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BOOK of SPECIFICATION

GEMLİK ZEYTİNİ

COMPETENT AUTHORITY

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APPLICANT

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Gemlik Commodity Exchange (GTB) was established in 1984 and has 207 members.

GTB is the public legal entity that established to engage in the sale and registration of the items included in the commodity exchange and the determination, registration and announcement of their prices on the commodity exchange market. GTB supports the efforts of its members to protect product quality and acts as facilitator for the members marketing and promotional activities.

The member composition of the GTB is; Gemlik olive producer cooperatives and unions, processors, traders, exporters, warehouses and packers.

1. NAME OF THE PRODUCT

“Gemlik Zeytini”

(In English its translation is “Gemlik Olive”)

2. DESCRIPTION of the PRODUCT

“Gemlik Zeytini” is a table olive that formed a whole olive with a colour from claret red, darkish brown to black, characterized by thin skin, thick flesh and small and roundish stone. The olive is neither crushed nor damaged. Free from foreign materials, odours or insects. Defects are not tolerated for the olives.

The flesh is smooth, moist and highly aromatized, it easily separates from the stone.

Flesh/stone weight ratio is between 6/1 and 7/1.

“Gemlik Zeytini” skin is thin and adhering to the flesh.

“Gemlik zeytini” is small to medium in size. The size of the olives range between 201 – 410 fruits per kilogram.

“Gemlik zeytini” has high oil content between 28 – 35%. Due to this feature, olives are enabled processing both as table olive and olive oil.

The salt content of olives is important for the taste, salt content shouldn't mask the natural aroma of the olives.

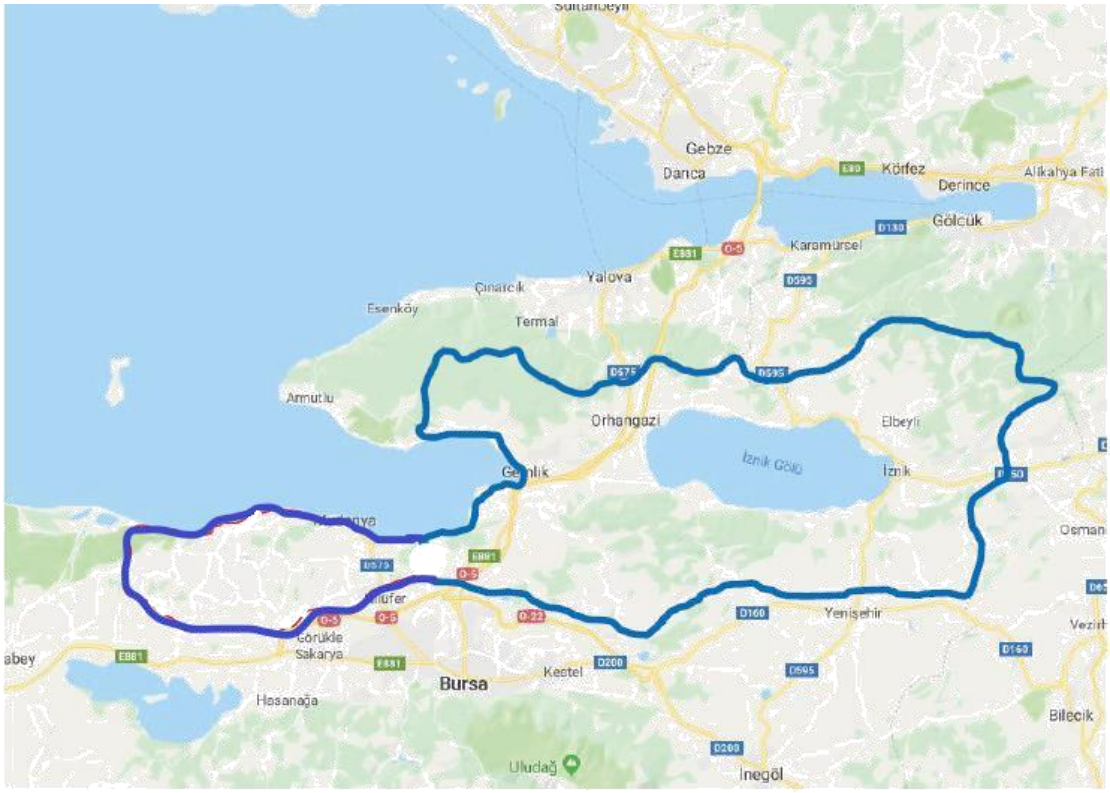
Olive size	: Maximum 410 fruits/kg
Salt Ratio (NaCl)	: Maximum 14% (in brine basin/tank) Maximum 8% for pickled olives (in package brine) Maximum 4% for natural fermented olives (in package brine)
Odour	: Except for the natural odour of olives, it will not contain any foreign smell.
Texture	: Olive fruits shall be firm and measure by olive penetrometer. It is expected to be in a range between 8 – 14 kg/cm^2.

There should be no visible foreign matter and harmless foreign substances (broken olive stems and leaves etc.) should be maximum 3 pieces in 1 kg. The difference between the smallest olive and the largest olive should be maximum 4 mm.

3. DEFINITION of the GEOGRAPHICAL AREA

The delimited geographical area for the production of “Gemlik zeytini” is; Gemlik, İznik Orhangazi and Mudanya districts of Bursa province, located in southern Marmara region of Turkey. The production of unprocessed olives, processing and the packing shall take place in the delimited geographical area.





4. EVIDENCE PROVING THAT THE PRODUCT COMES FROM the GEOGRAPHICAL AREA

GTB is the responsible party to control and monitor geographical indication of “Gemlik Zeytini”. Any stakeholder willing to become involved in all or a part of the production, processing, packing or storing of the PDO product has to notify its activity to the GTB.

Stakeholder shall fill and sign an agreement with GTB that confirms to follow the rules of book of specification.

Traceability of the PDO product is doing with labels that integrated with hologram and Quick Response (QR) code. Labels should contain the logo of the PDO product and package amount should also appear below the QR code. In order to manage this process GTB has a special software program that works with stock control logic and keeps the record of the producers, traders and packers and enable to monitor PDO product.

Traceability is an important part of controlling the system. When a barcode scanner or smartphone reads the QR code, the name of the GTB, the name of the trader, and a specific E code with a number (e.g. E15, E42, etc.) that contains the list of suppliers (i.e. producers) can be seen.

Anyone who wants to sell “Gemlik Zeytini” that was procured and packaged within the geographical boundaries can use the labels (e.g. traders, packers, and retailers). If a trader/retailer, or any third party, wants to use a PDO label on its product’s package, he/she must sign an agreement with the GTB that commits to use of the label only for the appropriate quality standards of the PDO. The agreement contains several penal provisions such as warnings, prohibition, and compensation. The following steps are carried out after signing the agreement; the trader comes to GTB with a producer’s receipt, and subsequently earns the right to use the logo; the operator enters the producer’s information into the system; the system automatically deducts the amount of product

from the producer's total production; when the producer's receipts declared by the trader exceed the total production amount of the producer, the system gives an excess-production-amount warning, and labels for the overage are not given to the trader; and if everything is correct, labels are printed and delivered against a signature. The labels can then be used on a products' package.



The inspection body carries out the necessary audits on "Gemlik Zeytini" including physical and chemical characteristics. The commission takes legal action against the unlawful and illegal users of the geographical mark, and the inspection body carries out audits upon the complaints, doubts and when needed.

5. DESCRIPTION of the METHOD of OBTAINING the AGRICULTURAL PRODUCT or FOODSTUFF

5.1. Authorized varieties

The PDO "Gemlik Zeytini" is reserved to only the ripe fruits of *O. europaea L. "Gemlik"*, "Gemlik 21" and "Gemlik 27" varieties.

5.2. Origin of the plant

In case of new plantation, the genetic material must come from the delimited area.

5.3. Density of Plantation

Density of plantation varies according to the slope of the orchard. The plantation of olive trees should be a density equal or less than 25 trees per decare on low slope areas; 33 trees per decare on high slope areas.

5.4. Harvest

The olives are picked from the tree by hand, sticks or branch vibrated special equipment when they become fully ripe and black colour. In case using vibrated equipment, vibration speed should be very well adjusted in order to prevent any damage to the branches. Using of sticks is not recommended. Harvest begins at November and ends at the end of December.

5.5. Processing

There is 2 types of "Gemlik Zeytini" processing;

Processing into brine (pickled olives)

In the traditional "Gemlik Zeytini" process, the olives are harvested when the flesh of the fruit turns purple 2 mm deep to the stone. They are transferred to the processing facility. After size-grading and sorting, the olives are washed and put in concrete pools or polyethylene, polyester or fiberglass tanks. Tanks are filled with potable water (12% of total olive weight). Brine concentration is around 8 – 14% sea-salt. The olives are covered with boards and heavy stones (10 - 25% of total olive weight) to keep them submerged in brine during fermentation. As a result of the high osmotic pressure applied by the salt, olives are debittered and became consumable in 6-9 months. Aerated fermentation can also be used to speed up the fermentation process, shortening the fermentation period. Through this, the fermentation period takes around 5 months. During the fermentation, brine is replaced after salt and pH controls are done. The salinity in the tanks is checked every 2 or 3 days and salt is added if necessary. The goal of this application is to attain the shape that is slightly flat on both sides which is specially preferred by the consumer.

Processing into "sele" type olives

Harvested olives are salted and packed without water until its bitter juice drain off. Their skins become puckered from the weight of all the olives pressing in on each other. The skin of the olives become highly wrinkled. This kind of olives can consume in two different ways, one is as dry that is called as "kuru sele" (dry)", another is with adding some other vegetable oils that is called as "yağlı sele" (oily).

Harvested olives are washed, graded by size and salted and packed without water. Olives and salt (10%–14% salt of the total weight of olives) are placed into containers in alternate layers. This contact of olive fruit directly with salt enables the penetration of salt into the olive fruit easily. Once every 2-3 days the plastic containers are turned and rolled to increase the contact of olives with salt This phase takes at least 3 to 4 months. After de-bittering process, the skin of the olives become highly wrinkled.

5.6. Grading, Storage and Packing

Processed "Gemlik Zeytini" are graded by the number of fruits per kg; olives of 201 – 230 are graded as "X-Large (XL), 231-260 "Large" (L); 261-290 "Medium" (M); 291-320 "Small" (S); 321-350 "X-Small" (XS); 351-380 "2X Small" (2XS) and the last grade is 381-410 "3X Small" (3XS).

"Gemlik Zeytini" shall packed in tin, plastic, doypack, glass or vacuum containers for final consumers. Packed table olives can be stored in cool and clean area without impose any sunlight.

6. LINK to the GEOGRAPHICAL AREA

6.1. Specificity of the geographical area

Natural and human factors affect the specificity and quality of the "Gemlik Zeytini".

Olive plants require average temperature conditions of 15 – 20 °C during flowering and fruit ripening period and a minimum of 5 °C from ripening to harvest period. In addition, olive needs a certain cold period during the formation of the flower bud. Olives are very sensitive to low temperatures and will be damaged if the minimum daily temperature falls below -7°C.

The average daily temperature in the geographical is minimum 5.8 °C in January, and 6.8 °C in February which is very suitable for cooling period.

Bursa has a transitional climate and this climate makes it very suitable to grow good quality olives. Transitional climate shows the mix features of Mediterranean and Black Sea climate. It may be considered as a special corridor between Black Sea and Mediterranean in terms of climate.

The lowest average temperature is 16.9°C in May which is the flowering period and the lowest average temperature is 21.1 °C in the fruit ripening period. These temperature values are nearly optimum growing conditions for olive trees and gives high yield of olives.

Rainfall regime of Bursa is very suitable for olive growing. Especially rainfall in April (61.8 mm as an average of 1928 - 2021) promotes shoot growth of olive trees and provide higher yield per tree. Rainfall in September (43.7 mm as an average of 1928 - 2021) promotes bigger size and increase oil content of olives.

Average altitude of geographical area is 112 m from sea-level.

The soil composition is 63% clay-loam, 20% loam and 17% clay. It was determined that olive trees developed best in loamy and loamy soils. This type of soil retains water and makes it possible for olives trees to grow stronger roots to give higher yields. It is seen that the region has suitable soil characteristics in terms of olive cultivation. More than 60% of the total agricultural land is used for olive farming in Orhangazi, Gemlik, Mudanya and Iznik districts.

"Gemlik zeytini" have been cultivated and processed in Bursa province for a very long time. The climate characteristics that give Gemlik Olive its unique taste arise from the sheltered bays of Gemlik and Mudanya, and the fact that the Orhangazi and Iznik districts are both close to the bay and settled around the lake cause the olives grown and processed in these four districts to show similar quality characteristics. In addition, "Gemlik zeytini" produced in Gemlik and Mudanya districts have a reputation from very ancient times. As a result of the researches carried out in the Ottoman Archives, it was determined that olive was produced from these districts for the navy and palace during the Ottoman Empire and olive production was preserved during the Ottoman Empire due to the good taste and quality of the black table olives produced in Gemlik, Mudanya Iznik and Orhangazi districts. There are 107 records for the Gemlik district, 86 for the Mudanya district, 13 for the Orhangazi district and 11 for the Iznik district are now kept in the Ottoman archives.

6.2. Specificity of the product

The specificity of "Gemlik Zeytini" is linked to its;

- Thin skin which adheres strongly to the flesh
- Thick flesh. Flesh/stone weight ratio is between 6/1 and 7/1.

These characteristics are influenced by the *O. europaea L. "Gemlik"*, "*Gemlik 21*" and "*Gemlik 27*" varieties which been cultivated in the region for generations and the climate.

6.3. Causal link

"Gemlik Zeytini" gains its own characteristics from the geography, climate conditions and know-how in processing of the table olive that is developed over the years by the local

producers. *O. europaea L."Gemlik", "Gemlik 21" and "Gemlik 27"* varieties are well-adapted to the region and fruits of the varieties have some different character when it compared with other regions. The main reason of it is the altitude and the climate (temperature, rainfall and moisture) of the Gemlik, Iznik, Mudanya and Orhangazi districts.

Terpens (some aldehydic and dialdehydic compounds, which are related to bitter, pungent, and artichoke tastes in olives and olive oils) are discriminative for taste of PDO and non-PDO "Gemlik Zeytini". Main terpenes of Gemlik Zeytini are α-Cyclogeraniol (green and sweet) and (E,E)-α-Farnesene (woody). There is a 4.00 – 5.00 ppm chemical shift between Gemlik area and other areas. Olives from warmer regions and lower altitudes contained a higher amount of terpenes than those from cooler regions and higher altitudes. These compounds have a negative effect on the aroma of the table olive. "Gemlik Zeytini" cultivated in cooler region distinguished themselves from those cultivated in warmer regions that have higher terpene content.

7. REFERENCE to the CONTROL BODY

Name and address of the authorities or bodies verifying compliance with the provision of the specification [Article 11/*R.510*]

Control Body

Name : Gemlik Provincial Directorate of Ministry of Agriculture and Forestry
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