

# The Avocado Oil Fraud

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## STORY AT-A-GLANCE

- › A Food Control report warns that the purity and quality of avocado oil sold in the U.S. is questionable at best, and that standards to protect consumers and genuine producers are urgently needed
- › A majority of commercially available avocado oils labeled as “extra virgin” and “refined” were adulterated and of poor quality; 82% were found to have gone rancid before their expiration date
- › Three of 22 oils were not even avocado oil but most likely soybean oil
- › The low quality of avocado oil is likely due to improper or prolonged storage, using damaged or rotten fruits, and/or extreme and harsh processing
- › Health benefits of authentic avocado oil include anti-inflammatory effects, detoxification and enhanced collagen production

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The fact that most olive oils on the market are fraudulently diluted with less expensive (and more harmful) oils has been known for years. Now, a report<sup>1,2,3</sup> in the journal Food Control warns that the purity and quality of avocado oil sold in the U.S. is questionable at best, and that standards to protect consumers and genuine producers are urgently needed.

## Adulterated Avocado Oil Is Commonplace

According to the Food Control report,<sup>4</sup> a vast majority of commercially available avocado oils labeled as "extra virgin" and "refined" were in fact adulterated and of poor quality; 82% were found to have gone rancid before their expiration date.<sup>5</sup>

Three of 22 oils were not even avocado oil but something else entirely (likely soybean oil). Co-author Selina Wang told Olive Oil Times<sup>6</sup> that while she expected "some percentage of adulterants," she was shocked to find several cases of 100% adulteration. As noted in the report:<sup>7</sup>

*"This study analyzed avocado oils currently on the market in the US to evaluate their quality (e.g., free fatty acidity, peroxide value, UV absorbances, vitamin E) and purity (e.g., fatty acids, sterols, triacylglycerols).*

*Our results showed that the majority of commercial samples were oxidized before reaching the expiration date listed on the bottle. In addition, adulteration with soybean oil at levels near 100% was confirmed in two 'extra virgin' and one 'refined' sample."*

## How Purity and Quality Are Assessed

As explained in the Food Control report,<sup>8</sup> an oil is considered authentic and pure when no additives or other oils have been added, and when the content matches that listed on the label.

Quality includes consideration of the raw material (the quality of the avocado used), the extraction process used and storage, but is "mostly related to the level of hydrolysis of the fruit and oxidation of the oil." With this report, the authors have begun compiling a database "to support standards development for this industry."

In all, 22 avocado oil samples were obtained from six grocery stores and two online sources, covering the major brands and types of oils, which include extra

virgin/unrefined and refined. Countries of origin included California, Mexico, Brazil and Spain.

**“ The majority of the samples were of low quality ... This likely resulted from improper or prolonged storage, using damaged or rotten fruits, or extreme and harsh processing conditions. ”**

While previous researchers have proposed a healthy level of free fatty acidity (FFA) should be between 0.1% and 0.55% for refined avocado oils, three of the 22 samples had FFA values close to 2.5%. Extra virgin avocado oils had an FFA range between 0.03% and 2.69%, with an overall average of 1.31%.

According to the authors, these elevated FFA levels may be due to poor-quality fruit and/or poor handling during processing.<sup>9</sup>

*"Unhealthy fruits that are damaged, bruised, overripe, insect infested; prolonged time between harvest and processing; overheating during processing are all factors that can contribute to a rise in FFA," the authors note.*

To put this into an easier to understand perspective for you, I am sure you have opened an overripe avocado in the past to see the ripe green avocado color turn to very dark, nearly black. Can you imagine the entire avocado being black when you open it up and processing it and turning it into oil? Well, that is precisely what you do when you purchase rancid avocado oil.

## **High Oxidation Is Common**

When an oil is exposed to oxygen, peroxides and other oxidation products form, thereby giving the oil undesirable odors and flavors. While not as conspicuous as the FFA values, the trend toward high oxidation was also evident. In other words, many of the oils were rancid well before their "best by" date.

Extra virgin avocado oil had the highest oxidation values, which is expected, as the refining process removes peroxides. Still, many of the refined oils also had higher than expected peroxide levels. In fact, all but three samples were above Mexico's CODEX cap.

Not surprisingly, the three samples with the highest peroxide levels were stored in clear, rather than tinted, packaging. This makes sense, as tinted bottles protect against photooxidation.

Storage time also contributes to higher oxidation. The longer the oil sits, the more likely it is to be oxidized, so always be sure to check the best by date. Sadly, higher price does not guarantee quality, as the most expensive oil assessed in this review also had the highest peroxidation value.

## **Exaggerated Vitamin E Content Suggests Adulteration**

The vitamin E content was also measured, and exaggerated levels in some of the samples suggest adulteration with cheap soybean oil. As explained in the Food Control report:<sup>10</sup>

*"There are eight compounds that make up vitamin E content, four tocopherols ( $\alpha$ -tocopherol,  $\beta$ -tocopherol,  $\gamma$ -tocopherol,  $\delta$ -tocopherol) and four tocotrienols ...*

*This study shows multiple samples (EV3, EV6, R1, U4, U5, U6) had total tocopherol contents over 400 mg/kg, which is interesting as the highest documented total tocopherol content in literature, to our knowledge, is 282 mg/kg.*

*In particular, there are three samples with a notably high total tocopherol content, EV3, EV6 and U6 at 645.4 mg/kg, 906.2 mg/kg, and 692.9 mg/kg, respectively. These samples had significantly higher levels of gamma and delta tocopherols compared to the other samples in this study and to values seen in literature for avocado oils.*

*A study that reported on the tocopherol content in fruits and vegetables, showed soybean oil has similar tocopherol levels and distributions to those seen in EV3, EV6 and U6, therefore, it is possible these samples contain soybean or had soybean tocopherols added after processing for preservation."*

## **Industry Standards Are Urgently Needed**

The Food Control report is the first to demonstrate there are serious problems in the avocado oil industry. Just like olive oil, much of what's being sold is adulterated and of inferior quality. As concluded by the authors:<sup>11</sup>

*"The majority of the samples were of low quality with five of the seven oils labeled as 'extra virgin' having high FFA values and six of the nine 'refined' oils had high PV [peroxidation value]. FFA, PV, and specific extinction in UV data demonstrated that these oils have undergone lipolysis and oxidation, respectively.*

*This likely resulted from improper or prolonged storage, using damaged or rotten fruits, or extreme and harsh processing conditions. Extra virgin oils often are more expensive and distinguished from lower grades such as virgin or crude oils using the above quality parameters.*

*Adulteration with soybean oil was found in two samples labeled as 'extra virgin' avocado oil (EV3 and EV6) and one labeled as 'pure' avocado oil (U6).*

*Tocopherol, fatty acid, sterols, and TAGs data show this adulteration is occurring at or near 100% for all three samples. This not only is a potential health hazard for consumers but creates unfair competition in the market ...*

*In the case of samples EV3, EV6, and U6 the adulteration was confirmed in addition to the adulteration percent and adulterant oil. However, the need for standards is also demonstrated by the samples R1, U4, and U5.*

*The variance seen in their fatty acid, sterols, TAGs, and tocopherols profiles could be due to natural variance of the avocado fruits, processing conditions, or unnaturally, economic adulteration with high oleic sunflower or safflower oils."*

## **Benefits of Authentic Avocado Oil**

I personally have never used avocado oil as I typically avoid processed oils, with the exception of our own Solspring biodynamic olive oil. I think it is far better to eat the whole food. That is precisely what I do – I have half an avocado every day in each of my collagen protein powder smoothies.

As detailed in "An Avocado a Day Keeps the Doctor Away," avocados are loaded with healthy fats your body can easily use for energy. They're also rich in fiber, protein and essential vitamins and minerals such as B vitamins, potassium, folate and vitamin K, and have been shown to counteract metabolic syndrome.

Considering the excellent nutritional profile of avocados, it's no wonder avocado oil has risen in popularity in recent years. However, extracting the oil and putting it into a bottle allows plenty of opportunity for fraud, as the Food Control report demonstrates.

Unfortunately, the report does not specify the brands investigated, so it cannot be used as a guide when shopping. Provided you can actually find authentic avocado oil, it can be a very healthy addition to your diet. Health benefits of authentic avocado oil include:<sup>12,13,14</sup>

- Normalizing blood pressure, thanks to its high potassium and vitamin E content that supports healthy blood vessel function and combats free radicals<sup>15</sup>
- Anti-inflammatory effects, which help lower your risk of heart disease, arthritis and other inflammatory conditions<sup>16</sup>
- Detoxification, thanks to its high chlorophyll content (which is also a natural source of magnesium) and glutathione<sup>17</sup>
- Enhancing collagen production, thanks to vitamins A and D. High protein and amino acid levels also aids tissue regeneration and cellular renewal<sup>18</sup>

- Supporting healthy vision, thanks to the carotenoids lutein and zeaxanthin<sup>19</sup>

## Should You Cook With Avocado Oil?

Avocado oil is typically said to have a high smoke point, although just how high differs depending on the source. Masterclass.com cites it between 375 degrees Fahrenheit and 400 degrees F in one chart, while listing it at 480 degrees F for unrefined and 520 degrees F for refined in another.<sup>20</sup>

Australian researchers, meanwhile, cite a smoke point of about 386 degrees F (196.67 degrees Celsius plus or minus 0.577 degrees C).<sup>21</sup> Either way, the higher smoke point of avocado oil has been relied on by many for the recommendation to use it during high-heat cooking, baking and frying.

However, the Australian researchers present evidence suggesting this might not be such a good idea after all. The study,<sup>22</sup> published in 2018, assessed the correlation between various oils' smoke point and other chemical characteristics associated with stability and safety.

Importantly, they found that "smoke point does not predict oil performance when heated." Avocado oil was one of 10 cooking oils investigated. Paradoxically, they found that oils with higher smoke points, such as avocado oil, actually tended to produce higher levels of harmful compounds during heating – including trans fats.

For this reason, I don't recommend avocado oil for cooking. Chances are, you're better off using it cold. Without a doubt, your best alternatives for high-heat cooking, baking and frying include lard, grass fed butter and organic ghee. Coconut oil may also be a healthier alternative when cooking than avocado oil, as it's known to be quite stable at high temperatures. The Australian study appears to support this as well.

## Sources and References

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- <sup>7</sup> Food Control October 2020; 116: 107328, Abstract
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