Efficient Natural · Safe



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Marine-based Green Caviar uniquely from Pacific Ocean

Verperle[®] extracted from *Caulerpa lentillifera* harvested in deep-ocean water in eastern coast of Taiwan via a pioneered green patented process, Molecular Sieve Technology. Green caviar contains 11 kinds of essential amino acids, microelements, unsaturated fatty acids, polysaccharides and vitamin B complex, etc. Verperle[®] is proved to powerfully inhibit allergy, reduce inflammatory and stimulate collagen production with no irritation and no sensitization.



Green Extraction Process



• Comparison of Extraction Techniques

Molecular Sieve Te	ch	V.S	Traditional Extract	
High 🙀	, I	Efficiency	Low	
High 崔	Cor Lev	ncentration rel of Active	Low	
Low 🕌	Те	mperature	Mostly high	
No 4	Har	mful solvent	Mostly use	
Safe to skin 🎽	^]	rritation	Mostly irritate skin	

- Exclusive patented extraction technology is the first use in extracting natural plant
- Preserve biological activity with low-temperature extraction process
- Unique separation technology isolates highly pure active fraction from plant extract
- Eco-friendly green extraction: Reduce energy consumption and low environmental impact

The Advantage of Deep-Sea Cultivation

- Deep sea water is defined as: hidden under 200 meters above the sea surface that cannot be reached by sunlight and is not subject to changes in the atmosphere and environment. It has the characteristics of <u>low temperature, rich with nutrients, high purity, complete maturity, and sustainable regeneration</u>. It is significantly different from general seawater.
- Deep Sea Water is particularly rich in nitrate (NO3⁻, NO2⁻, NH4⁺), This is what deep-sea algae cultivation is superior to general maricultural. Moreover, the temperature of deep seawater is lower than that of general seawater. With its constant cold temperature, blending with general seawater to balance water temperature at 20°C ~ 25°C suitable for algae growth. Deep-sea algae cultivation will be a great niche based on its abundant nutrients, low temperature and blendability features.

Effects of Deep Sea Water on Skin Diseases

Type of study model	Experimental method [subject (age/weight), treatment dosage, duration of treatment]	Major activity	Mechanism of action
In vivo study	Male NC/Nga mice (6 weeks), 2% concentrated DSW (CDSW) (7958.6 hardness), 10% CDSW (39793 hardness), 200 μ L of test samples, five times per week, six weeks	Reduced severity of symptoms in the skin lesions, such as edema, erythema, dryness, itching, and transepidermal water loss (TEWL). Decreased epidermal thickness and infiltration of inflammatory cells.	Inhibited upregulation of IgE, histamine, and proinflammatory cytokines (TNF- α , IL-1 β , and IL-6) in the serum. Downregulated CD4+/CD8+ ratio in spleen lymphocyte by 10% CDSW. Reduced the expression of IL-4 and IL-10 from Th2 cells in the 10% CDSW-treated group.
Clinical study	33 patients (mean age 26 years, range 1–50 years, 13 male and 20 female subjects), DSW 1000 hardness, 500 ml/day, 6 months	Improved skin symptoms. Balanced certain minerals in the body.	Improved skin symptoms such as inflammation, lichenification, and cracking in skin. Restored essential minerals such as Se and reduced the level of toxic minerals such as mercury and lead.
Clinical study	50 patients with allergic rhinitis (age 22–50 years), DSW 1000 hardness, 500 ml/day, 3 weeks	Improved skin symptoms.	Reduced allergic skin responses and serum levels of total IgE, Japanese cedar pollen-specific IgE, IL-4, IL-6, IL-13, and IL-18.

The Mechanism of Allergic Inflammation



- When the skin first contact with allergen, it activates the immune system in the body and makes IgE bond to mast cells, causing sensitization, but it won't trigger an allergic reaction immediately.
- When exposed to the same allergen again, IgE will cause mast cells to release inflammatory mediators (such as histamine), resulting in degranulation, causing allergic desquamation, redness, swelling, itching, fever, and tingling and other phenomena.
- Since histamine is often released together with βhexosaminidase, the value of β-hexosaminidase is often used as a biochemical indicator to detect whether an allergy occurs.

Verperle[®] - Cell Degranulation assay (*in vitro*)

Powerful β -hexosaminidase Inhibition Efficacy

 The result from Cell Degranulation Assay by using the Mast Cell activation test shown, Verperle[®] can inhibit β-hexosamindase release induced by anti-IgE without cytotoxicity. The higher the concentration, the more obvious the effect of anti-allergic reaction.



Verperle[®] - Anti-aging Effect Evaluation (*in vitro*)

80% Increases Production of Procollagen Type I

Verperle[®] specifically increases production of procollagen type I without cytotoxicity effect.
Compare with blank group, Verperle[®] with 4mg/ml increases collagen production by 80%.



Verperle[®] - Safety Assessment Test

Classified as Non-Irritant and Non-Sensitive

- Passed Ames test: No carcinogen.
- No skin irritation by using a reconstructed human epidermis (RhE) test method according to OECD 439.
- No phototoxicity, no photosensitivity (test by AMA Laboratories)
- No irritation, no sensitization (50 Human RIPT test by AMA Laboratories)



Verperle[®] - Heavy Metals & Microbiological Test

Passed Heavy Metals & Microbiological Test

- Heavy Metals Test (As/ Pb/ Hg/ Cd/ Sb/ Cr/ Ni/ Se) : Passed.
- Microbiological Test (Total plate count/ Escherichia coli/ Staphylococcus aureus/ Pseudomonas aeruginosa): Passed.

		招游量工業安全實驗室			
		Ultra Trace Industrial Safety Hygiene			
测试	報告				
截音編號: UI	3/2015/71116	日期: 20152	■08月03日	頁數	1 2 of 3
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测试结果:					
测试项目	CAS NO.	测试方法	测试结果	定量/偵 測編隊	單位
鉀 (As)	007440-38-2	本測試參考USEPA 3052方法,以感應耦合電镀光	N.D.	1.00	ppm(mg/kg
		譜儀(ICP/OES) 檢測。			
鎚 (Pb)	007439-92-1	本測試参考USEPA 3052方法,以感應耦合電鏡光	N.D.	1.00	ppm(mg/kg
		譜儀(ICP/OES) 檢測。			
汞 (Hg)	007439-97-6	本測試參考USEPA 3052方法,以感應耦合電纜光	N.D.	1.00	ppm(mg/kg
1 (0.0	007440 40.0	諸儀(ICP/OES) 税利。		4.00	
M3 (Cd)	007440-43-9	本規紙参考USEPA 3052万法,以感想網目電鏡光 Magueneocs) 始調。	N.D.	1.00	ppm(mg/kg
(Ch)	007440.36.0	211日本後USEDA 2052字法、NIの単純合物構立	ND	1.00	opmimaka
xb (30)	007440-30-0	単調にP/OFS) 特別。	N.D.	1.00	ppmingkg
鋼 (Ba)	007440-39-3	本測試參考USEPA 3052方法,以應應歸合電緩光	N.D.	1.00	ppm(ma/ka
		譜儀(ICP/OES) 檢測。			
縊 (Cr)	007440-47-3	本測試參考USEPA 3052方法,以感應耦合電镀光	N.D.	1.00	ppm(mg/kg
		譜儀(ICP/OES) 檯測。			
鑅 (Ni)	007440-02-0	本測試參考USEPA 3052方法,以感應耦合電漿光	N.D.	1.00	ppm(mg/kg
		譜儀(ICP/OES) 機測。			
館 (Se)	007782-49-2	本規紙参考USEPA 3052万法,以感想網習電販売 物構成CDIOES 検測。	N.D.	1.00	ppm(mg/kg
		MBA(ICF/OE3) (600) *			
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3. 差該消	试项目屬於定量	· 分析則以「定量極限」表示: 若該測試項目屬於定	性分析则以	「偵測紙目	良」表示。
4.低於火	量插限之制定值	L以 "N.D."表示:悠於偵測極限之測定值以" 陰性	* 表示。		
5.重金盾	限量:依據衛生	:署公告重金屬限量: 泉<1ppm,砷<3ppm,鎬<10pp FMD	m,鍋<20pp	a •	
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Patent Certificate

• Patent: Allergy-inhibiting sea grape extract, its preparation method and application thereof





NO. 6198082





ImDerma LABORATORIES

- Anti-allergy, Anti-aging (in-vitro test)
- No skin irritation, no skin sensitization
- No phototoxicity, no photosensitivity
- Passed heavy metals and microbial test
- Patent certificate: Taiwan, Japan, Korea, USA; Patent pending: China, EU
- Assigned an INCI name in 2013
- COSMOS Natural Certified



INCI NAME	Caulerpa Lentillifera Extract		
Form	Liquid		
Appearance	Clear and light yellow		
pH Value	6.0~8.0 , at 25°C		
Dosge	2%~10%		
Storage	Storage at room temperature. Avoid direct light exposure.		



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