



MINI REVIEW

Table Olives & Our Health & Quality

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Abstract

Olive fruit is evaluated in two ways as table olive and olive oil. Olives are converted into table olive for consumption as table olive, harvested in their green, pink and black maturity periods and by using different processing techniques according to their types and maturity periods. There are different features of their own in all processing techniques applied to olives and these techniques create its own features in olive taste and aroma like in amount and characteristics of nutrients contained in the olives.

Table olives are probably the most popular fermented vegetable in the Western world, and cannot be told apart from the Mediterranean diet (together with olive oil). Consumers are accordingly turning their attention toward foods with health-promoting properties as promising tools in disease prevention and health maintenance.

Olive and olive oil have an important place in the Mediterranean Diet which is accepted as the healthiest eating form in the world. Nutritional benefits of table olives have been claimed to be associated with major and minor constituents, the concentration of which depend on the cultivar, the maturation state and the type of processing. Olive fruit contains significant amounts of functional compounds. Because of its oil as well as functional compounds and also being very rich in A, D, E, K vitamins, olive, is an important part of the Mediterranean diet. Because of these compounds, it is a food that should be taken prime in terms of human health.

Keywords: Table olive; Healthy; Quality; Producing.

Table Olive

Olive and olive oil have an important place in the Mediterranean Diet, which is accepted as the most healthy nutrition type in the World (Figure 1). Olive growing in the world has taken its source from the countries surrounding the Mediterranean basin. The olive tree, the symbol of the Mediterranean civilization, has found the best growing conditions in this region and olive cultivation has been an important factor in the establishment of various civilizations in this region. Olive and olive oil are typical elements of the Mediterranean diet, a very ancient past, and at the same time valuable foodstuffs in human nutrition. High quality natural olive oil is one of the basic constituents of human nutrition in terms of its chemical composition and its natural structure [1].

Olive fruit is evaluated in two forms, table olive and olive oil. Olives can not be consumed as they are harvested. Because olives contain only the phenolic component *oleuropein*, which is found only in the olive. The removal of this compound from the olive by means of various methods can only be consumed by the disintegration of the olive.

Table olives are defined as products obtained by pasteurization or sterilization, with or without lactic acid and / or other additives, with or without fermentation. Table olive technology enables olives to be edible by using appropriate production methods.

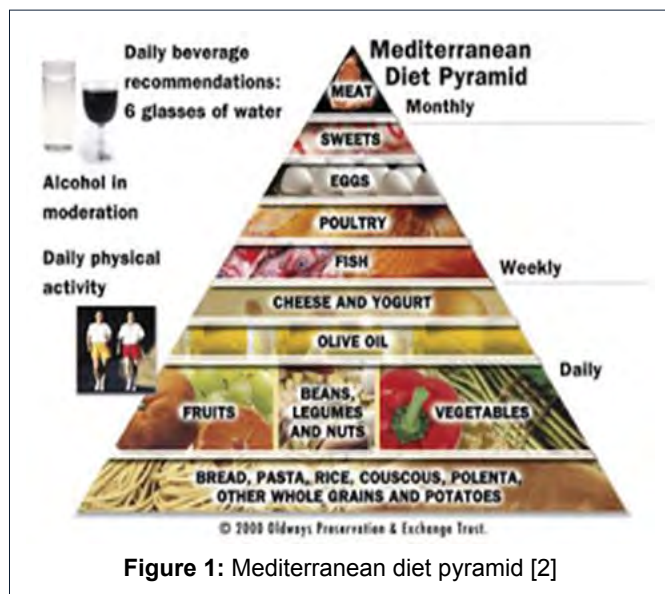
To harvest of olives is very important for the table olive technology. According to the processing method to be applied, the harvest time should be decided. Generally, olives are harvested in three different periods. These are black, green, and pink colours periods.

In general, there are two basic processing techniques in the industry. These are natural processing methods and chemical processing methods. Natural processing methods; Black olive processing methods such as brine, dry salted, and turning olive, for green olives such as split and cracked olives. Chemical processing methods are; Spanish style (cocktail, pickled) green, black oxidized olives such as; ripe olive, California or canned olive.

Interest in natural and organic products has increased considerably in recent years. Firms that realize their production in this direction also increased. In fact, the number of boutique-style enterprises that produce natural products at the same time as in the world is also increasing. The most important reason for this is consumers' desire to consume natural products, that is, products that are as pure as possible.

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Olive's Nutritional Value And Health

Olive is very rich in terms of nutritional value, and also the olive is a fruit that changes color and shape according to the variety. Protein, cellulose, sugar, minerals, hydrocarbons, phenolic compounds and tocopherols are also found in olive flesh structure [3]. Among these, phenolic compounds are found in trace amounts on the olive. They show antioxidant properties by protecting against oil oxidation especially besides beneficial for health. In addition, phenolic compounds play an important role in fruit color, flavor and nutritional value [4]. The chemical structure of the olive is shown in Table 1.

Olive is also rich in A, D, E and K vitamins because of the olive oil it contains. Olive oil, which is one of the inevitable flavors of breakfasts, is reported by many researchers to be a source of health, especially due to oleic acid in oil [5].

Table olives are especially rich in phenolic compounds. The phenolic substances in the olive are mainly phenolic glycosides such as oleuropein, verbascoside, ligrocyte and flavonoids, flavonol glycosides, anthocyanins and glycosides, phenolic acids and other components [6,7]. There is oleuropein substance on the olive, which is a compound specific to olive and olive oil, which gives a sense of bitterness. The predominant phenolic compound in fresh olive fruit is oleuropein. This phenolic compound is very bitter and must be removed to make olive fruit palatable [8]. This is generally achieved through salt curing or alkaline hydrolysis. Phenolic compounds responsible for the sensation of bitterness, bitterness and bitter taste in the olive contribute to the formation of olive sensory properties. Olive, which is one of the indispensable parts of our meals in the morning, is becoming more healthy and dynamic because of the phenolic substances it contains. Phenol compounds are also important for health. It is known that the positive effects on the capillary circulation system are called vitamin P of certain period. It is debated that whether phenolic compounds are antimutagenic, anticarcinogenic, antimicrobial and antioxidative [9].

Chemical Structure of Olive	
% Water	50-70
% Fat	18-35
% Reducing sugar	2-6
% Total sugar	18
% Protein	1-3
% Mineral	1-5
% Cellulose	1,5-2
% Hydrocarbons	0,8-1
% Polifenoller	0,5-0,8
% Tokoferoller	0,3-0,8
% Fibre	1-3
% Saturated fatty acids	12-20
% Polyunsaturated fatty acids	5-18
% Monounsaturated fatty acid	60-80
% Phosphorus	0,02-0,25
% Potassium	0,5-3,4
% Sodium	0,01-0,20
% Calcium	0,02-0,20
% Magnesium	0,01-0,06
% Sulfur	0,01-0,13
Boron mg/kg	4-22
Copper mg/kg	0,3-5,8
Iron mg/kg	3-95
Manganese mg/kg	0,91-5,5
Zinc mg/kg	1,5-33,0

Table 1: Average Composition of Olives [7,10]

Phenolic substances are very common in nature as important components of natural products such as vegetables and fruits with over 4000 different varieties containing the benzene ring linked to the hydroxyl group. Oxidation reactions are as important in human physiology as they are in the food industry [11]. Phenolic compounds bind metallic ions. It removes the effects of free radicals known to neutralize oxygen, which helps aging and causes aging-related diseases. Free radicals are naturally occurring in the human body, highly active compounds, increasing in cigarette smoking and exposure to radiation. It is known that these radicals cause damage to lipids, proteins and DNA, leading to coronary heart diseases and cancer. Phenolic compounds are effective in reducing the risk of coronary heart disease by increasing the resistance of LDL proteins to oxidation [12-18]. It is important function to note that the adverse effects of oxidative metabolism can be cured by antioxidant-rich functional foods [14,19,20,]. Phenolic compounds among components called the Mediterranean diet are now more noteworthy. Because olives contain enough of these components, they are very valuable for human health.

Proteins from the basic constituents of table olives are important in terms of nutrition. The protein level of table olive is low (1 -3%), but nutritional quality is high due to the essential amino acids for adult people such as threonine, valine, leucine, isoleucine, phenylalanine and lysine, and for childrens such as arginine, histidine and tyrosine [21].

One of the basic components in olive composition is olive oil. Olive has 15-35% olive oil in its flesh. This oil is not in the form of an energy store. Fat is mostly found in the form of

lipoprotein, phospholipid and galactolipid. The oils that olive contains are good sources of essential fatty acids. It contains oleic acid, protects against colon, breast and skin cancer.

Olives are also a good source of fibre; their consumption contributes to the intake of dietary fiber, minerals and vitamins. Fibrous materials are useful for the intestinal system. It is stated that the fibrous materials contained in the olive reduce the problem of constipation.

The levels of vitamins in olive pulp are important; the dominant ones are (the water-soluble) ascorbic acid and thiamine; (the oil-soluble) tocopherols and carotenes are considered the most important lipid-soluble antioxidants in nature; they prevent lipid peroxidation, and α -tocopherol protects the body against free radical attacks, skin disorders, cancer and atherosclerosis [14]. Table olives are especially rich in tocopherols (Vit. E) and tocotrienols. These compounds play an important role in the antioxidant mechanism in human body. Antioxidants found in table olives have lifelong protective effects against cardiovascular diseases and cancer. Because of the vitamin E content required for the skin, it is stated that it prevents aging of the tissues and reduces the bad effects of aging on brain functions.

Vitamin D, which is contained in olive, plays an important role in the development of bones. For this reason, children in the era of early childhood, especially in the era of development, should consume olives regularly.

The mineral contents of food are gaining importance because of toxicological as well as their nutritional viewpoints. Dietary intake is considered to be the major supplier of these elements for the body [22]. The mineral composition of table olives depends significantly on the cultivars and the method of preparation. In general, it would appear that the processing technique has a greater effect on the macro-minerals than the micro-minerals [6]. For olive in brined products, Na is the most abundant element, but olives are also a good source of Ca, K, Mg and P. Levels of Fe are also high in ripe olives (because of adding the ferrous gluconate or lactate), but relatively low in green and directly brined ones, whereas such microelements as Cu, Zn, Se and Mn appear at levels similar to other plants [6,9,12]. Important minerals are present in the olive. Magnesium (Mg) uptake is known to be important in the calcification of bones and in the enzyme activities. Zinc (Zn) content is almost equivalent to the known onion. According to the relationship between the different elements, Ca / P ratio increases the absorption of calcium (Ca), making the table olive a favorite for influencing the calcification of the bones. Ca / Mg ratio is similar to other vegetables. These associations are very important for body structure and especially for the neurological and muscular system. There appears to be a leaching of the minerals (such as phosphorus, potassium and magnesium) from the olives. The levels of calcium and sulfur remain almost the same. This may show that the calcium is mightily bound in the flesh and the sulfur is part of the sulfur amino acid methionine [6].

The olive, which grows widely in the Mediterranean countries due to the sun and mild weather conditions, is also indispensable for Mediterranean cuisine. As is known, nearly all of the olive trees in the world (98%) are grown in Mediterranean countries. Epidemiological studies suggest that people living in Mediterranean countries have lower rates of coronary heart disease and some types of cancer. Based on this finding, experts have reported that Mediterranean dietary type feeding can be important for long and healthy living. In addition to nutrients such as fruits, vegetables and grains in the Mediterranean diet, antioxidant-effective phenolic compounds and vitamins in wine consumed in reasonable quantities have been confirmed by various scientific studies.

Factors Affecting Quality in Table Olive Production

It is very important that healthy olives come from the garden. Olive garden should be planned according to table olive production. Thus, we can obtain large olives, beautiful colors, solid grains suitable for table olive production. Thus, both producers and industrialists will be happy. Consumers will be able to consume healthier table olives.

For healthy and quality products, farmers need Good Agricultural Practices (GAP) at table olive garden. It is necessary to apply good farming practices consciously in order to be transformed from a productive point of view into a healthy and quality end product.

First of all, the harvesting time should be well determined. The harvesting time should be determined according to the processing method. Olives should be transported in 25 kg baskets. It should be processed as fast as possible. Otherwise, structural defects occur during standby. Thus, flavor can be deteriorated.

Effective harvesting is one of the important factors determining quality in terms of table olive technology. Harvest time varies for almost every method applied in table olive technology. The product characteristics that are thought to be produced determine the time of the harvest. For example, when the olive production is planned, the green period is generally preferred for olive varieties such as Gemlik, Memecik, Çekişte or Eşek. However, in the green-yellow maturity period, which is a more mature period in Ayvalık and Domat varieties, can be preferred. When black olives are considered, harvest time for natural brined black olives is generally the period when the shell is completely black and the meat is colored until half. However, full mature olives are evaluated in the dry salted processing method.

In the processing, hygiene rules must be strictly followed. Good Manufacturing Practice (GMP) must be strictly observed. GMP is a system for ensuring that products are consistently produced and controlled according to quality standards. fermentation and preservation conditions should be frequently controlled in the production of table olives. pH, acidity and salt level controls should be done regularly.

Consequently, quality starts at the planning stage so that;

appropriate varieties relevant to processing method, style and consumer preference are used; olives selected for table olive processing are produced by using Good Agricultural Practices (GAP); processing is guided by the principles of Good Manufacturing Practice (GMP) according to product specifications, controlled methods and the use of potable water and food grade ingredients; and premises, and equipment and personnel should comply with Good Hygienic Practices (GHP) [6].

The main drivers for consumer preference for table olives are price, brand image, availability, and fulfillment of the need. However, the raw material, stage of maturity, agro-climatic conditions, processing technology, microorganisms used in fermentation, and sensory characteristics of the final product are also effective.

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