

Olive products and ways to improve their specifications

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The olive tree is an everlasting tree, considered a treasure because of its economic and environmental benefits. It has a special sanctity for all Abrahamic religions, is an evergreen tree, and can withstand harsh environmental conditions, such as drought, barren land, lack of depth and fertility. The total root is shallow and not-so-deep, especially in irrigated agriculture, typically reaching a depth between 40-70 centimetres. The tree is usually about 3-6 meters tall, although, in some varieties, it can be as high as 10-12 meters.

Question one: Would you like to talk about the importance of this blessed tree?

The importance of the olive tree comes from the oil it produces. Each year, as demand for olive oil increases in the international markets, the number of olive trees grown also increases. A shortage of this material is expected in the next few years due to increasing demand, especially in countries not consuming large quantities, such as the United States, Australia, Canada, Japan, India, etc.

The growing demand for olive oil comes because people are aware of the health value of this oil. Scientific research has shown that it can prevent and cure many diseases, such as cancer, cardiovascular disease, and many skin diseases.

In recent years, food products have been under increased scrutiny, including olive oil, to ensure that they are fit for human consumption and not harmful to health. The International Olive Oil Council has made this a priority of its activities.

Olive cultivation has developed in this area, and farmers have gained experience in dealing with this tree. The result is a high-quality olive variety.

Virgin olive oil has unique properties, which set it apart from the rest of the vegetable oils and are the cause of popularity and its high price. Olive oil is the only oil that is eaten immediately after being extracted from the fruit by natural mechanical means.

Question two: What are the types of olives by purpose?

1. Oily items: These are items with a quantity of oil above 15 - 20% and medium-sized.
2. Non-oil items: They are a larger variety of olive, containing less than 15%oil. They have a thick pulp and are used in pickling.
3. Dual-purpose items: They are a combination of the characteristics of oily and non-oily varieties, with an oils percentage of 15-20%.

Third question: What is the specification for table olives?

- The fruits are medium to large, the pulp is thick, and the crust is undamaged and smooth.
- A small, smooth nucleus that is not attached to the flesh.
- It tastes good after manufacture, and it bears preservation. The kinds that have a high percentage of oil (between 12-15%) are best suited for this, as oil gives the fruit a good taste and increases the period of preservation.

Question four: What are the specifications of the olive varieties for oil extraction?

- Have a high proportion of oil above 15%.
- Oil is of good quality and tastes good.

Question five: What are the types of olives in Syria?

There are more than 70 local varieties are scattered across Syria, the most important of which are:

Al-Sourani

Use: This item is used to extract oil and black and green pickles.

Oil ratio: 25-30%.

Al-Zayti

Use: This item is used primarily for oil extraction and green pickling.

Oil ratio: 28-33%.

Al-Khudairi

Use: This item is used for oil extraction and green pickling.

Oil ratio: 25-30%.

Mild resistance

Al-Duaibli

Use: This item is used to extract oil, pickling, and black.

Oil ratio: 20-24%.

Resistant

Use: This type is used to extract oil and pickle green and black.

The proportion of oil: 18-24%.

Resistance: average resistance.

Al-Qaisi

Use: used for green pickling.

The proportion of oil: 16-24%.

Resistance: the mean slope of resistance.

Use: This item is used to extract oil and black and green pickles.

Proportion of oil: 12-14%.

Average resistance

Mohamed Abu Sattal

Use: used for green and black pickling.

Proportion of oil: 9-12%.

Resistance: mild resistance

Al-Musabi

Use: used for green pickling.

Proportion of oil: 8-11%.

Resistance: average resistance

There are many other items in Syria, such as

Homs, Abu Shoka, Al-Qurmani, Al-Shami, Al-Tufahi, Al-Khokhi, Al-Safrawi, Al-Jalaat Al-Tadhamri, Al-Mahathi, and others.

Question six: What are the uses of olives?

The tree can provide oil, wood and paper.

- Olives are excellent for eating after being washed and pickled. Olive oil is one of the most luxurious of oils, and although it is a harmless oil, it benefits the [heart](#), as we shall see later.
- The wood is strong and has beautiful veins, making it a luxurious wood for manufacturing artefacts and other items.
- The paper is useful and can be soaked, and drink the resulting fluid.
- The fruit can also be used to produce soap.
- Industrial coal: After the oil is extracted from the tree, it can be burned to produce charcoal. The charcoal can then be used to heat houses in winter.

Question seven: What are the benefits of olive oil?

- Helps reduce the risk of heart disease
- Regulates the cholesterol in the body
- Helps prevent strokes and heart attacks, especially if the oil is very early and of high quality

The Prophet said: "Eat the oil, and anoint yourselves with it; for there is healing in it of seventy diseases, including leprosy." In another account: Concerning Asad, whom God approved, he said: The Messenger of Allah (Peace and Blessings be upon Him) said, "**Eat the oil and anoint it with it, then it comes out of a blessed fruit**" narrated by Al-Tarmadi (The Prophet), and said a true Hadith (Hasan).

Note: The fresher the oil, the better the properties of the oil.

Question eight: What factors affect the quality of olive oil?

Many factors influence oil quality, including agricultural and other manufacturing factors and how oil is stored, which plays an essential role in oil quality.

First of all, the variety of olive you use affects the type and quality of oil you extract. Local varieties include the Municipal, Syrian, and Melissi heraldry. "Nabali Mohsen" is one of the lowest quality oils.

Secondly, the ripeness of the fruit affects the quality. You know the olive is ready to harvest when the fruit's outer skin is painted, and the pulp is coloured. At this stage, the oil contains the highest percentage of compounds that protect the oil from oxidation, giving it a longer life during storage. However, if harvested before maturity, there are fewer compounds to protect against oxidation, and the green matter has a high concentration. This causes the oil to be dark green and bitter.

Harvesting too late reduces the concentrations of these compounds again. The more overripe the fruit, the fewer the compounds. Eventually, the compounds disappear altogether, as will the presence of green matter in the fruit, in which case the oil in the fruit will be exposed to oxidation and high acidity. Furthermore, overripe fruit is more likely to grow fungi, decomposing the oil inside the fruit and increasing acidity. The oil produced from such fruits is of high acidity, lower quality, yellow in colour and lacks an olive taste. The duration of validity of their use as human food is reduced.

Therefore, setting a harvest date is very important for producing oil with high specifications. There are several methods to determine when the fruit will reach maturity. Some involve sampling 100 fruits and classifying the fruit into eight groups by degree of maturity and colouring. However, this method does not apply to us. We can use laboratory tests to determine maturity by taking samples at close times in the adult stage.

The ideal position for harvesting olive fruit is when the fruit has the highest quantity of oil at the highest quality. Hence, the cut-off date must be determined by two outcomes: Quantity and

quality. To be clear, that is not just the quantity. When the fruits contain the highest quantity of oil, the quality begins to deteriorate. The proportion of oil in the fruits should be estimated by the weight of dry matter rather than wet matter. This is because the ratio of the moisture in the fruit differs depending on the soil moisture.

Next, the harvesting method affects the quality of the olives. The more exposure the fruits have, the worse the quality of the olives. The best harvesting methods are:

- Manual cutting method.
- Method of harvesting by hand-held activity or vibrations.

Harvesting olives using sticks damages the olives. It can cause a wound on the fruit, exposing the inside and threatening the quality of its oil. It also harms the tree itself, threatening the following years **crop**.

Then, the method of transportation affects the quality of the fruit.

Transporting olives in bags, especially nylon, and then piling them on top of each other causes high temperatures, which oxidizes the oil inside the fruit. This degrades the oil and increases the acidity.

The best way to transport fruit from field to mill is to use well-ventilated plastic boxes. These boxes keep the fruit safe during transport and storage.

Then, the length of time that the olives are stored is important. The shorter the period between harvesting and pressing, the better the oil. Moreover, the way the fruit is stored before pressing has a significant impact on the oil quality. If the material is stored in bags, the worse the quality because the fruit overheats, and fungi grow on them. So the best way to keep it is in plastic boxes with good ventilation and temperatures of 10-12 degrees.

Hence, you need to store the fruits away from the sun and rain.

It is worth mentioning that fruit that has fallen to the ground produces worse oil. Therefore, the fruit that fell on the ground should always be separated from the fruit harvested from the trees, and they should be pressed separately.

Finally, how the oil is manufactured affects the quality of the finished product. Manufacturing refers to how the fruit is washed, how the leaves are separated from the fruit, how the fruit is ground and sorted, and how the bottles are filled.

Question nine: You mentioned that the date of maturity of the olive fruit affects the quality of the olive oil. What factors affect the maturity date?

- 1- From bloom to harvest, it takes between 170-210 days for olive fruit to fully mature. Trees that bloom earlier mature earlier. The species and the area
- 2- determine this.
- 3- The more the tree produced last year, the longer the fruit

- 4- takes to ripen.
- 5- Small trees mature more than large ones.
- 6- The fruits directly exposed to light for extended periods mature earlier than those found within the tree. That's where trimming comes in; it exposes all fruits to light.
- 7- The weather also plays a role. High temperatures and high humidity cause faster maturity; high temperature and low humidity postpone maturity. So the trees in coastal areas ripen
- 8- faster than those elsewhere.
- 9- Additionally, the soil affects the maturity rate. Medium and light soils with good ventilation result in earlier maturity. Heavy, poorly ventilated land delays maturity. Good soil moisture helps promote maturity.
- 10- Healthy trees mature faster than those with problems.
- 11- Some varieties ripen earlier, such as Municipal and Syrian Nabali, while the improved Nabali is late in maturity despite its early bloom.
- 12- Excessive nitrogen fertilization delays maturity. Similarly, ploughing orchards delays the ripening of fruit.
- 13- It is worth noting that trees may show false signs of maturity due to thirst, illness or inappropriate conditions.

Question 10: How is olive oil's quality affected by manufacturing stages?

Steps taken both in the mill and afterwards affect the quality of olive oil. To summarise:

- Grinding and squeezing fruit with leaves worsens the oil's quality and impacting the taste. Washing overripe fruits that have been injured causes a loss of part of the oil.
- The method of milling affects the quality.
- Sorting in modern mills helps to produce better quality oils
- The container the oil is stored in is of great importance. Olive oil is a polluting and perishable substance. The type of container and the material from which it is made will significantly influence the oil's quality during its retention.
- To maintain the quality of the oil, store it correctly. It cannot be stored in temperatures above 15°C. The store must be free from odours, moist, out of direct light, and always clean.
- All mill machines must be cleaned and maintained to prevent erosion or rust that may affect their metal parts and avoid rotating remaining organic matter onto their internal or external parts.

Question 11: What are the ideal specifications for oil storage devices?

- It must not be a permeator of oil or react to it.
- Prevent the pollution of oil with foreign objects and poisoning it.
- Ensure the quality of oil and prevent interference. What I mean by this is that, if somewhere to open the olive oil, it would be impossible to
- seal the bottle again without someone noticing.

- Prevents contact with air, light, and minerals, all of which can compromise its quality
- Suit commercial conditions. That is, it must be easy to transport, load, unload, pack, shock-resist and look appealing to customers.
- It must be economical.
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Question 12: What are the by-products of olive presses?

Pressing olives produces a variety of waste:

1. Olive water: Some owners of the mills store the fruits in tanks or pools before pumping them into the valleys and sewers. The aim is to benefit from the oil that floats later on the surface, which is not edible but needs refining or is used to make soap.
2. Olive press cake is the solid substance produced by mechanical oil extraction in olive mills and provides another source of income. It is sold to dry factories, which extract the remaining oil. The proportion of oil in the dry varies with the type of mill.
3. olive leaves

Question 13: What are the advantages of Syrian olive oil?

Syrian olive oil, as well as olive oil produced in other countries of the world, has the following advantages:

- ❖ Olive class: Syrian olive oil is extracted from the finest olive varieties.
- ❖ Harvesting method: Olives in Syria are typically picked by hand without the use of chemicals. Farmers in some countries are using chemicals to harvest.
- ❖ Delicious taste: This is due to several factors, including the unique soil structure and the correct harvest date. The oil contains phenolic substances and chlorophyll, which give it a delicacy and delicacy.
- ❖ Pressing method: Olives are squeezed by natural physical means, such as pressing and squeezing. Some countries use chemical substances to extract oil.
- ❖ Syrian oil is virgin oil because there are many mills in Syria, which shortens the time between harvest and era.

Question 14: What checks are done on olive oil?

First: Chemical tests

Olive oil undergoes several chemical tests to determine the degree to which they conform to specifications. One of the most important tests is

1. the acidity ratio.
2. oxidation (peroxide number), expressed as a number (mili) equivalent to peroxide oxygen for each kilogram of oil at a minimum
3. Cheating with other vegetable oils

4. The degree of saponification, expressed in milligrams, as a solid soda per gram of oil.
5. The absorption of ultraviolet radiation by a spectrophotometer: this should be in the range of 232- 270 nm and measures the oxidation of the oil.
6. Moisture test

Second: Sensory tests

Syrian olive oil has a flavour, taste, smell and colour distinct from most other vegetable oils, which are often extracted by solvents. This removes aromatic odours.

Trained experts determine the Olive Oil Nutritional Specification. They record their assessment on a particular form, and the oil is evaluated in grades. These grades include the taste (apple, green, bitter, sweet, sharp, etc.), the smell (wine, vinegar, threshold, soil), colour: (and varies from green to yellow).

The sensory (physical) characteristics that determine the oil quality:

The experts examine specific taste properties, examining the oil for these properties:

- ❖ Strong humorist: characterized by a burning at the end of the throat and a slight bitterness at the beginning of the tongue.
- ❖ A very strong humorist: The flavour here is more concentrated than before.
- ❖ A mature, olive flavour
- ❖ Flavour produced by oil stored in wholesome ways
- ❖ Sharp, sharp green taste: This bait comes from an immature green olive.
- ❖ Leafy taste: This bait comes from an olive that has been squeezed with leaves.
- ❖ Bitter taste: This taste is produced by immature fruit. A bitter taste is made worse if the oil was pressed in centrifugal mills because of the high temperature.
- ❖ A sweet oil indicates a lack of olive flavour.
- ❖ A thick, rough taste is a result of viscous oil.

Also, virgin olive oil can acquire undesirable tasting specifications and can be classified as unfit for human consumption and must be refined.

These are:

- ❖ Injury: This bait is caused by the fruit hitting the olive fly.
- ❖ Dirt: This bait is the fruit of olives that existed on Earth long before its time.
- ❖ A wet texture occurs when the fruit has been stored a long time and started to rot.
- ❖ A dry taste is caused by very dry olive fruit.
- ❖ Mould: This flavour is caused by olives that have been stored for a long time on top of each other.
- ❖ Heating: This flavour is caused by oil that has got to too high a temperature during milling because of a fault.
- ❖ Rough: The flavour is derived from olive oil obtained from centrifugal mills and is usually bitter.
- ❖ Metallic taste: This flavour is caused by oil obtained with new mills first used in the season or oil that has been in contact with metal rust for a long time.

- ❖ Storage: A taste produced by high oil oxidation, which gives an unpleasant odour
- ❖ Spice: Taste caused by the oil remaining long with the turbidity in it.
- ❖ Mould: Taste produced by oil left for too long without disturbance.

Finally, for a high-quality virgin olive, it is necessary to perform all agricultural operations correctly and to follow the following recommendations:

1. The quality of olive oil depends mainly on the quality of the olive fruit, and therefore, trees must be cared for at all stages of the agricultural process.
2. Timely collection of fruits; Avoid harvesting fruits that are green or overripe.
3. To harvest fruits by hand or vibrating machines, and not to use chemical substances.
4. The fruit is transported immediately after harvesting to the mill, avoiding long-term storage, and if we have to store it for a short period, it is stored in good conditions.
5. If the fruit is unhealthy, it should not be stored, and it should be squeezed directly.
6. Separate the fallen and injured fruits from the intact fruits harvested from the trees, and squeeze each group separately.
7. Ensure the cleanliness of the mill and its equipment.
8. The removal of leaves from the crop
9. The fruit is well-washed before its time.
10. The use of stone quarries is preferable to metal quarries to avoid oil heating.
11. Ensure that olive paste is mixed for a sufficient period.
12. Avoid the temperature of the olive paste below 25°C.
13. The olive grove is clean.
14. In centrifugal mills, attention should be paid to the temperature of the water used, and the amount of water added to the dough should be within the necessary limit.
15. The centrifuges should not be overloaded. The quantity pumped to the apparatus should be less than the production capacity.
16. The oil should be separated from the impurities as soon as possible.
17. The oil shall be disposed of from impurities after being sorted by stagnation for at least 24 hours.
18. Store the oil in appropriate packs and places.