

Organic Dragon Fruit Powder



What is Organic Dragon Fruit Powder?

Organic Dragon Fruit Powder is a premium functional ingredient derived from organically cultivated pitaya (*Hylocereus* spp.), the vibrant super fruit native to Central America. ORGANICWAY offers two distinct formats — one whole-fruit freeze-dried powder and one concentrated juice powder — each formulated to serve different product development needs from color-forward applications to fiber fortification.

The pitaya fruit is valued for two primary bioactive compound families: **betalain pigments** (betacyanin for deep red-violet coloring) and **dietary fiber** (both soluble prebiotics and insoluble bulk fiber). ORGANICWAY's low-temperature processing technologies are designed to preserve both.

Two Formats — Tailored for Different Applications

Format	Processing	Key Active	Solubility	Best For
Red Pitaya Powder	Freeze-drying + cryogenic milling	≥1.5% betacyanin, ≥8% prebiotic fiber	Partial (gel-forming)	Smoothies, baked goods, capsules, color + fiber applications
Red Pitaya Juice Powder	Cold-press + spray-drying	≥3.0% betacyanin, ≥200 mg Vitamin C	Instant cold-water soluble	Beverages, supplements, confectionery, clear applications

Why Red Pitaya?

Red pitaya (*Hylocereus costaricensis*) is harvested at night to maximize betacyanin content — the deep red-violet pigment that drives both the vibrant color and the potent antioxidant activity. Night harvesting

protects the light-sensitive betalain pigments from degradation during the early post-harvest window.

Color Stability

The betacyanin pigment in red pitaya maintains stability across a broad pH range (pH 3–8), making it versatile across acidic beverages and neutral food matrices. The freeze-drying process preserves pigment integrity while maintaining the whole-food fiber matrix in the Powder format. The spray-drying process for Juice Powder concentrates the pigment for maximum color impact.

Sustainability & Sourcing

ORGANICWAY sources pitaya from pollinator-friendly farms that support bat pollination — an ecologically significant practice contributing to biodiversity. Solar-assisted drying is used where feasible to reduce energy consumption in the production process.

PHYSICAL & CHEMICAL PROPERTIES

Product Specifications

Red Pitaya Powder (Whole Fruit, Freeze-Dried)

Parameter	Specification	Test Method
Source	100% organic red pitaya (<i>Hylocereus costaricensis</i>)	—
Processing	Freeze-drying + cryogenic milling <40°C	—
Appearance	Fine red-violet to deep pink powder	Visual
Betacyanin	≥1.5%	HPLC-DAD, AOAC 2021.11
Vitamin C	≥180 mg/100g	Titration (AOAC)
Magnesium	≥80 mg/100g	ICP-MS
Prebiotic Fiber (Oligosaccharides)	≥8%	AOAC 2011.25
ORAC Value	≥18,000 μmol TE/g	Brunswick Labs ISO 23349
Color Intensity	≥20,000 color units (CU/g)	Spectrophotometric
Moisture Content	≤5.0%	Karl Fischer
Particle Size	80–120 mesh	Sieve analysis
Bulk Density	0.30–0.50 g/cm ³	Tapped density
pH (10% solution)	4.5–5.5	Potentiometric
Solubility	Partial (forms gel in water)	Visual
Shelf Life	24 months	Real-time stability

Red Pitaya Juice Powder (Spray-Dried Juice Concentrate)

Parameter	Specification	Test Method
Source	100% organic red pitaya juice (<i>Hylocereus costaricensis</i>)	—
Processing	Cold-press extraction + spray-drying ≤60°C	—
Appearance	Fine bright red powder	Visual
Betacyanin	≥3.0%	HPLC-DAD, AOAC 2021.11
Vitamin C	≥200 mg/100g	Titration (AOAC)
Magnesium	≥60 mg/100g	ICP-MS
Prebiotic Fiber	≤2%	AOAC 2011.25
ORAC Value	≥22,000 μmol TE/g	Brunswick Labs ISO 23349
Color Intensity	≥40,000 color units (CU/g)	Spectrophotometric
Moisture Content	≤3.0%	Karl Fischer
Particle Size	200 mesh (fine)	Sieve analysis
Bulk Density	0.35-0.55 g/cm ³	Tapped density
Solubility	Instant cold-water soluble (≥95%)	Dispersibility test
Shelf Life	18-24 months	Real-time stability

Note: Both formats are 100% fruit — no carriers, maltodextrin, anti-caking agents, or additives of any kind.

MICROBIOLOGICAL & CONTAMINANT STANDARDS

Microbiological Limits (Both Formats)

Test	Specification	Method
Total Plate Count (TPC)	≤10,000 CFU/g	ISO 4833
Yeast & Mold	≤500 CFU/g	ISO 21527
E. coli	Not detected	ISO 16649
Salmonella spp.	Not detected / 25g	ISO 6579
Staphylococcus	Not detected	ISO 6888

Heavy Metal Limits

Metal	Specification	Method
Lead (Pb)	<0.1 mg/kg	ICP-MS
Arsenic (As)	<0.02 mg/kg	ICP-MS
Cadmium (Cd)	<0.05 mg/kg	ICP-MS
Mercury (Hg)	<0.01 mg/kg	ICP-MS

Purity & Contaminant Standards

Test	Specification	Method
Pesticide Residues	Not detected (500+ compounds tested)	GC-MS / LC-MS/MS
Ochratoxin A	<2 ppb	ELISA / HPLC
Mycotoxins (Total)	<10 ppb	ELISA

CERTIFICATIONS

Certification	Status	Issuing Body
USDA Organic	Available	USDA-accredited certifier
EU Organic	Available	EU-authorized control body
Non-GMO Project Verified	Available	Non-GMO Project
Vegan	Available	Third-party certifier
ISO 22000	Available	BSI / SGS or equivalent
HACCP	Available	Third-party audit

COA, TDS, and Organic Transaction Certificate provided per batch. Allergen declaration: None — free from top 14 allergens.

APPLICATIONS & USAGE GUIDELINES

Recommended Application Matrix

Application	Red Pitaya Powder	Red Pitaya Juice Powder	Typical Dosage
Functional Beverages	Antioxidant smoothies, wellness drinks	Instant electrolyte drinks, RTD beverages	1-5%
Confectionery	Natural soft candy colorant (5-10%)	Pink frosting, candy coating	3-10%
Bakery	Red velvet cakes, dough coloring	Vibrant fillings, glazes	2-8%

Application	Red Pitaya Powder	Red Pitaya Juice Powder	Typical Dosage
Dairy & Alt-Dairy	Plant-based yogurt/pudding swirls	Pink latte blends	1-5%
Dietary Supplements	Antioxidant capsules	Effervescent vitamin tablets	5-20%
Cosmetics & Personal Care	Anti-aging serums (reduces MMP-1 expression)	Colored lip balms	0.5-5%
Snack Foods	Colored granola, trail mix	Colored protein bars	2-5%

Formulation Notes

Red Pitaya Powder (Whole Fruit):

- Partially soluble; forms a gel-like suspension in water. Pre-blend with a small amount of liquid before adding to dry formulations to prevent clumping.
- Provides both color and dietary fiber — suitable for applications where whole-food fiber content alongside antioxidant activity is desired.
- Best color performance in pH 3.5–5.5 systems; color intensifies at lower pH.
- Heat stability maintained within standard baking temperatures ($\leq 180^{\circ}\text{C}$).

Red Pitaya Juice Powder:

- Instant cold-water solubility ($\geq 95\%$) — dissolves rapidly in both hot and cold liquids without manual agitation.
- Highest betacyanin concentration ($\geq 3.0\%$) — suitable for concentrated color and antioxidant applications with minimum inclusion rates.
- Best for clear or semi-clear beverages, powdered drink mixes, effervescent supplements, and applications requiring smooth, pulp-free texture.
- pH sensitivity: color stability optimal in pH 3.0–5.5 range; color shifts toward purple-violet at higher pH.

Regulatory Notes for Color Applications

The betacyanin pigment in both formats can serve as a natural alternative to synthetic colorants including Red 40 (Allura Red AC / E129) in appropriate applications. Formulators should confirm regulatory acceptability of "natural color" claims in target markets, as betacyanin may be subject to specific purity and labeling requirements in certain jurisdictions.

FAQ

Q: What gives dragon fruit powder its vibrant color?

A: The vivid red-violet color comes from natural betalain pigments called **betacyanins**. These are powerful antioxidants that are significantly more stable than anthocyanins across a wider pH range. Night harvesting of red pitaya (*Hylocereus costaricensis*) at peak ripeness maximizes betacyanin content before processing.

Q: How do the two formats differ in solubility and application?

A: Red Pitaya Powder (whole fruit) is **partially soluble** — the fiber and seed fractions create a gel-like suspension in water. This makes it ideal for applications where visible fruit material, dietary fiber content, and authentic texture are desired: smoothies, baked goods, capsules, and fiber-enriched formulas. **Red Pitaya Juice Powder** is **instantly and fully soluble** in cold water, formulated for clear beverages, powdered drink mixes, effervescent supplements, and applications requiring smooth, pulp-free texture.

Q: What is the shelf life and recommended storage?

A: Both formats maintain quality for **24 months from the date of manufacture** when stored in the original sealed packaging under the following conditions: cool, dry environment at $\leq 24^{\circ}\text{C}$ (75°F); protected from direct sunlight, strong odors, and humidity. Keep containers tightly sealed after opening. Relative humidity should be maintained below 60%.

Q: Are your organic dragon fruit powders free from added sugars or artificial ingredients?

A: Yes. Both organic dragon fruit powders are certified organic products processed without any added sugars, artificial sweeteners, artificial colors, artificial flavors, carriers, anti-caking agents, or preservatives. Both formats provide a clean-label, 100% fruit ingredient.

Q: What are the primary health benefits?

A: Red Pitaya Powder (whole fruit): Combines potent antioxidant activity (betacyanin $\geq 1.5\%$, ORAC $\geq 18,000$ $\mu\text{mol TE/g}$) with prebiotic fiber ($\geq 8\%$) for both oxidative stress support and digestive health positioning. **Red Pitaya Juice Powder:** Concentrated antioxidant delivery (betacyanin $\geq 3.0\%$, ORAC $\geq 22,000$ $\mu\text{mol TE/g}$) with ≥ 200 mg Vitamin C per 100g for immune support and collagen synthesis. Both formats deliver cardiovascular support through reduction of LDL oxidation and neuroprotective potential as betacyanins cross the blood-brain barrier.

Q: Is dragon fruit powder suitable for vegan finished products?

A: Yes. Both formats are 100% plant-based with no animal-derived ingredients. Vegan certification is available upon request. The powders integrate seamlessly into vegan beverage, confectionery, bakery, and supplement formulations.

Q: What are the minimum order quantity and lead time?

A: Minimum order quantity is **25 kg** per format. Standard lead time is **10-20 days** from order confirmation. Samples are available and can be shipped via FedEx, UPS, or EMS. Ports of departure: Qingdao or Tianjin, China.

Q: Are custom formulations or blend options available?

A: Yes. ORGANICWAY offers customization including format blending, particle size adjustment, and packaging configurations. Contact the sales team to discuss specific formulation requirements.

PACKAGING & STORAGE



Packaging Options

Package Size	Format	MOQ
25 kg	Multi-ply kraft paper bag with inner liner	Standard
5 kg	Foil-lined bag (sample/small batch)	Available
Custom	Bulk tote / custom specification	Commercial

All packaging materials comply with EU 10/2011 and FDA 21 CFR food-contact regulations. Custom packaging available for contracted supply programs.

Storage Conditions

- **Temperature:** ≤24°C (75°F)
- **Relative Humidity:** ≤60% RH
- **Environment:** Cool, dry, odor-free; protect from direct sunlight
- **Sealing:** Reseal tightly after each use; nitrogen-flushed packaging for Juice Powder recommended
- **Shelf Life:** 18-24 months from manufacturing date (both formats)

For more information, please visit our website:

<https://www.organic-way.com/products/organic-dragon-fruit-powder/>