

# AVOCADO OIL MONOGRAPH

*Persea americana* Mill.



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# Avocado

*Persea americana* Mill.



## BOTANICAL INFORMATION

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**Common names:** Avocado

**Scientific name:** *Persea americana* Mill.

**Synonym:** *P. gratissima* Gaertn.

**Botanical family:** Lauraceae

**Conservation status:** Least concern<sup>1</sup>

**Description:** Avocado is a broadleaf evergreen tree in the Lauraceae family native to Mexico, Central America, and South America. *Persea americana* typically grows 30-60 feet tall. Leaves are 4-8 inches long, elliptic-to-ovate, glossy, and dark green. Small greenish-yellow flowers are borne on panicles; green-skinned pear-shaped fruits succeed these flowers. Each fruit contains a large central seed or pit enveloped by an edible pulp. Mature fruits ripen off the tree, and the flesh turns buttery and yellow.

*P. americana* grows best in rich, loose, evenly moist, well-drained soils in full sun. The trees thrive in warm and sunny climates and are somewhat tolerant of light shade but not of frost.

Avocados are vitamin-rich and commonly eaten as a vegetable in salads and guacamole. The genus name comes to us from the Greek name *persea* for an Egyptian tree (*Cordia myxa*), and the specific epithet *americana* means “of the Americas.” The word avocado reportedly arises from the Aztec word for “testicles,” an apparent riff on the fruit’s shape.<sup>2</sup>

**Ethnobotany:** Avocados are a dietary staple across Mexico and Central America. According to archaeological records dating back to 8000 BCE, avocados are one of the most ancient food plants of Mexico.

Likewise, avocado leaves, seed oil, seeds, and fruit pulp, have a long history of traditional medicine use. A 16th-century codex describes avocado’s medicinal applications based on observations and interviews with indigenous Aztecs. Tea made from the leaves treated coughs and colds, relieved diarrhea, promoted menstrual flow, and treated hypertension. Topically, leaves were applied to heal bruises. The seed oil was used as an astringent treatment to heal sores, skin eruptions, and scars. The powdered seed was a topical remedy for infected teeth, dandruff, and arthritic pain. Both the Aztecs and the Maya through the avocado could affect reproductive health, whether to promote fertility or as an aphrodisiac. The avocado fruit was also eaten for spiritual protection.

In Nigeria, people eat avocado fruit pulp to ease hypertension, body aches, inflammation, and infection. They also eat the ground seed to treat dysentery and whitlows.<sup>3</sup>

## EXTRACTION INFORMATION

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**Country of origin:** Mexico, South America, United States, South Africa, and Austria

**Part of plant:** Fleshy fruit/pericarp of the fruit

**Oil content:** 25-50+%

**Extraction method:** Solvent extracted, Cold pressed

While most producers have used solvent extraction and high temperatures to extract avocado oil, recent, twenty-first-century producers have developed a cold-pressing process similar to that used in the production of olive oil.<sup>4</sup>

## MANUFACTURING INFORMATION

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**CAS number:** 8024-32-6

**EC number:** 232-428-0

**INCI Name:** Persea Gratissima (Avocado) Oil

**CosIng (functions):** Skin conditioning

## SHELF LIFE & STORAGE

**Shelf life:** *For unrefined avocado oil:* Once opened, 6-9 months dependent upon the storage conditions. Can add mixed tocopherols or vitamin E to elongate shelf life. *For refined avocado oil:* up to 12 months when stored correctly.

**Storage:** Store in cool/dark location. Protect from exposure to light, moisture and pests. Avoid extreme temperatures and keep tightly sealed.

## NUTRIENT PROFILE

<b>Nutrient Profile for Avocado Oil<sup>5,6,7,8,9</sup></b>	
<b>Saturated fatty acids</b>	
<b>Palmitic acid</b>	12.16 – 28.21%
Stearic acid	0.24 - 0.98%
Eicosanoic acid syn. Arachidic acid	0.07 - 0.18%
<b>Monounsaturated fatty acids (70 to 77 %)</b>	
<b>Oleic acid</b>	47.20 - 67.69 %
Palmitoleic acid (PA)	1.60 - 12%
Eicosenoic acid syn. gondoic acid	0.16 - 1.29%
<b>Polyunsaturated fatty acids</b>	
<b>Linoleic acid</b>	10.6 - 18.7%
Linolenic acid	0.72 - 2.14%
<b>Unsaponifiable fraction (0.4-12.2%)</b>	
<b>Phytosterols</b> 999.60 mg/kg of oil	b-sitosterol (822.9 mg/kg), campesterol (18.5 mg/kg), $\Delta$ -5-avenasterol (5.86-11.20 mg/kg), $\Delta$ -7-avenasterol (135.8 mg/kg), sitostanol (0.41-2.19 mg/kg), campestanol (0.04-0.43 mg/kg)
<b>Tocopherols</b> 36.73 - 130mg/kg of oil	alpha-tocopherol (36.73-103.11 mg/kg), $\gamma$ -tocopherol (nd-20.35+ mg/kg), b-tocopherol (0.82-1.57 mg/kg), $\delta$ -tocopherol (0.04-0.08 mg/kg)

## Formulating with Avocado Oil

**Sensory Info:** Dark green to light green to almost colorless, depending on the processing and refining process. The green color is due to large amounts of chlorophyll. The aroma is light nutty-like.

**Absorption rate:** The unrefined oil is dark green, viscous, is absorbed relatively quickly leaving a silky feel to skin. The refined is readily absorbed.

**Dilution:** Can be used 5-25% in a blend of other carrier oils.

### Research

- Dermal application of avocado oil increased collagen synthesis and reduced inflammation during wound healing.<sup>10,11</sup>
- Skin readily absorbs refined avocado oil.<sup>12</sup>
- Dermal application of avocado oil can reduce itchiness in skin.<sup>13</sup>

### Core indications

Avocado oil is well known for its antibacterial, anti-wrinkle, and healing properties. Revitalizing, emollient, and cell-regenerating, it is indicated for all skin types, especially post-menopausal, dry, dehydrated, fragile, or mature skin, or skin experiencing premature aging. Avocado oil is also helpful for dry eczema or psoriasis.

Repeated massage applications with avocado and sesame oils reveal an increase in hydration of the upper layers of the skin and an improvement in the skin's elastic properties.<sup>14</sup>

Avocado oil is an ingredient in a wide variety of skin creams and oils as it acts as an effective carrier of other supplements incapable of permeating the skin.<sup>15,16</sup>

**NOTE:** Crude or virgin oils have high chlorophyll contents and high amounts of other soluble pigments (carotenoids), giving it the oil's distinctive brown – green or emerald green color.<sup>17</sup> Consumers highly desire the virgin oil with high chlorophyll content due to the health benefits associated with these micronutrients. The high chlorophyll content makes the oil highly prone to oxidative effects upon exposure to light, and for this reason, must be packed in dark bottles.<sup>18,19</sup>

## References

- <sup>1</sup> Wegier, A., Lorea Hernández, F., Contreras, A., Tobón, W. & Mastretta-Yanes, A. 2017. *Persea americana* (errata version published in 2018). *The IUCN Red List of Threatened Species* 2017: e.T96986556A129765464. <https://dx.doi.org/10.2305/IUCN.UK.2017-3.RLTS.T96986556A96986588.en>. Downloaded on 13 November 2020.
- <sup>2</sup> Missouri Botanical Garden. (n.d.). *Persea americana*. Retrieved October 17, 2020, from <http://www.missouribotanicalgarden.org/PlantFinder/PlantFinderDetails.aspx?taxonid=281661>
- <sup>3</sup> Bauman, H., & Moyer, T. (2017). Food as medicine: Avocado (*Persea americana*, Lauraceae). *HerbalGram*, 14(6). [http://cms.herbalgram.org/heg/volume14/06June/FoodasMedicine\\_Avocado.html?ts=1602893385&signature=a5873a4f863a675fdde6646909ad74f4&ts=1602894230&signature=2b535607c14f574dda2b8ed0bf729bcc](http://cms.herbalgram.org/heg/volume14/06June/FoodasMedicine_Avocado.html?ts=1602893385&signature=a5873a4f863a675fdde6646909ad74f4&ts=1602894230&signature=2b535607c14f574dda2b8ed0bf729bcc)
- <sup>4</sup> Woolf, A., Wong, M., Eyres, L., McGhie, T., Lund, C., Olsson, S, Wang, Y., Bulley, C., Wang, M., Friel, E., & Requejo-Jackman, C. (2009). Avocado oil. In Moreau, R.A. & Kamal-Eldin, A. (Eds.), *Gourmet and health-promoting specialty oils* (pp. 73-125). AOCS Press. <https://doi.org/10.1016/B978-1-893997-97-4.50008-5>
- <sup>5</sup> Flores, M., Saravia, C., Vergara, C.E., Avila, F., Valdés, H., & Ortiz-Viedma, J. (2019). Avocado oil: Characteristics, properties, and applications. *Molecules*, 24(11), 2172. <https://doi.org/10.3390/molecules24112172>
- <sup>6</sup> Flores, M.A., Perez-Camino, M.D.C., Troca, J. (2014). Preliminary studies on composition, quality and oxidative stability of commercial avocado oil produced in Chile. *Journal of food science and engineering*, 4, 21-26.
- <sup>7</sup> Woolf, A., Wong, M., Eyres, L., McGhie, T., Lund, C., Olsson, S, Wang, Y., Bulley, C., Wang, M., Friel, E., & Requejo-Jackman, C. (2009). Avocado oil. In Moreau, R.A. & Kamal-Eldin, A. (Eds.), *Gourmet and health-promoting specialty oils* (pp. 73-125). AOCS Press. <https://doi.org/10.1016/B978-1-893997-97-4.50008-5>
- <sup>8</sup> de Oliveira A.P., Franco, E. de S., Barreto, R.R., Cordeiro, D.P., de Melo, R.G., de Aquino, C.M., E Silva, A.A.R., de Medeiros, P.L., da Silva, T.G., Góes, A.J., & Maia, M.B. Effect of semisolid formulation of *Persea americana* Mill (avocado) oil on wound healing in rats. *Evidence-based complementary and alternative medicine*, 2013. [doi: 10.1155/2013/472382](https://doi.org/10.1155/2013/472382).
- <sup>9</sup> Jorge, T.d.S., Polachini, T.C., Dias, L.S., Jorge, N. & Telis-Romero, J. (2015). Physiochemical and rheological characterization of avocado oils. *Ciência e agrotecnologia*, 39(4), 390-400. <https://doi.org/10.1590/S1413-70542015000400010>
- <sup>10</sup> de Oliveira A.P., Franco, E. de S., Barreto, R.R., Cordeiro, D.P., de Melo, R.G., de Aquino, C.M., E Silva, A.A.R., de Medeiros, P.L., da Silva, T.G., Góes, A.J., & Maia, M.B. Effect of semisolid formulation of *Persea americana* Mill (avocado) oil on wound healing in rats. *Evidence-based complementary and alternative medicine*, 2013. [doi: 10.1155/2013/472382](https://doi.org/10.1155/2013/472382).
- <sup>11</sup> Nayak, B.S., Raju, S.S., & Chalapathi Rao, A.V. (2008). Wound healing activity of *Persea americana* (avocado) fruit: a preclinical study on rats. *Journal of wound care*, 17(3), 123–126. <https://doi.org/10.12968/jowc.2008.17.3.28670>
- <sup>12</sup> Gunstone, F. (2005) Vegetable oils. In F. Shahidi (Ed.), *Bailey's industrial oils and fat products* (6<sup>th</sup> ed.). John Wiley & Sons, Inc.: United States.
- <sup>13</sup> Dweck, A. (2003). The role of natural ingredients in anti-aging of the skin. *Australian society of cosmetic chemists annual congress*. Retrieved from: [http://www.dweckdata.com/Lectures/ASCC\\_paper\\_2003.pdf](http://www.dweckdata.com/Lectures/ASCC_paper_2003.pdf)

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- <sup>14</sup> Kusmirek, J. (2002). *Liquid sunshine*. Foramicus: Glastonbury, England.
- <sup>15</sup> Kusmirek, J. (2002). *Liquid sunshine*. Foramicus: Glastonbury, England.
- <sup>16</sup> Finau, K.A. (2011). Literature review on avocado il for SROS technological purposes. *Scientific research organization of Samoa*. Retrieved from: [https://www.sros.org.ws/images/2018/SROS\\_Avocado-Oil\\_lit-review.pdf](https://www.sros.org.ws/images/2018/SROS_Avocado-Oil_lit-review.pdf)
- <sup>17</sup> Woolf, A., Wong, M., Eyres, L., McGhie, T., Lund, C., Olsson, S, Wang, Y., Bulley, C., Wang, M., Friel, E., & Requejo-Jackman, C. (2009). Avocado oil. In Moreau, R.A. & Kamal-Eldin, A. (Eds.), *Gourmet and health-promoting specialty oils* (pp. 73-125). AOCS Press. <https://doi.org/10.1016/B978-1-893997-97-4.50008-5>
- <sup>18</sup> Finau, K.A. (2011). Literature review on avocado il for SROS technological purposes. *Scientific research organization of Samoa*. Retrieved from: [https://www.sros.org.ws/images/2018/SROS\\_Avocado-Oil\\_lit-review.pdf](https://www.sros.org.ws/images/2018/SROS_Avocado-Oil_lit-review.pdf)
- <sup>19</sup> Woolf, A., Wong, M., Eyres, L., McGhie, T., Lund, C., Olsson, S, Wang, Y., Bulley, C., Wang, M., Friel, E., & Requejo-Jackman, C. (2009). Avocado oil. In Moreau, R.A. & Kamal-Eldin, A. (Eds.), *Gourmet and health-promoting specialty oils* (pp. 73-125). AOCS Press. <https://doi.org/10.1016/B978-1-893997-97-4.50008-5>