  3. Specific processing methods
  4. Spanish style
  5. Greek style
  6. Untreated olives
  7. Spoilage
  8. Home preparation of Table Olives
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In order to safely process olives and not risking spoilage you need the following:

- pH meter
  - weigh scale
  - water
  - containers
  - salt
  - vinegar
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## DEFINITIONS

There are in general two different commercial preparations:

Pickled or Treated Olives

- Partly or complete removal of bitterness by alkaline hydrolysis, which is the treatment with sodium hydroxide or commonly named "caustic soda"



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## Un-treated Olives

- No alkaline treatment

Definition of table olives as per the Spanish standard which is also used in many other countries. This definition explains the following:

- The condition of the raw material
  - Green, Turning colour or Black
- The procedure used to eliminate the bitterness in the olives.
  - Treated
  - Un-treated
- The preservation method
  - In olive oil
  - In brine
  - In dry salt
  - Dried

So when you purchase table olives in the supermarket you could see the following definition:

"Green untreated table olives in brine"

Or

"Black treated table olives in olive oil"

Olives have 5 ripening stages, they all start as a green olive and slowly turn colour and become black when the fruit ripens further.

These are the classifications:

- Green ( not ready to harvest yet)
- Ripe Green ( Green to straw yellow, harvest can start))



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- Turning Colour ( Rose, wine rose or brown)
- Black ( fully ripe or just prior to full ripeness, reddish black or violet black or deep chestnut)
  - Naturally Black (un-treated)
  - Black ( sometimes called Black Ripe Olives in the USA. These are Ripe Green blackened by oxidation in an alkaline medium or dyed black by using a food dye)
- Ripe Black. ( you can check for Ripe Black when you cut the olive and observe the purple colour in the flesh of the olive. If the purple colour is only in the skin it is called a Black Olive and if the colour penetrates to 2/3 or better in the flesh it is called a Ripe Black Olive)

## **DESIRABLE and UNDESIRABLE ATTRIBUTES**

Desirable:

- High Flesh to Pip ratio, this means that the olive should have a nice amount of flesh, not just a skin covering a pip
- Size appropriate to variety, some olive varieties are large ( e.g King Kalamata) and some are very small ( e.g. Koroneiki) so it does not make sense to advertise a large variety and have only small olives in the jar
- Colour. Black olives should look dark and green olives should look greenish. It would be silly to advertise black olives and the olives look green
- Lack of blemishes. All olives with blemishes need to be removed and do not have a place in the jar.
- Flavour. Of course, why would you have olives without flavour?, but not everybody agrees, have a taste of the olives on your commercial pizza, they are without flavour. A well prepared table olive should have a magic flavour, expressing the condition of the fruit, the soil it was grown in and the flavour related to the variety

Un-desirable: ( pre and post processing)

- Skin blemishes, bruises, marks
- Spoilage, damage



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- Shriveled
- Softness
- Deformed
- Abnormal colour
- Mould / yeast growth
- Insect or bird damage
- Stem attached

## **SPECIFIC PROCESSING METHODS**

- Processing with water – kalamata short method – home style. This is the most common method for home style de-bittering and will be explained a bit further down
- Processing with lye (sodium hydroxide) – Californian and Spanish style
- Processing with brine - Greek style
- Processing with salt – home style
- Processing with air – home style

We will only be presenting here three processing methods which in our opinion are the best, here they are:

## **SPANISH STYLE**

- When to harvest? I suggest at the ripe green to early turning colour stage
- Lye treatment ( Sodium Hydroxide also known as Caustic Soda)
  - Penetration rate. You will need to cut open the olive to check the brownish colour penetration into the flesh of the olive. The Caustic soda turns the olive flesh brown
  - Time 3 to 24 hours soaking in the caustic soda solution depending on concentration and cultivar
  - Percentage lye 1.2 to 2.8% depending on time and cultivar



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- Associated risks. There are several risks associated with this treatment, some of those risks are manual handling of Caustic Soda which could burn the skin and irritates the breathing, The Caustic Soda concentration is important as when this is too high it could de-skin the olives and turn them into soft green olives. And if too low it will take a long time to penetrate into the flesh and the olives turn out to be tasteless
- Washing
  - Rinse ( replace the caustic soda solution with clean water), first rinse (after 2-3 hrs) and second rinse (after 10-12 hrs)
- Fermentation
  - Lactic acid starter culture, suggest you get a dried Lacto Bacillus Plantarum
  - Prepare the fermentation brine at a 10 to 12 percent solution
  - Fermentation might take several weeks and often you will have overflowing fermenters. Make sure the olives are submerged all the time and top up the fermenters with fresh brine
- Packing brine
  - pH less than 4.6, by using vinegar
  - salt 2%
  - colour fixing, you can use asorbic or citric acid

## GREEK STYLE

- Natural processing with minimal chemical treatment other than salt
- Low energy processing procedure
- When to harvest
  - Multiple successive pickings are required, you can use green, turning colour, black or ripe black olives
- Initial acidification of the fermentation brine to <5 pH by using vinegar. This will get the bacteria's and yeasts off to a good start and avoid the undesirable one's to take a hold



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- Initial salt 6 percent followed by a gradual increase of the salt level over four weeks. Every week add 2 percent salt to the brine
  - Avoid shrivel and promote lacto bacillus growth by making sure the pH and the salt levels are right. There is no need to use a starter culture.
- Aerobic versus anaerobic conditions. You can do both so this is not critical
- Olive weight loss will be between 5 to 10%. This weight loss will lower the level in your fermenters so be aware that you need to top up the fermenters with brine
- End of fermentation storage
  - Old school 10-16% salt
  - New school 10% brine or lower. This will keep the olives preserved in the fermentation liquid
- Packing
  - In olive oil
  - In vinegar with a layer of olive oil
    - Stops bacterial but not yeast growth
  - Brine corrected for pH
    - 6-8% salt level equilibrated in the jar with a 4.6 pH. Use vinegar to lower the pH. Suggest to boil the packing liquid to ensure that there are no undesirable organisms in the packing brine and do a hot fill over the olives in the jar

## UNTREATED OLIVES IN SALT

- Ripe Black olives are used for this process.
- Dried at 65-70 deg C, the olives become shrivelled
- No need to de-bitter the olives
- Final moisture 20% or drier
- In layers of salt/olives/salt/olives
- Can add small amount of oil



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## SPOILAGE

Spoilage needs to be avoided by good housekeeping. Keep all fermentation vessels clean, all tools clean and use clean jars and lids, preferably not recycled jars

- Malodorous fermentation can happen when the pH and salt levels are incorrect
  - Clostridia will not grow when the salt level is greater than 6.5%
- Softening
  - pH has to be less than 5.0 to avoid softening
  - created by unhygienic conditions

## HOME PREPARATION OF TABLE OLIVES

Also called "Kalamata Style Short"

Most readers will have skipped the above and want to "cut-to-the-chase" on how to make the olives edible, well here we go:

Harvest the olives at any ripe stage, and pick only good quality olives, leave the rest to the birds. Do a selective pick, only the best will do

With a knife cut each olive or alternatively crush each individual olive with a stubby or some other tool for the purpose to break the skin and expose the flesh of the olive.

Submerge the olives into a 2% brine solution ( 20 gram salt in 1 liter of water), and give the lot a gentle stir.

Replace this brine with a fresh brine, every day, for about a week to ten days. Taste the olives regularly to check if they have lost most of their bitterness.

What happens is that the bitterness in the olives is water soluble and over time the brine dissolves the bitterness.

When they are ready to eat, take them out of the brine and prepare the preserving liquid.

As a preserving liquid I suggest you use a 8% brine ( 80 gram in one liter of water) and put a cup of vinegar into each liter of brine. Find a nice tasting vinegar, it will do the olives good.

Boil the brine with the vinegar to kill any nasties and pour the boiling liquid over the olives in the jar. No need to sterilize the jars as the boiling / hot liquid will do the job.



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Suggest to put a layer of olive oil or any other oil on the top of the olives and liquid in the jar. This will stop any moulds from growing on the surface of the liquid. However, olive oil will solidify in the fridge so I suggest use a vegetable oil for this purpose.

You can add all kind of spices to the olives before you pour the boiling brine over the olives, all depending on your personal preferences.

Put the lid on the jar and store away for a week or so ...then ready to eat!

Enjoy your olives with a good glass of Red Vino