

The ins and outs of Olive Oil

Entering the supermarket aisle in which olive oil is stocked can be extremely confusing. There's virgin olive oil, extra-virgin olive oil, just plain olive oil, and refined olive oil. Since extra-virgin olive oil is ostensibly pure, can we assume that it is kosher without certification? And can we use just any oil to light our Chanukah menorahs? Rabbi Yirmiyahu Kaganoff reveals some slick maneuvering by oil manufacturers



Rabbi Yirmiyahu Kaganoff

In the days of Tanach and Chazal, olives and olive oil had many uses. The fruit was pickled and eaten. The oil was the first choice when one wanted clear, bright light; it was used extensively for *sicha*, as a massage or rubdown oil, which people smeared on their bodies on a regular basis; and it was even used as a depilatory. And, of course, olive oil was a staple in cuisine, used as salad oil, as a dip for one's bread, and as cooking oil.

Today, olives are grown primarily for salad oil and for healthful cooking oil, although some varieties are cultivated primarily for their value as table fruit. Olives are much lauded for their healthful properties. Numerous studies show that olive oil consumption reduces cholesterol, lowers blood pressure, helps prevent heart disease, and even reduces the risk of developing certain cancers. Olives contain many vitamins, essential fatty acids, antioxidants, and other nutrients.

I once had the occasion to ask a prominent nutritionist how much olive oil he recommends one consume daily. His response: "As much as you can get yourself to eat." When I pointed out that oil is fattening, he responded that the health benefits from consuming olive oil far offset any harm that may result from eating too much. He further noted that the body requires a certain amount of fat, and he contended that no harm would come to someone whose fat intake was predominantly olive oil.

This nutritionist's advice is currently being followed by an increasing number of people, which has created a tremendous increase in olive oil demand.

The vast majority of the world's olive crop grows in the countries bordering on the Mediterranean Sea. Italy is widely reputed to be the world's leading olive grower, and indeed it is the world's leading exporter of olive oil (although in fact, Spain is a larger producer of olive oil). Italians themselves consume so much olive oil that the country actually imports more olive oil than it exports. Nevertheless, quality olive oil production is often

associated with Italy, and many brand names reflect this. Certainly, Italian cuisine often makes use of premium olive oil, and the cultivation and production of quality olive oil is an important part of the Italian economy.

It should be noted that the product label indicates only where the oil was bottled, not where the olives were grown and crushed. Thus, olive oil produced in Tunisia or Greece is often labeled — perfectly legally — as "product of Italy." This happens when an Italian firm purchases oil in bulk from one of its Mediterranean neighbors and bottles the product in its own facility in Italy. But it would be illegal for this company to bottle the product on site outside Italy and sell it as "product of Italy."

Kashrus Concerns in the Olives

There are two theoretical halachic concerns that could apply to olives, even if they are grown outside of Israel. Like all fruits, olives that grow during the first three years from the planting of the tree are prohibited because of *orlah*, but in practical terms one need not be concerned about this, since the halachah is that *orlah* on fruits that grew outside Eretz Yisrael applies only when one knows for certain that the fruit is *orlah*. There is another theoretical concern as to whether the olives may be infested with insects, but this is not a common problem.

Olives that grow in Israel are more complicated, because they are governed by all the rules of the agricultural mitzvos, called the *mitzvos hateluyos baAretz*, which require the separating of *terumos* and *maasros* and also a closer monitoring of the possibilities of *orlah*. Of course, these require proper scrutiny by a supervising kashrus agency.

There are approximately seven hundred olive varieties, or cultivars, whose distinctive tastes and aromas are developed and marketed, just as distinctive varieties of fine wine are developed in viticulture. Specialty olive oil producers have mastered the methods whereby they breed, grow, and produce their oil. The

highest quality olive oil is produced by painstakingly harvesting the fruit by hand to assure that none is damaged, even though this method drives up the cost tremendously.

Olives for quality oils are milled within hours of when they are picked. This minimizes oxidation and enzymatic reactions, which leave unpleasant tastes and odors in the oil and decrease its taste and fragrant qualities. These bouquet oils, like vintage wines, compete among connoisseurs for their taste. These oils are the Rolls-Royces of the olive industry and are sold privately or in gourmet shops, similar to the way vintage wines are marketed.

It is interesting to note that there are many comparisons made between olives and grapes, and this also has halachic overtones. Both a vineyard and an olive orchard are called *kerem* in Tanach and Mishnaic Hebrew (see *Berachos* 35a). Wine and olive oil are the only derivatives of fruit offered with *korbanos* on the Mizbeiach. They both bear the halachic distinction of being fruit with a Torah requirement of separating *terumos* and *maasros*; and are the only fruits mentioned by the Mishnah and Gemara that may be squeezed for their product when they have *shmittah* or *terumah* sanctity.

There is an interesting technical difference between grapes and olives. Whereas grapes require much tending while they grow, to coax the vine to produce quality wine grapes, an olive tree requires far less attention to produce quality olives. The main effort required to produce quality olive oil is to harvest the olives exactly when they are ready and to crush them immediately without damaging them. Any significant delay causes a severe reduction in the quality of the oil extracted. This is reflected in halachah: when necessary, one may harvest and process olives on Chol HaMoed, when work is usually prohibited, because delay causes major loss (*Mishnah, Moed Katan* 11b).

While handpicked olives are great for producing the highest quality oils, the process is far too expensive for mass-produced



Photo: Yinon Fuchs

Highest quality olive oil is produced by painstakingly harvesting the fruit by hand to assure that none is damaged

oil. The industrial production of “extra-virgin olive oil” often harvests olives mechanically, which is more efficient for large-scale production in a modern country. In more primitive countries, olives slated for mass production are still often harvested by spreading a cloth below a tree and banging it with a stick that knocks off the olives. Interestingly, both the method of handpicking olives and of banging the trees are already discussed in the Mishnah in various contexts (see, for instance, *Negaim* 2:4).

From Olives to Oil

“The first pressing produces the best quality oil.”

I read this sentence in a manual on olive oil production, which immediately called to mind the comments of Chazal. When crushing olives to produce oil, only the very first oil is acceptable for the kindling of the Menorah in the Beis HaMikdash. The oil produced afterwards is suitable for use in the *menachos* (meal) offerings, but cannot be used for the Menorah, because only the best quality oil was suitable for the Menorah.

Olive oil producers classify the thousands of natural components of olives into three categories: (1) oil and oil-soluble nutrients; (2) water and water-soluble nutrients; (3) solids. The oil and oil-soluble nutrients are what comprises the oil. We want the oil-soluble parts to remain in the oil, because this is what gives quality oil its unique flavor and also adds to its nutrients. The water and water-soluble components, which are called the *fruit water*, need to be separated — as do the remaining solids, which, after all the liquids are removed, are called *pomace*. (Often the oil contains too high a percentage of natural acid to be tasty, which is an important factor that we will discuss shortly.)

The first step in separating the oil from the fruit water and the solids is to crush or grind the olives. In the time of the Gemara this was done by crushing the olives under the weight of huge wooden planks, approximately the size of our telephone poles. Most modern facilities use a steel piece of equipment called a hammer mill, which, true to its name, hammers the olives into a paste. A hammer mill is highly efficient at extracting a large amount of oil in the shortest possible time.

Some smaller family-operated businesses resist the hammer mill approach, contending that the heat generated by the friction of the steel hammers damages the product. Such operations still rely on stone mills to crush the olives. Oil produced in a hammer mill is usually greener than oil produced using the older methods, since more of the olive skin becomes pulverized and crushed into the oil. After the olives have been completely crushed, they form a paste, from which the olive oil will eventually be removed.

The paste is then stirred slowly, which causes the small droplets of oil to coagulate, making it easier to remove. The oil is then separated from the fruit water and the solids. The modern olive oil industry has several different technologies for doing this, none of which should involve any kashrus concerns.

Olive oil is almost unique among edible oils in that it can be consumed in crude form without refining. Almost all other edible oils — soy, canola, corn, cottonseed, peanut, palm, etc. — require extensive refining using heat and chemicals to make the oil palatable. Furthermore, leaving olive oil unrefined conserves most of its nutrients, whereas refining it often destroys them.

Incidentally, quality olive oil is not filtered, because filtering would remove taste and many nutrients. This is why it is a good sign if you have black residue at the bottom of an empty oil cruet. Had your oil had been filtered, it probably was not virgin oil to begin with, which would explain why no residue was left.

The pomace contains some olive oil. Removing that oil requires refining by use of chemical extracting agents, and the resultant product is not considered virgin oil. This refined oil can be — and is — sold as “olive oil” although some prefer that it be labeled “pomace oil.”

Refining olive oil (more than other edible oil) may be problematic from a kashrus perspective. Among the issues that arise are the introduction of nonkosher enzymes or other processing substances to aid the refining, and the risk that the steam or hot water used to heat

the equipment has become nonkosher from previous use with animal products. The kashrus issues are more significant when dealing with a plant that produces nonkosher products such as beef tallow, lard, or nonkosher fish oils. For these reasons, one should not use refined vegetable or olive oil without proper kosher certification.

Virgin Oil

What is virgin oil, and what is extra-virgin oil?

The oil produced by the methods described above is called virgin or cold-pressed oil. The term “cold-pressed” can have many meanings, but in common parlance it refers to oil extracted without using heat or chemicals in the process. But we must bear in mind that the terms “cold-pressed,” “virgin oil,” and “extra-virgin” actually have no legal meaning in some countries. In countries where these terms do carry legal significance, one can be prosecuted for marketing refined olive oil under the labels cold-pressed or virgin olive oil. In the United States, however, none of these terms have legal ramifications, and therefore selling refined oil as virgin olive oil is exempt from criminal and civil prosecution.

There are four categories of virgin oil: *extra-virgin*, *virgin*, *ordinary virgin*, and *virgin lamp oil*.

The Italian standard for *extra-virgin oil* is that its taste is excellent and it has no defects, and that the oil has an acid content of less than one percent. The lower the acid content, the better the taste. Extra-virgin oil is the Cadillac of the olive industry.

Virgin oil is not required to meet as high a standard for taste, but still has a positive taste profile, and contains acid content of up to 2 percent.

Never heard of *ordinary virgin oil*? There is a reason why: either its taste is considered inferior, or its acid content is greater than 2 percent. Usually, this oil undergoes further refining to remove the excess acid and make it more palatable. The resulting product can no longer be called virgin oil, but should be sold as “refined olive oil” or “olive oil” missing the adjective “virgin.” Technically, if the oil is exclusively refined olive oil, it may not be sold as “olive oil” without the word “refined” preceding it, but if it is a blend of “refined olive oil” and “ordinary virgin” oil it can be called “olive oil.” This is the type of olive oil that is used in canned sardines packed in olive oil.

Since refining the oil can create *kashrus* concerns, one should certainly not purchase what is marketed simply as

“olive oil” (or products packed in “olive oil”) without a reliable kosher supervision.

The most inferior category of cold-pressed or virgin oil is called *virgin lamp oil*, or sometimes by its Italian name, *lampante*. This is oil whose taste is considered inedible, and therefore will probably not be used for food, but more likely for kindling or other non-food use. This raises a very interesting observation, since the Torah was more concerned that the oil used for the Menorah in the Mishkan should be of the highest quality than it was with the quality of oil used to produce the *korbanos minchah*, the meal offerings. This curiosity is mentioned in the Midrash (*Midrash Tanchuma, Tetzaveh* 6): “In the custom of the world, if someone has bad oil, he kindles it, and his good oil he cooks with. In the *ohel moed* and the Mikdash, one did not do this. Only the purest oil went for lighting, and the second quality went for the *menachos*.”

Kashrus Concerns of Virgin Oil

Assuming that no refining or adulteration took place, virgin olive oil produced outside of Eretz Yisrael *should* pose no kashrus problems. It would be unheard of for the equipment to be used for any other product, and there should be no ingredients added to it at all, certainly no nonkosher ones. There is a slight possibility that if the oil is shipped in bulk that the oil could be stored or shipped in containers or ship holds that previously held nonkosher products, but the concern here is fairly minimal.

But that does not mean that you can just purchase any virgin olive oil without kosher certification. To understand why, we must first take note of the fact that virtually all cold-pressed olive oil is sold retail as extra-virgin, whereas industry experts contend that less than 10 percent of oil has less than one percent acid content, which means that there is not enough extra-virgin oil to go around. If less than 10 percent of all olive oil produced in the world is really extra-virgin olive oil, you might be wondering about the abundance of such olive oil in your local supermarket.

The answer appears to be that the standards mentioned above are the legal definitions *in Italy* for extra-virgin oil; in general, no one checks whether the oil is indeed has acid content this low and whether it matches the flavor profiles. And although the European Union did institute strict taste and aroma requirements for each grade of olive oil in 1991, and established tasting panels certified by the International Olive Oil

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Council, these tests are rarely performed.

For the kosher consumer, these concerns may not be a cause for worry, since even ordinary virgin oil should present no kashrus problems. But all this assumes that the virgin olive oil that is sold is what it is claimed to be — or at a minimum, cold-pressed olive oil. Apparently, however, adulterating or mislabeling olive oil is quite common. Virgin olive oil is costly and time-consuming to produce, far more valuable than other oils, and very easy to doctor.

Adulteration of olive oil is not a recent invention. The ancient Greeks al-

ready reported that there were unscrupulous oil merchants who mixed high-quality olive oil with cheaper substances like lard. The Gemara also mentions this concern: an opinion in the Gemara prohibits the use of unsupervised olive oil out of concern that it was contaminated with nonkosher products (*Avodah Zarah* 36a). This concern is also mentioned more than a thousand years later by the Rema, who discusses whether one need be concerned that a barrel of olive oil may have become contaminated with animal fat (*She'eilos U'Tshuvos HaRema* 53–54).

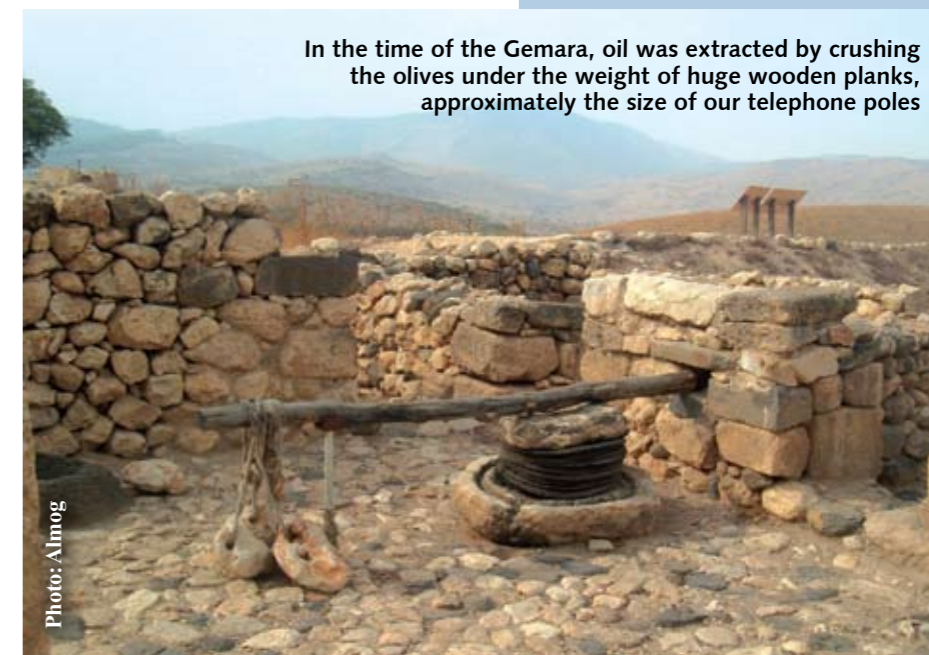
Adulteration is especially common in Italy, the world's leading importer, consumer, and exporter of olive oil. In February 2005, the Italian police broke up a criminal ring and confiscated a hundred thousand liters of bogus olive oil, with a street value of six million euros (about eight million dollars). The criminals colored low-grade soy oil and canola oil with industrial chlorophyll, flavored it with beta carotene, and packaged it in tins and bottles as extra-virgin olive oil. In March 2008, 400 Italian police officers conducted "Operation Golden Oil" in which they confiscated products from eighty-five farms after an investigation revealed that they were relabeling oils from other Mediterranean countries as Italian. In April 2008, another operation arrested forty people for adding chlorophyll to sunflower and soybean oil and selling it as extra-virgin olive oil; 25,000 liters of the fake oil were seized and prevented from being exported. There are also recorded instances of tankers containing loads of Turkish hazelnut oil and Argentinean sunflower-seed oil whose document of lading at sea was changed to read "olive oil."

It appears that these examples of fraud are not isolated incidents. Police in Italy have been quoted as saying, "The vast majority of fraud uncovered in the food-and-beverage sector involves virgin olive oil." Mashgichim who oversee production of olive oil told me that it is very common to find companies selling refined oil as virgin, or adding coloring and other ingredients to a product they are selling as extra-virgin oil.

The cases of fraud mentioned above were easily detected through chemical tests. However, more sophisticated scams take place at high-tech refineries, where the oil is doctored with substances like hazelnut oil and deodorized lampante olive oil. Since the finished product contains significant amounts of olive oil, this type of fraud is extremely difficult to detect by chemical analysis.

According to the information I gathered, it seems that different kashrus organizations follow deeply divergent standards as to what proof they consider sufficient that virgin olive oil is correctly labeled as such. Some treat all "extra-virgin olive oil" and "virgin olive oil" as products that they consider to always be kosher. In what I consider a Pollyanna approach, they insist that no one would dare sell adulterated virgin olive oil.

Others are more realistic. The OU's published standard is that they do not certify regular virgin or ordinary virgin olive oil as kosher without determining the source, but they do classify extra-virgin olive oil as "Group One" — the term the OU uses for a product considered reliably kosher regardless of its source, without requiring any other proof of its kashrus. Their reasoning is



In the time of the Gemara, oil was extracted by crushing the olives under the weight of huge wooden planks, approximately the size of our telephone poles

Photo: Almog

that although there is a long litany of adulterations and fraud, all have been with vegetable oils and other vegetable sources and none with nonkosher products. Although OU standards require supervision on all refined vegetable oils because of the many potential kashrus concerns involved, apparently the OU decision makers feel that they can permit unsupervised extra-virgin oil since it is only a question as to whether the oil is adulterated, and even if it was adulterated, it is highly unlikely that this created a kashrus problem *bedieved*, after the fact.

The Eidah HaChareidis, which provides supervision on cold-pressed olive oil from both Spain and Israel, informed me that for Pesach production they require a mashgiach present at the plant from the time of the pressing through the bottling, and for non-Pesach production they require a mashgiach to visit the plant frequently during the course of the production. All this is to guarantee that the product indeed has no kashrus concerns. The Eidah HaChareidis representative who oversees their overseas olive oil supervision told me that they have seen many instances of companies who adulterated their oil or had ingredients that could be used to adulterate oil. It is the Eidah HaChareidis policy not to provide supervision to any company once there is an indication that they might occasionally adulterate their product. ■

Nonedible Oils

Olive oil for kindling is usually refined from inferior oil not considered acceptable for human consumption. Is there any halachic problem with use of this oil for kindling Chanukah lights?

The earliest source that I found who discusses this issue is the Rashba, in his *Toras HaBayis* (*Bayis* IV, *Shaar* I, page 28), the work he wrote (as the title suggests) as a handbook for proper household mitzvah observance. In his discussion about kashrus, he mentions a case where someone discovered a mouse in the oil he had intended to use for food, and whether this oil can now be donated to illuminate a shul.

The Rashba compares this to the Talmudic discussion that results from the prophet Malachi's derisive rebuke (1:8): "And when they offer a blind animal as an offering, have they perpetrated no evil? And when they offer a lame or sick animal, is this not evil? And if they offered it to their idol, would he accept it or view it favorably?" We see from this verse that it is unacceptable to offer an inferior item in the Beis HaMikdash.

The Gemara then derives from this verse that one may not use inferior items for Kiddush, or to perform other mitzvos. The idea is that one should use better items for serving Hashem, not items for which one has no other use. The Pri Megadim (*Eishel Avraham* 154:19) specifically includes the oil one uses for *neir Chanukah* under this prohibition.

Returning to our mouse-in-the-cooking-oil, the Rashba concludes that if the oil is halachically not kosher, one may not use it to illuminate the shul, similar to the prohibition against use of a sick or otherwise inferior animal as a *korban*. However, if the oil is halachically permitted to eat, such as when the rodent parts can be filtered out, one may kindle this oil in shul. The rationale appears to be that one is not attempting to pawn off inferior items by using them for a sacred purpose, which is the despicable activity that Malachi decried. When one *could* use the item for oneself, but chooses not to, it is not despicable to use it for a mitzvah.

Other authorities prohibit lighting shul lamps with this contaminated oil even when it is halachically kosher and one could eat it (*Magen Avraham* 154:19, quoting several earlier authorities). These authorities contend that serving Hashem with an item that one personally considers disgusting is prohibited.

Based on the above discussion, a recent *psak* emerging from several authorities is that oil that one cannot or would not eat, either because of kashrus concerns or because of health concerns, may not be used for Chanukah lights. Oil sold for kindling is labeled "not for human consumption," or "for kindling only," either because the solvents or other chemicals used to extract or refine the oil are not food grade, or the oil was not necessarily prepared in the most sanitary environment. It would seem, then, that we are indeed required to purchase the far more expensive food-grade olive oil for the menorah.

But we may argue that in this case, the oil does not have a disgusting appearance, as opposed to Malachi's lame and blind animals, which the owner would be unable to use for work. The *Shulchan Aruch* (*Orach Chayim* 154:12) implies that it is a concern only if the oil appears to be disgusting: *If you found a mouse in the oil meant for synagogue use, if it is disgusting, one may not kindle it in the synagogue.*

The question of whether oil that is too bitter for consumption may be used for Chanukah lights was permitted by several authorities (*Ben Ish Chai*, *Vayeishev* 12; *Kaf HaChayim* 673:11). It seems to this author that our case is comparable to their ruling, and that it is permitted to purchase lamp oil for one's menorah.



For small, family-owned refineries, not much of the process has changed since ancient times