



Pistachio

The **pistachio** (/pi'staʃiou, -'stæʃ-/; UK also /pi'stætʃ(i)ou/; [2] *Pistacia vera*) is a small to medium-sized tree of the cashew family. The tree produces seeds that are widely consumed as food.^[3]

In 2022, world production of pistachios was one million tonnes, with the United States, Iran, and Turkey combined accounting for 88% of the total.

Description

The tree grows up to 10 metres (33 feet) tall. It has deciduous, pinnate leaves 10–20 centimetres (4–8 inches) long. The plants are dioecious, with separate male and female trees. The flowers are apetalous and unisexual and borne in panicles.^[4]

The fruit is a drupe, containing an elongated seed, which is the edible portion. The seed, commonly thought of as a nut, is a culinary nut, not a botanical nut. The fruit has a hard, cream-colored exterior shell. The seed has a mauve-colored skin and light green flesh, with a distinctive flavor. When the fruit ripens, the shell changes from green to an autumnal yellow/red and abruptly splits partly open. This is known as dehiscence and happens with an audible pop. Humans selected the trait of splitting open.^[5] Commercial cultivars vary in how consistently they split open.

Each mature pistachio tree averages around 50 kilograms (110 pounds) of seeds, or around 50,000 seeds, every two years.^[6]

Etymology

Pistachio is from late Middle English *pistace*, from Old French, superseded in the 16th century by forms from Italian *pistacchio*, via Latin from Greek πιστάκιον *pistákion*, and from Middle Persian *pistakē*.^[7]



Pistacia vera



Conservation status



Near Threatened (IUCN 3.1)^[1]

Scientific classification

Kingdom:	<u>Plantae</u>
Clade:	<u>Tracheophytes</u>
Clade:	<u>Angiosperms</u>
Clade:	<u>Eudicots</u>
Clade:	<u>Rosids</u>
Order:	<u>Sapindales</u>
Family:	<u>Anacardiaceae</u>
Genus:	<u>Pistacia</u>
Species:	<u><i>P. vera</i></u>

Binomial name

Pistacia vera

L.

Distribution and habitat

Pistachio is a desert plant and is highly tolerant of saline soil. It has been reported to grow well when irrigated with water having 3,000–4,000 ppm of soluble salts.^[8] Pistachio trees are fairly hardy in the right conditions and can survive temperatures ranging between -10°C (14°F) in winter and 48°C (118°F) in summer. They need a sunny position and well-drained soil. Pistachio trees do poorly in high humidity conditions and are susceptible to root rot in winter if they get too much water and the soil is not sufficiently free-draining.^[9] Long, hot summers are required for proper ripening of the fruit.



Pistachios growing in Iran in 2007. The fruits have not yet begun to open.



Leaves of the pistachio tree



Dormant pistachio trees, California

History

The pistachio tree is native to Iran and Central Asia.^{[11][12][13][14]}

Archaeological evidence shows that pistachio seeds were a common food as early as 6750 BCE.^[15] The earliest archeological evidence of pistachio consumption goes back to the Bronze Age Central Asia and comes from Djarkutan, modern Uzbekistan.^{[16][17]}

The Romans introduced pistachio trees from Asia to Europe in the first century AD. They are cultivated across Southern Europe and North Africa.^[18]

Theophrastus described it as a terebinth-like tree with almond-like nuts from Bactria.^[19]

It appears in Dioscorides' writings as *pistákia* (πιστάκια), recognizable as *P. vera* by its comparison to pine nuts.^[20]

Pliny the Elder wrote in his *Natural History* that *pistacia*, "well known among us", was one of the trees unique to Syria, and that the seed was introduced into Italy by the Roman proconsul in Syria, Lucius Vitellius the Elder (in office in 35 AD), and into Hispania at the same time by Flaccus Pompeius.^[21]

The manuscript *De observatione ciborum* (*On the Observance of Foods*) by Anthimus,^[22] from the early sixth century, implies that *pistacia* remained well-known in Europe in late antiquity.

An article on pistachio tree cultivation was brought down in Ibn al-'Awwam's 12th-century agricultural work, *Book on Agriculture*.^[23]

Archaeologists have found evidence from excavations at Jarmo in northeastern Iraq for the consumption of Atlantic pistachio.^[15]

The Hanging Gardens of Babylon were said to have contained pistachio trees during the reign of King Marduk-apla-iddina II about 700 BCE.^[15]

Diseases and environment

Pistachio trees are vulnerable to numerous diseases and infestation by insects such as *Leptoglossus clypealis* in North America.^[24] Among these is infection by the fungus *Botryosphaeria*, which causes panicle and shoot blight (symptoms include death of the flowers and young shoots), and can damage entire pistachio orchards.^[25] In 2004, the rapidly growing pistachio industry in California was threatened by panicle and shoot blight first discovered in 1984.^[26] In 2011, anthracnose fungus caused a sudden 50% loss in the Australian pistachio harvest.^[27] Several years of severe drought in Iran around 2008 to 2015 caused significant declines in production.^[28]

Commercial production

In 2022, world production of pistachios was one million tonnes (2.2 billion pounds), with the United States, Iran, and Turkey together accounting for 88% of the total (table). The state of California produces 98% of the pistachios grown in United States, with more than 485,000 acres devoted to the crop in 2020, mostly in the San Joaquin Valley, contributing \$5.2 billion to the state's economy.^[30] Fresno County alone accounted for about 40% of U.S. pistachio production in 2021, with a value of \$722 million.^[31]

Italy produces a small quantity of pistachios, with the *Pistacchio di Bronte* (pistachios from Bronte town) DOP-protected.^[32]

Pistachio production, 2022 (tonnes)

 United States	400,070
 Iran	241,669
 Turkey	239,289
 China	81,700
 Syria	45,467
World	1,026,803

Source: FAOSTAT
of the United Nations^[29]

History

In the 19th century, the pistachio was cultivated commercially in parts of the English-speaking world, including Australia and the United States, in the states of New Mexico^[8] and California, where it had been introduced as a garden tree in 1854.^[33]

In 1904 and 1905, David Fairchild of the United States Department of Agriculture introduced hardier cultivars to California collected from China, but it was not promoted as a commercial crop until 1929.^{[8][34]} Walter T. Swingle's pistachios from Syria had already fruited well at Niles, California, by 1917.^[35]

In 1969 and 1971, changes to the tax code in the United States eliminated tax shelters for almonds and citrus fruits. That encouraged California farmers to plant pistachio trees because they were still eligible for such tax breaks. In 1972, the Shah of Iran began a school breakfast program that included packets of pistachios. This resulted in a decline in pistachio exports from Iran, resulting in increased prices in other countries and additional incentives to plant pistachio trees in California.^[36] The first commercial pistachio harvest in California took place in 1976.^[37] The Shah was forced into exile in January 1979 during the Iranian Revolution, resulting in an end to trade between the United States and Iran, providing additional incentives for American farmers to plant dramatically more pistachio trees.^[36]

By 2008, U.S. pistachio production rivaled that of Iran. Drought and cold weather in Iran led to severe declines in production, while U.S. production was increasing. At that time, pistachios were Iran's second-most important export product, after the oil and gas sector.^[38]

By 2020, there were 150,000 pistachio farmers in Iran, approximately 70% of whom were small-scale producers using inefficient manual picking and processing techniques. There were 950 far larger U.S. producers, using highly efficient mechanized production techniques. The U.S. and Iran control 70% of the world export market, with the U.S. in the lead. Worldwide demand exceeds production, so both countries can sell to various export markets.^[37]

Toxicity

As with other tree seeds, aflatoxin is found in poorly harvested or processed pistachios. Aflatoxins are potent carcinogenic chemicals produced by molds such as *Aspergillus flavus* and *A. parasiticus*. The mold contamination may occur from soil or poor storage and be spread by pests. High levels of mold growth typically appear as gray to black filament-like growth. Eating mold-infected and aflatoxin-contaminated pistachios is unsafe.^[39] Aflatoxin contamination is a frequent risk, particularly in warmer and humid environments. Food contaminated with aflatoxins has caused frequent outbreaks of acute illnesses in parts of the world. In some cases, such as in Kenya, this has led to several deaths.^[40]

Pistachio shells typically split naturally before harvest, with a hull covering the intact seeds. The hull protects the kernel from invasion by molds and insects, but this hull protection can be damaged in the orchard by poor orchard management practices, by birds, or after harvest, which makes exposure to contamination much easier. Some pistachios undergo a so-called "early split", wherein both the hull and the shell split. Damage or early splits can lead to aflatoxin contamination.^[41] In some cases, a harvest may be treated to keep contamination below strict food safety thresholds; in other cases, an entire batch of pistachios must be destroyed because of aflatoxin contamination.

Like other members of the family *Anacardiaceae* (which includes poison ivy, sumac, mango, and cashew), pistachios contain urushiol, an irritant that can cause allergic reactions.^[42]

Large quantities of pistachios are self-heating in the presence of moisture due to their high oil content in addition to naturally occurring lipases, and can spontaneously combust if stored with a combustible fabric such as jute.^[43]



Pistachio Turkish delight

Uses

The kernels are often eaten whole, either fresh or roasted and salted, and are also used in pistachio ice cream, traditional Persian ice cream, kulfi, spumoni, pistachio butter,^{[44][45]} pistachio paste,^[46] and confections such as baklava, pistachio chocolate,^[47] pistachio halva,^[48] pistachio lokum or biscotti, and cold cuts such as mortadella. Americans make pistachio salad, which includes fresh pistachios or pistachio pudding, whipped cream, and canned fruit.^[49] Indian cooking uses pounded pistachios with grilled meats, and in pulao rice dishes.

The shell of the pistachio is naturally a beige color, but it may be dyed red or green in commercial pistachios. Originally, dye was applied to hide stains on the shells caused when the nuts were picked by hand.^[50] In the 21st century, most pistachios are harvested by machine and the shells remain unstained.^[50]

Nutrition

Raw pistachios are 4% water, 45% fat, 28% carbohydrates, and 20% protein (table). In a 100-gram reference amount, pistachios provide 2,351 kilojoules (562 kcal) of food energy. They are a rich source (20% or more of the Daily Value or DV) of protein, dietary fiber, several dietary minerals, and the B vitamins thiamin (73% DV) and vitamin B₆ (100% DV) (table). Pistachios are a moderate source (10–19% DV) of riboflavin, vitamin B₅, folate, vitamin E, and vitamin K (table).

The fat profile of raw pistachios consists mainly of monounsaturated fats and polyunsaturated fats, with a small amount of saturated fats (table). Saturated fatty acids include palmitic acid (10% of total) and stearic acid (2%) (table). Oleic acid is the most common monounsaturated fatty acid (52% of total fat). and linoleic acid, a polyunsaturated fatty acid, is 30% of total fat. Relative to other tree nuts, pistachios have a lower amount of fat and food energy, but higher

Pistachio nuts, raw	
Nutritional value per 100 g (3.5 oz)	
Energy	2,351 kJ (562 kcal)
Carbohydrates	27.51 g
Sugars	7.66 g
Dietary fiber	10.3 g
Fat	45.39 g
Saturated	5.556 g
Monounsaturated	23.820 g
Polyunsaturated	13.744 g
Protein	20.27 g
Vitamins and minerals	
Other constituents	Quantity
Water	4 g
Link to USDA database entry (https://fdc.nal.usda.gov/food-details/170184/nutrients)	

amounts of potassium, vitamin K, γ -tocopherol, and certain phytochemicals such as carotenoids, and phytosterols.^{[53][54]}

[†]Percentages estimated using US recommendations for adults,^[51] except for potassium, which is estimated based on expert recommendation from the National Academies^[52]

Research and health effects

In July 2003, the United States Food and Drug Administration approved the first qualified health claim specific to consumption of seeds (including pistachios) to lower the risk of heart disease: "Scientific evidence suggests but does not prove that eating 1.5 ounces (42.5 g) per day of most nuts, such as pistachios, as part of a diet low in saturated fat and cholesterol may reduce the risk of heart disease".^[55] Although a typical serving of pistachios supplies substantial food energy (nutrition table), their consumption in normal amounts is not associated with weight gain or obesity.^[53]

One review found that pistachio consumption lowered blood pressure in persons without diabetes mellitus.^[56] A 2021 review found that pistachio consumption for three months or less significantly reduced triglyceride levels.^[57]

See also

- [List of culinary nuts](#)
- [Pistacia lentiscus](#)

References

1. Participants of the FFI/IUCN SSC Central Asian regional tree Red Listing workshop, Bishkek, Kyrgyzstan (11–13 July 2006) (2007). *Pistacia vera*. *The IUCN Red List of Threatened Species* 2007: e.T63497A12670823. doi:10.2305/IUCN.UK.2007.RLTS.T63497A12670823.en (<https://doi.org/10.2305%2FIUCN.UK.2007.RLTS.T63497A12670823.en>)
2. "Pistachio" (<https://web.archive.org/web/20200322182120/https://www.lexico.com/definition/pistachio>). *Lexico UK English Dictionary*. Oxford University Press. Archived from the original (<http://www.lexico.com/definition/Pistachio>) on 22 March 2020.
3. "pistachio" (<https://dictionary.cambridge.org/dictionary/english/pistachio>). *Cambridge Dictionary*. CUP. Retrieved 17 February 2024.
4. Considine, Douglas M.; Considine, Glenn D. (1995). *Van Nostrand's Scientific Encyclopedia* (8th ed.). Boston, MA s.l.: Springer US. p. 556. ISBN 978-1-4757-6918-0.
5. Towards a comprehensive documentation and use of Pistacia genetic diversity in Central and West Asia, North Africa and Europe (<http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.111.5856&rep=rep1&type=pdf#page=35>), Report of the IPGRI Workshop, 14–17 December 1998, Irbid, Jordan – S.Padulosi and A. Hadj-Hassan, editors
6. Nugent, Jeff; Julia Boniface (30 March 2005). "Pistachio Nuts" (https://books.google.com/books?id=40n-Z_8ihZMC&pg=PA41). *Permaculture Plants: A Selection*. Permanent Publications. p. 41. ISBN 978-1856230292.
7. "pistachio, n. & adj." (<https://dx.doi.org/10.1093/oed/7304444088>), *Oxford English Dictionary*, Oxford University Press, 2 March 2023, doi:10.1093/oed/7304444088 (<https://doi.org/10.1093%2F oed%2F7304444088>), retrieved 29 September 2024

8. Esteban Herrera (1997) *Growing pistachios in New Mexico*, New Mexico State University, Cooperative Extension Service, Circular 532 [1] (http://aces.nmsu.edu/pubs/_circulars/circ532.pdf) Archived (https://web.archive.org/web/20110720013543/http://aces.nmsu.edu/pubs/_circulars/circ532.pdf) 20 July 2011 at the Wayback Machine
9. Michailides, T.J. (October 2014). "Phytophthora Root and Crown Rot" (<https://ipm.ucanr.edu/agriculture/pistachio/phytophthora-root-and-crown-rot/#gsc.tab=0>). UCIPM. Retrieved 27 September 2024.
10. "Pistachio cultivation (translated)" (http://www.infoagro.com/frutas/frutos_secos/pistacho.htm). www.infoagro.com. 18 March 2019.
11. Marks, Gil (2010). *Encyclopedia of Jewish Food* (https://books.google.com/books?id=gFK_yx7Ps7cC&pg=PT1). HMH. ISBN 978-0544186316. "These pale green nuts covered with a papery skin grow on a small deciduous tree native to Persia, the area that still produces the best pistachios."
12. "Pistacia vera L. | Plants of the World Online | Kew Science" (<http://powo.science.kew.org/taxon/urn:lsid:ipni.org:names:70280-1>). *Plants of the World Online*. Retrieved 24 May 2019.
13. "Pistachio | Description, Uses, & Nutrition" (<https://www.britannica.com/plant/pistachio-plant>). *Encyclopedia Britannica*. Retrieved 24 May 2019. "The pistachio tree is believed to be indigenous to Iran."
14. V. Tavallali and M. Rahemi (2007). "Effects of Rootstock on Nutrient Acquisition by Leaf, Kernel and Quality of Pistachio (Pistacia vera L.)" (<https://web.archive.org/web/20190224061521/http://pdfs.semanticscholar.org/53e4/b0db43473510e6cbadb0b076bb77791f498a.pdf>) (PDF). *American-Eurasian J. Agric. & Environ. Sci.* **2** (3): 240–246. S2CID 7346114 (<https://api.semanticscholar.org/CorpusID:7346114>). Archived from the original (<http://pdfs.semanticscholar.org/53e4/b0db43473510e6cbadb0b076bb77791f498a.pdf>) (PDF) on 24 February 2019. "Native P. vera forests are located in north eastern part of Iran particularly in Sarakhs region. This native P. vera originates from cultivated pistachio trees in Iran [1]. P. mutica is a wild species indigenous to Iran that grows with almonds, oak, and other forest trees and is common to most Alpine regions."
15. "History and Agriculture of the Pistachio Nut" (<https://web.archive.org/web/20060708221932/http://www.ireco.lu/UK/pistachionut.html>). IRECO. Archived from the original (<http://www.ireco.lu/UK/pistachionut.html>) on 8 July 2006. Retrieved 27 February 2012.
16. D. T. Potts (21 May 2012). *A Companion to the Archaeology of the Ancient Near East, Volume 1* (https://books.google.com/books?id=7IK6I7oF_ccC&pg=PA199). John Wiley & Sons. p. 199. ISBN 978-1405189880.
17. Harlan Walker (1996). *Cooks and Other People* (<https://books.google.com/books?id=lpOqTUucwhUC&pg=PA84>). Oxford Symposium. p. 84. ISBN 978-0907325727.
18. Davidson (1999) *Oxford Companion to food*, Oxford University Press
19. Theophrastus; Arthur Hort (1916). *Enquiry into Plants*. Vol. 1. Translated by Sir Arthur Hort. London: William Heinemann. p. 317.
20. James Strong, ed. *Cyclopaedia of Biblical, Theological, and Ecclesiastical Literature*, s.v. "Nut".
21. Pliny's Natural History, xiii.10.5, xv.22.
22. Anthimi (1877). Valentin Rose (ed.). *Anthimi De observatione ciborum epistula ad Theudericum, regem Francorum* (<https://archive.org/details/anthimideobserv00anthgoog>) (in Latin). Leipzig: Benedictus Gotthelf Teubner. LCCN 34013844 (<https://lccn.loc.gov/34013844>). OCLC 882735061 (<https://search.worldcat.org/oclc/882735061>). OL 16829336M (<https://openlibrary.org/books/OL16829336M>). Wikidata Q130283165.
23. Ibn al-'Awwam, Yahyá (1864). *Le livre de l'agriculture d'Ibn-al-Awam (kitab-al-felahah)* (<https://archive.org/details/lelivredelagric00algoog/page/n14/mode/2up>) (in French). Translated by J.-J. Clement-Mullet. Paris: A. Franck. pp. 245–248 (ch. 7 – Article 14). OCLC 780050566 (<https://search.worldcat.org/oclc/780050566>). (pp. 245–248 (Article XIV))

24. Bolkan, Hasan (1 March 1984). "Leaf-footed bug implicated in pistachio epicarp lesion" (<https://web.archive.org/web/20220419102950/https://calag.ucanr.edu/archive/?article=ca.v038n03p16>). *California Agriculture*. **38**: 16–17. Archived from the original (<http://calag.ucanr.edu/archive/?article=ca.v038n03p16>) on 19 April 2022. Retrieved 2 August 2018.
25. Parfitt, D.E.; Arjmand, N.; Michailides, T.J. (July 2003). "Resistance to Botryosphaeria dothidea in pistachio" (<https://doi.org/10.21273/HORTSCI.38.4.529>). *HortScience*. **38** (4): 529. doi:10.21273/HORTSCI.38.4.529 (<https://doi.org/10.21273/HORTSCI.38.4.529>).
26. "California Pistachio Industry Threatened By Potentially Devastating Disease" (<https://www.sciencedaily.com/releases/2004/01/040112071931.htm>). *ScienceDaily*. 12 January 2004. Retrieved 9 March 2017.
27. Keim, Brandon (26 April 2011). "Australia Pistachio Disaster Hints at Agricultural Breakdown" (<http://www.wired.com/2011/04/pistachio-disease/>). *Wired Magazine-Science*. Retrieved 9 March 2017.
28. Erdbrink, Thomas (18 December 2015). "Scarred Riverbeds and Dead Pistachio Trees in a Parched Iran" (<https://www.nytimes.com/2015/12/19/world/middleeast/scarred-riverbeds-and-dead-pistachio-trees-in-a-parched-iran.html>). *The New York Times*. Retrieved 9 March 2017.
29. "Pistachio production in 2022, Crops/Regions/World list/Production Quantity/Year (pick lists)" (<http://www.fao.org/faostat/en/#data/QC>). UN Food and Agriculture Organization, Corporate Statistical Database (FAOSTAT). 2024. Retrieved 20 April 2024.
30. "How Much Is the Pistachio Industry's Economic Impact?" (<https://www.growingproduce.com/nuts/what-is-the-pistachio-industry-economic-impact-try-10000-a-minute/>), *Growing Produce*; retrieved Sept. 9, 2025.
31. Fitchette, Todd (28 October 2022). "Fresno leads nation in almond, pistachio production: The county amassed a record value of just over \$8 billion last year" (<https://www.farmprogress.com/tre-e-nuts/fresno-leads-nation-in-almond-pistachio-production>). *Farm Progress*. Retrieved 21 February 2022.
32. "Pistacchio verde di Bronte" - La Denominazione di Origine Protetta" (https://www.bronteinsieme.it/4ec/pist_5dop.html).
33. Rieger, Mark (2012). "Pistachio – *pistacia vera*" (<https://archive.today/20141030171646/http://www.uga.edu/fruit/pistachio-pistacia-vera/>). *Mark's Fruit Crops*. University of Georgia. Archived from the original (<http://www.uga.edu/fruit/pistachio-pistacia-vera/>) on 30 October 2014. Retrieved 16 January 2023.
34. Fairchild, David (1938). *The World Was My Garden* (<https://archive.org/details/worldwasmygarden00fair>). New York: Charles Scribner's Sons. p. 174 (<https://archive.org/details/worldwasmygarden00fair/page/174>). ISBN 068684310X. ; Commissioner of Horticulture of the State of California, *Biennial report* 1905/06, vol. II:392.
35. Liberty Hyde Bailey, *Cyclopedia of American Agriculture: II. Crops*, 1917, s.v."Importance of plant introduction" p.
36. Blackburn, Mark (3 October 1979). "California Pistachios With Perfect Timing" (<https://nyti.ms/1H8I3ng>). *New York Times*. Retrieved 21 February 2023.
37. Durkin, Andrea (14 April 2020). "Pistachios: The Quirks of Agricultural Trade in a Nutshell" (<https://www.globaltrademag.com/pistachios-the-quirks-of-agricultural-trade-in-a-nutshell/>). *Global Trade*. Retrieved 21 February 2023.
38. Dahl, Frederick (8 October 2008). "Iran faces U.S. challenge in "pistachio war" " (<https://www.reuters.com/article/us-iran-pistachios/iran-faces-u-s-challenge-in-pistachio-war-idUSTRE49806E20081009>). *Reuters*. Retrieved 21 February 2023.

39. E. Boutrif (1998). "Prevention of aflatoxin in pistachios" (https://nootropicsfrontline.com/wp-content/uploads/2021/07/wiki_Prevention-of-aflatoxin-in-pistachios.pdf) (PDF). FAO, United Nations. Archived (https://ghostarchive.org/archive/20221009/https://nootropicsfrontline.com/wp-content/uploads/2021/07/wiki_Prevention-of-aflatoxin-in-pistachios.pdf) (PDF) from the original on 9 October 2022.
40. "Aflatoxins in pistachios" (http://ec.europa.eu/dgs/jrc/downloads/jrc_irmm_aflatoxins_leaflet.pdf) (PDF). European Union. 2008. Archived (https://ghostarchive.org/archive/20221009/http://ec.europa.eu/dgs/jrc/downloads/jrc_irmm_aflatoxins_leaflet.pdf) (PDF) from the original on 9 October 2022.
41. Doster and Michailides (1994). "Aspergillus Moulds and Aflatoxins in Pistachio Nuts in California". *Phytopathology*. **84** (6): 583–590. Bibcode:1994PhPat..84..583D (<https://ui.adsabs.harvard.edu/abs/1994PhPat..84..583D>). doi:[10.1094/phyto-84-583](https://doi.org/10.1094/phyto-84-583) (<https://doi.org/10.1094%2Fphyto-84-583>).
42. Mabberley, D. J. (1993). *The Plant Book* (<https://archive.org/details/plantbookportabl0000mabb/page/27>). Cambridge: Cambridge Univ. Press. p. 27 (<https://archive.org/details/plantbookportabl0000mabb/page/27>). ISBN 0521340608.
43. "Pistachio Nuts – RF Self-heating / Spontaneous combustion" (https://www.tis-gdv.de/tis_e/ware/nuesse/pistazie/pistazie.htm/#selbsterhitzung). tis-gdv.de. The German Insurance Association. Retrieved 5 November 2007.
44. Ardekani, A. S. H.; Shahedi, M.; Kabir, G. (2009). "Optimizing Formulation of Pistachio Butter Production" (<https://web.archive.org/web/20110819040318/http://journals.iut.ac.ir/emag/jstnar/eabsv13n47y2009p60.pdf>) (PDF). *Journal of Science and Technology of Agriculture and Natural Resources*. **13** (47): 49–59. Archived from the original (<http://journals.iut.ac.ir/emag/jstnar/eabsv13n47y2009p60.pdf>) (PDF) on 19 August 2011.
45. Ardakani; Shahedi, M.; Kabir, G. (2006). *Optimizing of the process of pistachio butter production* (https://web.archive.org/web/20130403192040/http://www.pubhort.org/actahort/books/726/726_94.htm). Acta Horticulturae. Vol. 726. pp. 565–568. Archived from the original (http://www.pubhort.org/actahort/books/726/726_94.htm) on 3 April 2013. Retrieved 4 May 2011.
46. Shakerardekani, A.; Karim, R.; Mohd Ghazali, H.; Chin, N. L. (2011). "Effect of roasting conditions on hardness, moisture content and colour of pistachio kernels" ([http://www.ifrj.upm.edu.my/18%20\(02\)%202011/\(35\)%20IFRJ-2010-286.pdf](http://www.ifrj.upm.edu.my/18%20(02)%202011/(35)%20IFRJ-2010-286.pdf)) (PDF). *International Food Research Journal*. **18**: 704–710.
47. Ardakani (2006). *The vital role of pistachio processing industries in development of Iran non-oil exports* (https://web.archive.org/web/20130403140403/http://www.pubhort.org/actahort/books/726/726_97.htm). Acta Horticulturae. Vol. 726. pp. 579–581. Archived from the original (http://www.pubhort.org/actahort/books/726/726_97.htm) on 3 April 2013. Retrieved 4 May 2011.
48. Shaker Ardakai, A.; Mir Damadiha, F.; Salehi, F.; Shahedi, M.; Kabir, G. H.; Javan Shah, A.; et al. (2007). "Pistachio Halva Production" (<https://web.archive.org/web/20181231143649/http://ags.fao.org/agris-search/search/display.do?f=2009%2FIR%2FIR0901.xml%3BIR2008001687>). Document Number: 29328. Iran Pistachio Research Institute. Archived from the original (<http://ags.fao.org/agris-search/search/display.do?f=2009%2FIR%2FIR0901.xml%3BIR2008001687>) on 31 December 2018. Retrieved 4 May 2011.
49. "Pistachio Salad" (<http://www.reciperesource.com/fgv/salads/18/rec1881.html>). RecipeSource. Retrieved 17 January 2011.
50. Spiegel, Alison (2 February 2015). "Remember Red Pistachios? Here's What Happened To Them" (https://www.huffpost.com/entry/what-are-red-pistachios_n_6570944). *The Huffington Post*. Archived (https://web.archive.org/web/20190916012043/https://www.huffpost.com/entry/what-are-red-pistachios_n_6570944) from the original on 16 September 2019. Retrieved 9 December 2023.

51. United States Food and Drug Administration (2024). "Daily Value on the Nutrition and Supplement Facts Labels" (<https://www.fda.gov/food/nutrition-facts-label/daily-value-nutrition-and-supplement-facts-labels>). FDA. Archived (<https://web.archive.org/web/20240327175201/https://www.fda.gov/food/nutrition-facts-label/daily-value-nutrition-and-supplement-facts-labels>) from the original on 27 March 2024. Retrieved 28 March 2024.
52. "TABLE 4-7 Comparison of Potassium Adequate Intakes Established in This Report to Potassium Adequate Intakes Established in the 2005 DRI Report" (https://www.ncbi.nlm.nih.gov/books/NBK545428/table/tab_4_7/). p. 120. In: Stallings, Virginia A.; Harrison, Meghan; Oria, Maria, eds. (2019). "Potassium: Dietary Reference Intakes for Adequacy". *Dietary Reference Intakes for Sodium and Potassium*. pp. 101–124. doi:[10.17226/25353](https://doi.org/10.17226/25353) (<https://doi.org/10.17226%2F25353>). ISBN 978-0-309-48834-1. PMID 30844154 (<https://pubmed.ncbi.nlm.nih.gov/30844154>). NCBI NBK545428 (<https://www.ncbi.nlm.nih.gov/books/NBK545428>).
53. Bulló, M; Juanola-Falgarona, M; Hernández-Alonso, P; Salas-Salvadó, J (April 2015). "Nutrition attributes and health effects of pistachio nuts" (<https://doi.org/10.1017/S0007114514003250>). *The British Journal of Nutrition* (Review). **113** (Supplement 2): S79–93. doi:[10.1017/S0007114514003250](https://doi.org/10.1017/S0007114514003250) (<https://doi.org/10.1017/S0007114514003250>). PMID 26148925 (<https://pubmed.ncbi.nlm.nih.gov/26148925>).
54. Dreher, ML (April 2012). "Pistachio nuts: composition and potential health benefits" (<https://doi.org/10.1111%2Fj.1753-4887.2011.00467.x>). *Nutrition Reviews* (Review). **70** (4): 234–240. doi:[10.1111/j.1753-4887.2011.00467.x](https://doi.org/10.1111/j.1753-4887.2011.00467.x) (<https://doi.org/10.1111%2Fj.1753-4887.2011.00467.x>). PMID 22458696 (<https://pubmed.ncbi.nlm.nih.gov/22458696>).
55. Office of Nutritional Products, Labeling and Dietary Supplements (23 July 2003). "Qualified Health Claims: Letter of Enforcement Discretion – Nuts and Coronary Heart Disease (Docket No 02P-0505)" (<https://web.archive.org/web/20080617172958/http://www.cfsan.fda.gov/~dms/qhcnuts2.html>). Center for Food Safety and Applied Nutrition. Archived from the original (<http://www.cfsan.fda.gov/~dms/qhcnuts2.html>) on 17 June 2008. Retrieved 17 June 2008.
56. Mohammadifard, N; Salehi-Abargouei, A; Salas-Salvadó, J; Guasch-Ferré, M; Humphries, K; Sarrafzadegan, N (May 2015). "The effect of tree nut, peanut, and soy nut consumption on blood pressure: a systematic review and meta-analysis of randomized controlled clinical trials" (<https://doi.org/10.3945%2Fajcn.114.091595>). *The American Journal of Clinical Nutrition* (Systematic Review & Meta-Analysis). **101** (5): 966–982. doi:[10.3945%2Fajcn.114.091595](https://doi.org/10.3945%2Fajcn.114.091595) (<https://doi.org/10.3945%2Fajcn.114.091595>). PMID 25809855 (<https://pubmed.ncbi.nlm.nih.gov/25809855>).
57. Muley, Arti (2021). "Effect of tree nuts on glycemic outcomes in adults with type 2 diabetes mellitus: a systematic review". *JBI Evidence Synthesis*. **19** (5): 966–1002. doi:[10.11124/JBISRIR-D-19-00397](https://doi.org/10.11124/JBISRIR-D-19-00397) (<https://doi.org/10.11124/JBISRIR-D-19-00397>). PMID 33141798 (<https://pubmed.ncbi.nlm.nih.gov/33141798>). S2CID 226250006 (<https://api.semanticscholar.org/CorpusID:226250006>).

External links

- Chisholm, Hugh, ed. (1911). "Pistachio Nut" (https://en.wikisource.org/wiki/1911_Encyclop%C3%A6dia_Britannica/Pistachio_Nut). *Encyclopædia Britannica* (11th ed.). Cambridge University Press.
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