

FICHE NUTRITIONNELLE

ALMOND



Apport calorique

600 kcal pour 100 g

12,50 g Fibres

9,51 g Glucides

22,60 g Protéines

0,96 mg Cuivre

22,30 mg Vitamine E

Dry product



DESCRIPTION

- The almond tree (*Prunus dulcis*, *Prunus amygdalus* var. *dulcis*, *Amygdalus communis*) belongs to the **Rosaceae** family.
- The United States harvests more than half of the world's almond production ([FAO, 2018](#)).
- The harvest of fresh (green) almonds takes place in September and October. Dry almonds are **available all year round** ([Les fruits et légumes frais](#)).

PHYSICAL AND ORGANOLEPTIC CHARACTERISTICS

- The bitterness of almonds depends on their amygdalin content. Amygdalin content varies from 2.16 to 157.44 mg/kg in sweet almonds and from 33 006.60 to 53 998.30 mg/kg in bitter almonds ([Lee, 2013](#)).
- When chewed, amygdalin breaks down into hydrogencyanide and benzaldehyde. While the latter is responsible for the « pure almond » aroma in synthetic oils and essences, hydrogencyanide, which is very present in bitter almonds, can be toxic to humans ([King, 2019](#)).
- The region in which the almond tree is grown may have an influence on the amygdalin concentration ([Lee, 2013](#)).

COMPOSITION CHARACTERISTICS (EXCLUDING MACRONUTRIENTS, VITAMINS AND MINERALS)

- The **fibres** contained in the almond skin, in its natural state or after being bleached, seem to have properties identical to fructo-oligosaccharides, namely a **prebiotic effect** on the bacterial strains found in the gut flora ([Mandalari, 2010](#)). The cell walls of the almond contain pectic substances, rich in arabinose, which may be at the origin of this prebiotic effect ([Mandalari, 2008](#)).
- Almonds are an important source of **polyphenols**.
 - Nine phenolic acids and nineteen flavonoids have been found in the whole almond. The main **polyphenol** is catechin, followed by chlorogenic acid and naringenin ([Čolić, 2017](#)).
 - The skin of the almond also contains a significant amount of **flavonoids**, mainly flavan-3-ols and flavonols ([Llorach, 2010](#)).
- **Consumption of 30 g of almonds per day** appears to be associated with health benefits. It is reported to help prevent **metabolic diseases** (control of blood sugar in diabetics, hyperuricemia and hyperlipidemia), reduce risk factors for **coronary heart disease** and improve the profile of the **gut microbiota** ([Diella, 2018](#)).
- Furthermore, a study has shown that natural (NS) and bleached (BS) almond skin extracts may have an inhibitory effect on herpes simplex virus1 (HSV-1) replication. Quercetin, epicatechin and catechin (polyphenols of the flavonoid family) are reportedly able to block the production of HSV-1 infectious particles. This capacity appears to be greater in NS extracts than in BS extracts ([Bisignano, 2017](#)).
- Rich in unsaturated fatty acids, including oleic acid, linoleic acid and palmitic acid, almond oil may be a potential therapeutic agent for colon cancer due to its **anticancer and anti-proliferative** effects (Merikli, 2017). However, the lipid profile of the almond is influenced by the region in which the almond tree is grown and is also variable depending on the cultivar (Sathe, 2008).
- Almond cultivars also differ in their volatile profiles, in their non-volatile metabolites (pyranosides, peptides, amino acids, etc.) and in their profiles of tocopherols, derivatives of vitamin E ([King, 2019](#)).

COMPOSITION ET ANALYSE NUTRITIONNELLE

DRY

The following values are approximate and depend on variety, season, ripeness, cultivation conditions, etc.
The energy content of almonds (with skin) is on average 600 kcal per 100 g, i.e. 2480 kJ. A **30 g serving** of almonds (around 24 almonds) provides about **180 calories (kcal), or 744 kJ**.

COMPOSITION TABLES

For each nutrient, these tables provide information on the content, minimum and maximum values per 100 g net of dry almonds (with skin), while the percentage of the Dietary Reference Values (DRVs) is calculated for a 30 g portion.

MACRONUTRIMENTS

Valeurs

Constituant (g)	Teneur moyenne	Min-Max pour 100 g	% VNR
Eau	4,80	3,2 - 12,40	-
Fibres	12,50	4,70 - 19,30	-
Glucides	9,51	-	1,10
<i>dont Sucres</i>	4,20	3,60 - 5,20	1,40
Lipides	51,30	36 - 57,40	21,99
<i>dont Acides Gras Saturés</i>	4,11	3,13 - 4,73	6,17
Protéines	22,60	3,90 - 30,70	13,56

Sources

Constituant (g)	Quantité	Min-Max	% VNR
Eau	Ciqua 2020	-	-
Fibres	Ciqua 2020	-	-
Glucides	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
<i>dont Sucres</i>	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Lipides	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011

Constituant (g)	Quantité	Min-Max	% VNR
<i>dont Acides Gras Saturés</i>	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Protéines	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011

Zoom on carbohydrates

- The carbohydrate content is 2.85 g for a 30 g serving, i.e. 9.51 g per 100 g, which is below the average content of nuts: approximately 18.13 g per 100 g.
- These include sucrose (4 g per 100 g) and glucose (0.20 g per 100 g).
- Almonds are **low in sugar*** (4.20 g per 100 g) as they contain no more than 5 g per 100 g.

Zoom on fibres

- Almonds are **source of fibre*** as they contain more than 1.5 g of fibre per 100 kcal of fruit.
- For a typical almond serving of about 30 g, the amount of fibre is 3.75 g.

Zoom on protein

- The protein content (22.60 g per 100 g) is well above the average value for nuts (16.73 g per 100 g). After peanuts, almonds are the nuts with the highest protein content, according to the Ciquel 2020 table.
- For a 30 g serving, almonds contain 6.78 g of protein.

Zoom on lipids

- Almonds are above all an important source of lipids (51.30%) and more particularly of unsaturated fatty acids (44.90% of total lipids).
- Oleic acid, linoleic acid, palmitic acid and stearic acid represent respectively 33.30%, 10.50%, 3.16% and 0.87% of the total lipids present in almonds
- The fat content is below the average value for nuts (41.27 g per 100 g).
- For a 30 g serving of almonds, the amount of fat is 15.30 g.

*Regulation (EC) No 1924/2006 of the European Parliament and of the Council of 20 December 2006 on nutrition and health claims made on foods.

MINÉRAUX ET OLIGO-ÉLÉMENTS

Valeurs

Constituant	Teneur moyenne	Min-Max pour 100 g	% VNR
Calcium (mg)	260	198 - 373	9,75

Constituant	Teneur moyenne	Min-Max pour 100 g	% VNR
Chlorure (mg)	-	-	-
Cuivre (mg)	0,96	0,10 - 1,57	28,80
Fer (mg)	3,40	2,58 - 502	7,29
Iode (µg)	< 20	0,02 - NC	-
Magnésium (mg)	270	224 - 303	21,60
Manganèse (mg)	1,90	1,31 - 3,98	28,50
Phosphore (mg)	510	364 - 569	21,86
Potassium (mg)	800	543 - 902	12
Sélénium (µg)	< 20	0,50 - NC	-
Sodium (mg)	< 5	0 - 11	-
Zinc (mg)	3,50	2,02 - 4,03	10,50

Sources

Constituant	Quantité	Min-Max	% VNR
Calcium (mg)	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Chlorure (mg)	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Cuivre (mg)	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Fer (mg)	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Iode (µg)	Ciqua 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011

Constituant	Quantité	Min-Max	% VNR
Magnésium (mg)	Ciqual 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Manganèse (mg)	Ciqual 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Phosphore (mg)	Ciqual 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Potassium (mg)	Ciqual 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Sélénium (µg)	Ciqual 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Sodium (mg)	Ciqual 2020	-	-
Zinc (mg)	Ciqual 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011

Zoom on minerals and trace elements

- Almonds are a **source of**:
 - **copper**, as they provide the equivalent of 28.80% of DRVs for copper, i.e. 0.29 mg for a 30 g portion;
 - **manganese**, as they provide the equivalent of 28.50 % of DRVs for manganese, i.e. 0.57 mg for a 30 g portion;
 - **phosphorus**, as they provide the equivalent of 21.86% of DRVs for phosphorus, i.e. 153 mg for a 30 g portion. Almonds are, after Brazil nuts, the nut that contains the most phosphorus (Ciqual 2020 table).
 - **magnesium**, as they provide the equivalent of 21.60% of DRVs for magnesium, i.e. 81 mg for a 30 g portion. According to data from the Ciqual 2020 table, almonds are the nut with the highest magnesium content after Brazil nuts.
- They also contain significant amounts of **potassium** and **zinc**, as they provide the equivalent of:
 - 12% of potassium DRVs, i.e. 240 mg for a 30 g portion;
 - 10.50% of zinc DRVs, i.e. 1.05 mg for a 30 g portion.
- The other minerals and trace elements are present in quantities of less than 10% of DRVs in a 30 g portion.

VITAMINES

Valeurs

Constituant	Teneur moyenne	Min-Max pour 100 g	% VNR
Provitamine A Béta-carotène (µg)	7,33	0 - NC	-
Équivalent Vitamine A (µg)	1,22	0 - NC	0,05
Vitamine B1 (mg)	0,15	0,095 - 0,33	4,09
Vitamine B2 (mg)	0,29	NC - 2,26	6,21
Vitamine B3 (mg)	1,97	1,39 - 5,99	3,69
Vitamine B5 (mg)	0,62	0,26 - 0,80	3,10
Vitamine B6 (mg)	0,07	0,06 - 0,29	1,50
Vitamine B9 (µg)	120	10 - NC	18
Vitamine C (mg)	< 0,50	0 - 0,80	-
Vitamine E (mg)	22,30	14,60 - 24	55,75
Vitamine K1 (µg)	< 0,80	-	-

Sources

Constituant	Quantité	Min-Max	% VNR
Provitamine A Béta-carotène (µg)	Ciquel 2020	-	-
Équivalent Vitamine A (µg)	Calcul à partir de la valeur Provitamine A Béta-carotène*	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine B1 (mg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine B2 (mg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine B3 (mg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine B5 (mg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011

Constituant	Quantité	Min-Max	% VNR
Vitamine B6 (mg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine B9 (µg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine C (mg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine E (mg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011
Vitamine K1 (µg)	Ciquel 2020	-	Règlement (UE) N°1169/2011 du parlement Européen et du conseil du 25 octobre 2011

Zoom on vitamins

- Almonds are **high in vitamin E**, as 30 g of almonds contain 55.75% of DRVs for vitamin E, which represents 6.69 mg. Moreover, according to the data of the Ciquel 2020 table, almonds are the nuts that contain the most vitamin E.
- Almonds are also a **source of vitamin B9** as 30 g of almonds contain 18% of DRVs for vitamin B9, i.e. 36 µg. Almonds are the nut that contain the most vitamin B9 (Ciquel 2020 table).
- The other vitamins are present in quantities of less than 7% of DRVs in a 30 g serving.

*Calculation performed: Beta Carotene / 6 + retinol

POLYPHÉNOLS

Valeurs

Constituant (g)	Teneur moyenne	Min-Max pour 100 g
Flavonoïdes (mg)	8,46	5,02 - 14,43
<i>dont Flavonols (mg)</i>	3,03	1,45 - 5,13
<i>dont Flavanols (mg)</i>	4,93	3,46 - 8,18

Constituant (g)	Teneur moyenne	Min-Max pour 100 g
<i>dont Flavanones (mg)</i>	0,50	0,11 - 1,12
Acides Phénoliques (mg)	0,43	0,22 - 0,73
<i>dont Acides Hydroxybenzoïques (mg)</i>	0,43	0,22 - 0,73
Polyphénols totaux	8,89	5,24 - 15,16

Sources

Constituant (g)	Quantité	Min-Max
Flavonoïdes	Phenol-Explorer 3.6 Méthode utilisée : Chromatographie	-
<i>dont Flavonols</i>	Phenol-Explorer 3.6 Méthode utilisée : Chromatographie	-
<i>dont Flavanols</i>	Phenol-Explorer 3.6 Méthode utilisée : Chromatographie	-
<i>dont Flavanones</i>	Phenol-Explorer 3.6 Méthode utilisée : Chromatographie	-
Acides Phénoliques	Phenol-Explorer 3.6 Méthode utilisée : Chromatographie	-
<i>dont Acides Hydroxybenzoïques</i>	Phenol-Explorer 3.6 Méthode utilisée : Chromatographie	-
Polyphénols totaux	Phenol-Explorer 3.6 Méthode utilisée : Chromatographie	-

Zoom on polyphenols

- Polyphenols are substances with an antioxidant effect.
- The polyphenols present in almonds are mainly flavonoids, in the form of flavanols (55.46 %) and flavonols (34.08 %).

ALLÉGATIONS NUTRITIONNELLES ET DE SANTÉ

ALLÉGATIONS NUTRITIONNELLES ET DE SANTÉ DRY

According to the definitions of nutrition claims as set out in Regulation (EC) No 1924/2006 on nutrition and health claims, and in view of the composition of almonds, the following claims may be used:

NUTRITION CLAIMS FOR ALMONDS

- **Low in sugar** (100 g of almonds contain no more than 5 g of sugars)
- **Source of fibre** (100 kcal of almonds provide more than 1.5 g of fibre)
- **High in vitamin E** (30 g of almonds provide the equivalent of more than 30% of DRVs)
- **Source of copper** (30 g of almonds provide the equivalent of more than 15% of DRVs)
- **Source of manganese** (30 g of almonds provide the equivalent of more than 15% of DRVs)
- **Source of phosphorus** (30 g of almonds provide the equivalent of more than 15% of DRVs)
- **Source of magnesium** (30 g of almonds provide the equivalent of more than 15% of DRVs)
- **Source of vitamin B9** (30 g of almonds provide the equivalent of more than 15% of DRVs)

HEALTH CLAIMS (FOR A CONSUMPTION OF 30 G OF ALMONDS)

Vitamin E

- Vitamin E contributes to the protection of cells from oxidative stress.

Copper

- Copper contributes to:
 - maintenance of normal connective tissues,
 - normal energy-yielding metabolism,
 - normal functioning of the nervous system,
 - normal hair pigmentation,
 - normal iron transport in the body,
 - normal skin pigmentation,
 - normal function of the immune system,
 - protection of cells from oxidative stress.

Manganese

- Manganese contributes to:
 - normal energy-yielding metabolism,
 - maintenance of normal bones,
 - normal formation of connectives tissues,
 - protection of cells from oxidative stress.

Phosphorus

- Phosphorus contributes to:
 - normal energy-yielding metabolism,
 - normal function of cell membranes,
 - maintenance of normal bones,
 - maintenance of normal teeth.
- Phosphorus is necessary for normal growth and bone development in children.

Magnesium

- Magnesium contributes to:
 - reduction of tiredness and fatigue,
 - electrolyte balance,
 - normal energy-yielding metabolism,
 - normal functioning of the nervous system,
 - normal muscle function,
 - normal protein synthesis,
 - normal psychological function,
 - maintenance of normal bones,
 - maintenance of normal teeth.
- Magnesium has a role in the process of cell division.

Folates or vitamin B9

Folates contributes to:

- maternal tissue growth during pregnancy,
- normal amino acid synthesis,
- normal blood formation,
- normal homocysteine metabolism,
- normal psychological function,
- normal function of the immune system,
- reduction of tiredness and fatigue,
- Folates have a role in the process of cell division.

- Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail. Table de composition nutritionnelle des aliments Ciqua 2020. Consultée le 23/07/2020 depuis le site internet Ciqua <https://ciqua.anses.fr/>
- Agence nationale de sécurité sanitaire de l'alimentation, de l'environnement et du travail. Table de composition nutritionnelle des aliments Ciqua pour le calcul des apports nutritionnels CALNUT 2020. Consultée le 14/09/2020 depuis le site internet Ciqua <https://ciqua.anses.fr/>
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- Règlement (UE) N°432/2012 de la Commission du 16 mai 2012 établissant une liste des allégations de santé autorisées portant sur les denrées alimentaires, autres que celles faisant référence à la réduction du risque de maladie ainsi qu'au développement et à la santé infantiles.
- Règlement (UE) n°1169/2011 du Parlement européen et du Conseil du 25 octobre 2011 concernant l'information des consommateurs sur les denrées alimentaires, modifiant les règlements (CE) n°1924/2006 et (CE) n°1925/2006 du Parlement européen et de Conseil et abrogeant la directive 87/250/CEE de la Commission, la directive 90/496/CEE du Conseil, la directive 1999/10/CE de la Commission, la directive 200/13/CE du Parlement européen et du Conseil, les directives 2002/67/CE et 2008/5/CE de la Commission et le règlement (CE)

n°608/2004 de la Commission.

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