

## A RESEARCH ON RECENT DEVELOPMENTS AND DETERMINATION OF THE POTENTIAL OF OLIVE IN KILIS, TURKEY

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### Abstract

Kilis province has a rich olive biodiversity in the region of Mesopotamia where the olive's motherland is located. Kilis Yaglık olive, which is predominantly higher than the other olive varieties in the region, is heavily cultivated. Due to the well-adaptation to the region and high yielding oil properties, the olive orchards in the region are characterized by Kilis Yaglık even though the regions have almost no irrigation facilities in the cultivated areas. The Gemlik olive variety changed olive population pattern in the region due to its easy reproduction, shorter juvenility than Kilis Yaglık and unconscious agricultural policies. Olive is usually grown for oil purposes. The olive production area is 280.432 decares, which is grown as 266.092 decares for oil and 14.340 decares as a table olive. The share of olives in the vegetative production of Kilis province is approximately 25%. There are 36 olive oil factories. A total of 340 farmers also are doing organic farming 22.795 decares in the region. In this study, the situation and potential of the olive production in Kilis province are discussed.

**Keywords:** Olive, Kilis Yaglık, Organic olive oil, Olea oleaste

### INTRODUCTION

Olive, pepper, wheat, grape, barley and pistachios are cultivated in the existing agricultural areas in Kilis. The most grown product among the fruit products cultivated in Kilis province is olives. Kilis Yaglık olives, which is widely cultivated in Kilis, Gaziantep, Sanliurfa, Kahramanmaraş and Mardin and whose oil content rate is higher than other olive oil varieties, is an important variety for the region. It is a preferred type for the region due to the fact that it is well adapted and despite the fact that there is almost no irrigation in the cultivated areas. The olive population pattern in the region has changed due to the easy reproduction of Gemlik olive variety, its yielding earlier than Kilis Yaglık and dissemination regardless of the ability to adapt to the region unconsciously. It has been emphasized that the impact of global climate change on the world will increase gradually and especially on the Mediterranean basin where olive cultivation is carried out intensely. Day-to-day increase in the severity of drought in the region, lack of irrigation causes serious productivity and subsequently low quality. Therefore, despite the fact that the region's olive producers want to return to Kilis Yaglık olive, the failure to meet the demand for the supply of sapling.

Herewith the current study, we should also highlight that there are a few studies carried out in order to determine the biochemical, physiological and molecular responses and genetic variability of Kilis Yaglık (Ozkan et al., 2017; Cetinkaya, 2017; Cetinkaya et al., 2016; Cetinkaya and Kulak, 2016; Unver et al., 2016; Sakar et al., 2016; Beyaz and Ozturk, 2016; Kesen et al., 2014a-b; Bayrak et al., 2013; Kiralan et al., 2009; Toplu et al., 2009; Gozel et al., 2004; Ulas and Gezerel, 2004; Ergulen, 2000). It is important and worthy to note that more and specific researches are required on their growth and developments, tolerance against the changing environmental conditions, especially in response to the semi-arid and high temperature, which are main characteristics of the region. In this review, general situation and future recommendations are presented about the olives of the region.

### OVERALL STATUS OF OLIVE CULTIVATION IN KILIS PROVINCE

In the province, olives are usually cultivated for oil extraction purposes. Even though table oil production has increased in recent years, it has remained limited. As of 2017, as seen in Table1, while the number of olive-bearing trees for table oil in Kilis province is 181 thousand units, it is about 360 thousand for olive oil. When compared with other provinces where olive cultivation is performed in Turkey, Kilis is in second place after Aydın province in terms of olive tree density (Anonymous 2018). In terms of area, olive oil production area is approximately 18 times the table production area. Although the amount of production does not show a great fluctuation despite the periodicity in table

olives, there are great fluctuations in the production of olives according to years. Especially, increased temperatures in the region have affected the production adversely. As can be seen from the data, Kilis Yağlık olive type cultivated for oil is prone to periodicity (Anonymous 2018). Also due to the increase in drought in the last two years, there are years with no production. 2018 yield forecast seems to be low due to heavy rainfall and hail in the spring season, as well as the dry season of fruit season (Anonymous 2018b).

**Table1.** Fruit tree numbers for Table and Oil olives, production areas and production quantities by years in Kilis province.

	<b>Table Olives</b>	<b>Olive Oil</b>
	<b>Number Of Trees (Unit)</b>	<b>Number Of Trees (Unit)</b>
2013	97743	2765771
2014	100287	2787308
2015	168383	3577246
2016	168383	3589367
2017	181447	3596105
	<b>Area (decares)</b>	<b>Area (decares)</b>
2013	12164	258151
2014	12381	258084
2015	12381	263023
2016	12381	263924
2017	14340	266092
	<b>Production (Tons)</b>	<b>Production (Tons)</b>
2013	864	36437
2014	902	24993
2015	1805	41904
2016	993	20380
2017	867	9146

There are 36 olive oil factories in total in Kilis. Besides that, there is Kilis Province Organic Olive Producers Association. Currently, there are 340 members and 500 tons of annual organic olive oil production under the name of Kilizi in 22.795 decares of land.

#### **OLIVE GENETIC RESOURCES OF KILIS**

The upper Mesopotamian region, including the province of Kilis, is located in the homeland of olives. Olive, a symbol of Mediterranean culture is spread throughout the Mediterranean basin. *Olea oleaster*, the wild-type of olives in the province of Kilis, has a dense population in natural forest areas, especially along Kilis-Hatay road (Figure 1). Wild olive species are cultivated by the farmers of the region by grafting KilisYağlık type on these wild *Olea oleaster* olive species on inclined and arid regions that are not suitable for livestock feeding as well as for irrigation (Figure 2). Although it is laborious to cultivate fertile genotypes among wild species for breeders, it can be used as a rootstock against abiotic and biotic stress factors by benefiting from the survival characteristics of these wild species.



**Figure 1.** General view of wild olives in natural area



**Figure 2.** Use of *Olea oleaster* by farmers as rootstocks

In Kilis region, the most cultivated olive varieties Kilis Yağlık which has a tendency to periodicity. After Kilis Yağlık, Gemlik variety is the most cultivated olive, which is easier to supply, the yield is earlier than Kilis Yağlık. In addition, even if a small amount, Halhalı, Saurani, which is densely grown in the northern part of Syria, (Tubeileh et al. 2008), Nizip Yağlık and the Arbequina varieties, a Spanish variety that has recently increased its popularity, are being cultivated in the region. It has been reported that Kilis Yağlık, which has been cultivated in the region for a long time, has different genetic diversity in itself (Akansu 2008). Also, considering this rich genetic olive tree potential in Kilis, it has been reported that there are fertile types of Kilis Yağlık (Gözel 2011a).

## **CURRENT PROBLEMS OF OLIVE FARMING AND SOLUTIONS IN KILIS PROVINCE**

### **Current Problems**

Kilis olive oil cultivated in Kilis province is genetically prone to periodicity. In addition, environmental factors such as drought increase the severity of periodicity. Kilis Yağlık variety has a lower yield. Also, there is no homogenous fruit size and abundant in beady fruit (Mete and Çetin 2017). Compared to our other varieties in terms of oil content in Turkey, although it is high in oil content, the exact oil content and quality have not been revealed. When Kilis Yağlık compared to other varieties, rooting rate with steel is low (Gözel 2011b). For this reason, sapling production is low and in some years Kilis Yağlık saplings meet the demand. Kilis Yağlık olive tree growth is slow and the duration of youth infertility is long. As a result of incorrect agricultural policies, meeting it with Gemlik olive has led to a change in the production pattern. In addition, the region-specific olive oil profile began to change as a result of this. There are still problems in the harvest and pressing stages. Long waiting time in bags for squeezing causes heat and this leads to reductions in quality loss. Currently, still, large amounts of olive oil are sold in tins. Packaging and packing are not available in the quality in accordance with the standards. Although Kilis is in the Mediterranean region, olive oil consumption is low compared to other Mediterranean regions. Due to its geographical location and the problems in Syria, the olive oil market has contracted. Negative effects of climate change on Kilis olive cultivation, especially in recent years, increase its severity.

### **Solution proposals**

For Kilis, olive cultivation is an important agricultural income source. Especially in recent years, the closure of the border gates due to the war has made Kilis province more isolated. Since the industry has not been sufficiently developed, employment has been directed towards agricultural production. The region has important genetic potentials for olive cultivation. In our country, it should be given importance to the improvement work of Kilis Yağlık olives, which are well adapted to this region among the olive varieties cultivated for oil. It has been reported that there are fruitful varieties in the region (Gözel 2011b). More extensive studies are needed especially among Kilis Yağlık olives for identifying the types that are fruitful and have a relatively less tendency to periodicity. In the region, increase in the production of Gemlik olives, especially in the dry summer months, the fluctuation in yield is more severe. The wild olive, *Olea oleaster*, has a dense population in the region forests. Their adaptation to the environment is better. This property can be used as rootstock. From this genetic population, determination of genotypes, which are biotic stress resistant such as *Verticillium* and abiotic stress resistant such as drought, is important. It is recommended to use pollinator type to reduce beady fruit formation Kilis oil olive orchards (Mete and Çetin 2017). Harvest time for Kilis Yağlık olive is determined in December as "medium maturity" (Büyükgök and Gümüşkesen 2017). However, there is a

need for further studies on the harvest time and oil quality of Kilis Yağlık. It is also necessary to share these results with the farmers of the region. Agricultural pesticides in the region are not common and olive is relatively faster than other plants in transition to organic agriculture. It is thought that this would provide an advantage over other provinces in the olive oil market. Packaging is an important element in sales. Although there is an olive oil factory, there are hardly any packaging and bottling plants. Currently, still, olive oil sales are carried out in plastic bottles and tin. Kilis Yağlık olive oil is expressed as a spicy flavored variety in the sensory analysis (Büyükgök and Gümüşkesen 2017). Conducting studies to increase the quality of olive oil in Kilis and getting a geographical sign is important in terms of publicity.

## ACKNOWLEDGEMENTS

This work was supported in part by grants from Silkroad Development Agency (TRC1/15/GAPODZ-2/0008).

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