

Australian Fucoidan

Introducing Australian Fucoidan: a unique, bioactive seaweed ingredient combining the benefits of fucoidan and algal mannitol, specifically developed for nutritional and functional drink formulations.

This certified-organic ingredient is derived from the sporophyll of wild *Undaria pinnatifida* seaweed grown in the cool, pristine ocean waters of Patagonia. Australian Fucoidan is extracted using a solvent-free, aqueous process that utilises green chemistry principles to preserve the bioactivity of the fucoidan compound. This proprietary extraction process yields a high purity ingredient that is guaranteed to be free from harmful chemical residues.

Australian Fucoidan imparts exclusive health benefits as a result of the complementary bioactivities of fucoidan and mannitol. In nature, fucoidan acts to protect the seaweed from marine-borne pathogens and viruses, whilst algal mannitol has an essential metabolic function in combating osmotic and oxidative stress.

Clinical studies have shown that *Undaria pinnatifida* fucoidan improves digestion, boosts immune function and aids in muscle and soft tissue recovery. Australian Fucoidan is also a valuable source of minerals and other marine nutrients - all of which are essential in replenishing electrolytes and trace elements lost during exercise. The algal mannitol in Australian Fucoidan plays a beneficial role in maintaining salt and fluid balances in the body.

With its mild, pleasant flavour, Australian Fucoidan is highly versatile and easy to formulate into health food and beverages. This highly bioactive ingredient is particularly well suited to digestive health, immune support and exercise recovery formulations.

DIGESTIVE HEALTH | IMMUNE SUPPORT | EXERCISE RECOVERY



THE EVIDENCE

DIGESTIVE HEALTH

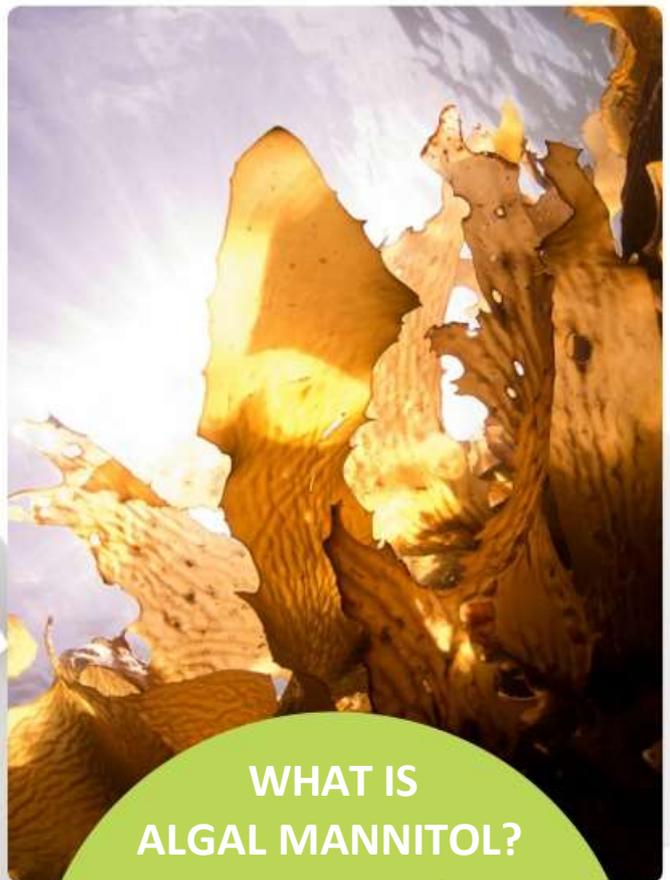
Undaria pinnatifida fucoidan - the key, bioactive compound in Australian Fucoïdan - has been proven to:

- Boost the growth of probiotic bacteria in the gut¹
- Inhibit the adhesion of pathogenic *E. coli* bacteria to human epithelial cells *in vitro*²
- Prevent the adherence of *Helicobacter pylori* bacteria to gastric cells, reducing the potential for gastric ulcers and gastric cancer³
- Protect levels of good bacteria in the gut during antibiotic use, whilst maintaining antibiotic effectiveness against pathogenic bacteria⁴
- Inhibit biofilm formation of yeast and fungus, *Candida albicans* and *Aspergillus brasiliensis*, that can grow opportunistically in the guts⁵

IMMUNE SUPPORT

Studies have shown that *Undaria pinnatifida* fucoidan - the bioactive extract in Australian Fucoïdan:

- Increases Natural Killer cell and Cytotoxic T cell activity, which may prevent the development of diseases⁶
- Boosts levels of the main human antibody, IgG, by 400% after 1 week⁷
- Exhibits anti-allergenic activity⁸



WHAT IS ALGAL MANNITOL?

In addition to containing fucoidan, Australian Fucoïdan is a valuable source of algal mannitol - a nutrient utilised as reserve energy for the seaweed plant and to combat osmotic and oxidative stresses.

In humans, mannitol is a non-digestible carbohydrate. With a pleasant, sweet taste, it is frequently used as a natural sweetener for low-calorie foods and beverages.

OVERALL WELLBEING

Undaria pinnatifida fucoidan - the key, bioactive compound in Australian Fucoïdan - has been shown to:

- Increase the expression of SIRT1 by 28% - an anti-aging protein essential for longevity and maintaining a youthful appearance⁹
- Reduce tumour growth via apoptosis (cell death) and cell cycle arrest in a range of human cancer cell lines including breast, ovarian, colon, stomach, leukaemia and cervical cancer^{7,8}
- Be safe to ingest alongside a range of common chemotherapy drugs, causing no adverse interactions^{7,8}
- Inhibit hyaluronidase, an enzyme believed to be linked to the development of inflammatory diseases⁸

THE EVIDENCE

MUSCLE AND SOFT TISSUE RECOVERY

Research has shown that *Undaria pinnatifida* fucoidan - the bioactive extract in Australian Fucoidan:

- Increases the number of replenishing haemopoietic stem cells in the blood, which are responsible for renewing blood and immune cells¹⁰
- Increases muscle blood flow and capillary density¹¹
- Reduces and down-regulates the activity of Interleukin-6 (IL-6) and LOX-15 inflammatory makers in the body that can be produced through intense exercise^{2,12}
- Improves recovery of vascularisation and muscle tissue¹¹

VIRAL INHIBITION

Undaria pinnatifida fucoidan - the key, bioactive extract in Australian Fucoidan - has been demonstrated to:

- Directly inhibit infection of cells through broad spectrum viral entry inhibition¹³
- Exhibit high activity against clinical strains of Herpes Simplex Virus types 1 and 2¹⁴
- Significantly reduce the clinical signs of influenza and related lung-damage in mice



ORGANIC, SAFE, SUSTAINABLE

- **Certified-organic** seaweed extract free from harmful chemical residues
- Extracted from **wild** *Undaria pinnatifida* seaweed that grows in the world's cleanest ocean waters
- All seaweed is harvested by hand on an **environmentally sustainable** basis
- Manufactured using proprietary **solvent free**, aqueous extraction technology
- **Guaranteed to be safe** for consumption with GRAS status
- **Highly purified** ingredient: 150 – 180kg of fresh seaweed yields just 1kg of Maritech® Fucorich
- **Zero waste manufacturing** : All by-products are collected and converted into organic horticultural products

1. Unpublished research undertaken at the University of Wollongong, NSW, Australia (2013).
2. Performed by Brunswick Laboratories Inc, USA / sponsored by Marinova Pty Ltd
3. Chua E-G, Verbrugghe P, et al. (2015). "Fucoidans Disrupt Adherence of *Helicobacter pylori* to AGS Cells *In Vitro*" *Evid Based Complement Alternat Med* doi: 10.1155/2015/120981
4. Private reserach performed at University of Tasmania, Australia / Sponsored by Marinova Pty Ltd
5. Private reserach performed in the UK / Sponsored by Marinova Pty Ltd
6. Myers SP, O'Connor J, et al. (2011) "A combined Phase I and II open-label study on the immunomodulatory effects of seaweed extract nutrient complex". *Biologics* 5, 45-60.
7. Mathew L, Burney M, et al. (2016) "Pre-clinical evaluation of safety of fucoidan extracts from *Undaria pinnatifida* and *Fucus vesiculosus* for use in oncology patients." *Integr Cancer Ther* (in press).
8. Proprietary research undertaken in Australia / sponsored by Marinova Pty Ltd
9. Fitton JH, Dell'Acqua G, et al. (2015). "Topical Benefits of Two Fucoidan-Rich Extracts from Marine Macroalgae." *Cosmetics* 2: 66-81
10. Irhimeh MR, Fitton JH, et al. "Fucoidan ingestion increases the expression of CXCR4 on human CD34 β cells." *Exp Hematol* 35: 989-94
11. Luyt, C. E., et al. (2003). "Low-molecular-weight fucoidan promotes therapeutic revascularization in a rat model of critical hindlimb ischemia." *J Pharmacol Exp Ther* 305(1): 24-30.
12. Performed by private CRO, France / sponsored by Marinova Pty Ltd
13. Performed by National Institutes of Health (NIH), USA
14. Thompson KD, Dragar C. (2004) "Antiviral Activity of *Undaria pinnatifida* against Herpes Simplex Virus." *Phytother Res* 18: 551-5

Australian Fucoïdan is a highly characterised marine ingredient that is certified-organic, non-GMO, vegan and free of additives and preservatives. It is easily included in capsules, supplement powders, pressed tablets, gels, functional foods and beverages.

Commercial name	Australian Fucoïdan
Components	Dried, powdered extract of <i>Undaria pinnatifida</i>
Fucoïdan content	≥ 50%
Moisture	< 10%
Solubility	Dissolves readily in water
Appearance	Off-white to light green/brown powder
Dosage	100-250 mg per day
Safety	Allergen free, non-irritating and non-sensitising
Storage and shelf life	Shelf-stable for five years when stored in a cool, dry place in a well-sealed container away from light, heat and humidity
Accreditations	ISO9001, HACCP, cGMP, Certified Organic, non-GMO, Halal, Kosher
CAS number	223751-81-3
Regulatory status	GRAS status, TGA listable ingredient, exempt from EU Novel Foods list, Health Canada NHP compliant, KFDA registered, compliant with Chinese Algae Product requirements

Raw Material Information

Date: 2019/2/25

Product General Name	Australian Fucoidan	Sales Agent	Good Life Planning Co., Ltd.
Example of description on food packaging	Undaria pinnatifida Extract	Address	3697-1, Tomihara, Kita-ku, Okayama-city, Okayama-pref., Japan
Classification	<input checked="" type="checkbox"/> Food <input checked="" type="checkbox"/> Food additive	TEL	(81) 86-250-3540

Raw Materials	Combination ratio (%)	Origin raw materials	Country of origin	The final process was replicated in which country	GMO		Contain any ALLERGY SUBSTANCE?		Contain any ingredient made from cattle?	
					Y	NA	Y	NA	Y	NA
Mekabu	100	Mekabu	Argentina	Australia	Y	NA	Y	NA	Y	NA
					Non-GMO	Can not be classified as GMO or Non-GMO				

Nutritional Information (per 100g)

Energy	1150 KJ
Carbohydrates	56.4 g
Total sugars	<0.3 g
Protein	1.0 g
Total fat	<1.0 g
- Saturated fat	<0.5 g
- Mono unsaturated Fa	<0.5 g
- Poly unsaturated Fat	<0.6 g
Minerals	
- Sodium	4900 mg
- Potassium	7700 mg
- Calcium	200 mg
- Magnesium	700 mg
- Iodine	4 mg

Typical Composition (%)

Fucoidan	50.0 %
- Carbohydrates	30.0 %
- Sulfate	15.0 %
- Minerals	4.0 %
Acetylation	1.0 %
Alginate	3.0 %
Mannitol	35.0 %
Free Minerals	9.5 %
Polyphloroglucinol	1.5 %

ALLERGY SUBSTANCE/ALLERGIC MATERIAL: egg, milk, wheat, buckwheat, peanuts, shrimp, crab, abalone, squid, salmon roe, orange, kiwi fruit, beef, walnut, salmon, mackerel, soybean, chicken, banana, pork, matsutake mashroom, peach, Japanese yam, apple, gelatin, sesame seeds, cashew nuts.

GMO: soybean (including edamame and soybean sprouts), corn, potato, colaseed, cottonseed, alfalfa, sugar beet, papaya.

