

Herring milt extract

Bioactive properties

SEMENTIS COMPLEX

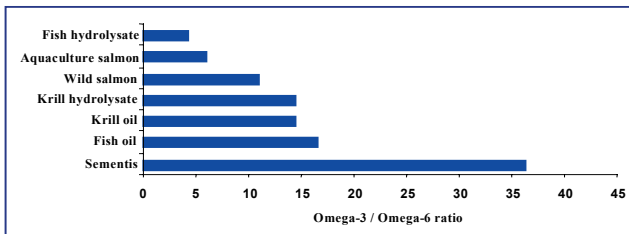
ABK-GASPÉSIE has developed an innovative and exclusive biochemical process which allows the extraction of bioactive natural compounds from wild Atlantic herring milt. **Sementis** contains high quantity of marine DNA (deoxyribonucleic acid), omega-3 polyunsaturated fatty acids and phospholipids. These compounds are naturally associated with polypeptides that have equilibrated amino acids profiles. **Sementis** is a high quality nutritional supplement with anti-aging and protective properties.

Milt from wild fish contains high quantity of marine DNA, a powerful natural antioxidant. The marine DNA possesses several curative properties for the treatment of psychic and physic fatigue, development of intellectual faculties in persons with backwardness, stimulation of immune system, regeneration of scars, and improvement of physical performance in athletes.¹

Sementis possesses an ideal profile of fatty acids characterized by a surprisingly high omega-3 / omega-6 ratio. This high ratio contribute to reduce the risk of many diseases including cancers and cardiovascular, inflammatory and autoimmune diseases.²

OMEGA-3 / OMEGA-6 RATIO

The **Sementis** complex present an exceptionally high omega-3 / omega-6 ratio compared to other fish and shellfish products.



Data: fish hydrolysate³, aquaculture and wild salmon², krill hydrolysate and krill oil⁴, Sementis and fish oil⁵.

ADVANTAGES OF THE COMPLEX

Sementis combines the beneficial values of its major components. These benefits include the high antioxidant activity of marine DNA; a high omega-3 / omega-6 ratio and phospholipids for cellular membrane protection; and the presence of proteins, peptides and phospholipids that increase the bio-availability of the active ingredients.² A large proportion of omega-3 fatty acids in **Sementis** exists in phospholipids form.

Sementis also contains other antioxidant ingredients such as vitamins C, zinc and selenium. Having more than one molecule with antioxidant properties ensure

protective action on different tissues and cell types and therefore provides a synergetic action to prevent aging. The high ORAC value of **Sementis** (>250 µM Trolox Equivalent / g product) indicates a high antioxidant potential.

IMPORTANCE OF ANTIOXYDANT DEFENSES

The body is continually bombarded by oxidants or free radicals (harmful substances) that cause damage to cells, DNA, lipoproteins, good fats and cholesterol. Since oxidants and free radicals are caused by our normal daily activities, they cannot be avoided. It is well known that free radicals accelerate the aging process and cause severe damage to our body. Free radicals destroy living cells, leading to a wide array of health problems, including cardiovascular, neurodegenerative and autoimmune diseases.⁶

The human body produces some antioxidant defenses to eliminate free radicals or damages caused by them. However, most of the diseases result from a loss of balance between the high production of free radicals and the presence of antioxidant in the organism.⁶ Antioxidant supplementation can therefore be a good strategy to help the human body fight free radicals.

OMEGA-3 FATTY ACIDS AND PHOSPHOLIPIDS

Fats have many important functions that make them a necessary component of our nutrition. They provide energy, insulation and protection to internal organs. Furthermore, fats are essential components of cells membranes.⁷ Omega-3 and omega-6 are called essentials fatty acids because they cannot be synthesized by the body. The omega-3 fatty acids include eicosapentaenoic acid (EPA) and docosahexaenoic acid (DHA).

Western populations have become diet deficient in omega-3 and store excessive amounts of omega-6 fatty acids in their bodies.² A growing number of studies indicate that a high ratio of omega-3 / omega-6 in the diet may reduce the risk of many diseases, including cancer and cardiovascular, inflammatory, and autoimmune diseases.² The principal sources of omega-3 fatty acids are vegetable oils, shellfish and fish. The omega-3 / omega-6 ratio can be twice as high in fish from wild population compared to fish produced by aquaculture.⁸ Natural populations are thus a better source of essential fatty acids with high omega-3 / omega-6 ratio.

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Many of the omega-3 and omega-6 fatty acids are present in phospholipids that in turn represent a major constituent of the lipids in the cells membranes and organelles. Phospholipids are known to help transport fat-soluble vitamins, hormones and other substances across cell membranes.⁷ Consistent positive outcomes from controlled trials and experimental and clinical studies have established the nutraceutical benefits of phospholipids for the brain, liver and blood circulation. Furthermore, phospholipids should improve the bioavailability of non-phospholipid nutrients, especially those that are poorly absorbed.⁹

NOTE

The information contained herein is correct to the best of our knowledge at the date of issue without guarantee.

MARINE DNA PROPERTIES

Antioxidant: Protect the cells against oxidative aggressions and aging by transforming the highly reactive hydroxyl radical into a stable product.¹⁰

Treatment of fatigue: Alleviate or completely delete the symptoms of chronic fatigue (muscular pains, visual impairments, respiratory problems, vertigo, sweats).¹¹

Physical performances improvement: Accelerates recuperation and increase maximal oxygen consumption (VO2 max) when combined with vitamin C.¹

Arthritis treatment: Anti-inflammatory ingredient with potential synergetic action when combined with glucosamine or chondroitin.¹

Regenerative activity on the intellectual development of backwardness.¹

Immune system stimulation: Increase leucocytes number in subjects presenting a deficit.^{12, 13}

Regenerative activity on cicatrisation process (e.g. posttraumatic wound, peptic ulcers).¹

Marine compound perfectly tolerated with practically no side effects.¹ **Sementis** contains 20 to 30 % of marine DNA.

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HERRING MILT EXTRACT - TECHNICAL INFORMATION

GLOBAL PROFILE		
Dry matter	g/100g product	> 94
Proteins	g/100g dry matter	35 - 45
Marine DNA ¹	g/100g product	21 - 31
Total fat	g/100g dry matter	10 - 16
Minerals	g/100g dry matter	11 - 14
Phospholipids	g/100g dry matter	3 - 6
Energy content	kJ/g product	21 ± 1
Total ORAC value ^{2,3}	µM TE/g product	265 ± 30
Omega-3 / Omega-6 ratio	---	36 ± 4

DETAILED PROFILE					
Fatty acids	g/100g fat	Amino acids	g/100g proteins	Minerals	[product]
Saturated	11,8 ± 0,4	Alanine	4,0 ± 0,5	Arsenic	< 3 µg/g
Monounsaturated	8,3 ± 0,4	Arginine	41,0 ± 5,0	Cadmium	< 0,4 µg/g
Polyunsaturated (ω3)	28,6 ± 1,5	Asparagine	0,05 ± 0,05	Calcium	0,03 - 0,07 %
Polyunsaturated (ω6)	0,8 ± 0,1	Aspartic acid	5,4 ± 1,0	Chromium	< 2 µg/g
C14:0	0,5 ± 0,1	Cysteine	< 0,3	Copper	2 - 20 µg/g
C15:0	0,08 ± 0,01	Glutamic acid	6,8 ± 1,0	Iron	50 - 100 µg/g
C16:0	9,6 ± 0,2	Glutamine	0,7 ± 0,1	Lead	< 0,5 µg/g
C17:0	0,1 ± 0,04	Glycine	6,2 ± 0,8	Magnesium	0,06 - 0,1 %
C18:0	1,5 ± 0,3	Histidine	1,1 ± 0,5	Mercury	< 0,1 µg/g
C16:1 ω7	1,1 ± 0,1	Isoleucine	2,7 ± 0,6	Phosphorus	2,5 - 4,0 %
C17:1	0,01 ± 0,01	Leucine	4,9 ± 0,7	Potassium	0,5 - 1,0 %
C18:1 ω9	3,2 ± 0,2	Lysine	4,6 ± 0,7	Selenium	0,1 - 2,0 µg/g
C20:1 ω9	3,5 ± 0,3	Methionine	< 0,1	Sodium	0,5 - 2,0 %
C22:1 ω9	0,5 ± 0,05	Phenylalanine	4,3 ± 1,2	Zinc	10 - 60 µg/g
C18:2 ω6	0,4 ± 0,05	Proline	4,3 ± 0,7	Vitamins	µg/g product
C20:2 ω6	0,08 ± 0,02	Serine	4,1 ± 0,6	B ₁₂	0,01 ± 0,01
C20:4 ω6	0,3 ± 0,05	Taurine	1,2 ± 0,5	C	404 ± 150
C18:3 ω3	0,1 ± 0,05	Threonine	4,0 ± 0,8	Folic acid	0,04 ± 0,03
C20:5 ω3 (EPA) ⁴	8,3 ± 0,8	Tryptophane	1,0 ± 0,2	L-carnitine	150 ± 40
C22:6 ω3 (DHA) ⁴	20,2 ± 1,3	Tyrosine	2,7 ± 0,5		
		Valine	3,8 ± 0,8		
Physical characteristics		Antioxidant potential ^{2,3}			
Appearance	Fine yellow-beige powder	[product]			
Density (g/ml)	0,6 - 0,8	ORAC hydro (µM TE/g)	139 ± 20		
		ORAC lipo (µM TE/g)	126 ± 20		
Microbiological analysis	CFU/g	ORAC total (µM TE/g)	265 ± 30		
Total aerobic plate count	< 3000	HORAC (mg CAE/g)	88 ± 60		
Pathogens ⁵	Absent	NORAC (µM TE/g)	0,05 ± 0,05		

¹ DNA: deoxyribonucleic acid.

² Antioxidant potential tested by Brunswick Laboratories, Wareham, MA, USA. TE: Trolox Equivalent, CAE: Caffeic Acid Equivalent.

³ Antioxidant activity against the following radicals: peroxy (ORAC), hydroxyl (HORAC), peroxy nitrite (NORAC).

⁴ EPA: eicosapentaenoic acid, DHA: docosahexaenoic acid. ⁵ Tested pathogens (USP 61): Salmonella, Escherichia coli, Staphylococcus aureus.

PACKAGING AND STORAGE

Sementis is packaged under vacuum in 1 to 2 kg polyethylene bags protected by a cardboard box. Refrigerate the product in the original unopened package upon receiving (4 °C) and protect from sunlight and moisture. It is recommended that the bag be resealed under vacuum after each opening and kept refrigerated. Shelf life is approximately 36 months (from the manufacturing date) when stored under proper conditions.

Ingredients: Atlantic herring milt (*Clupea harengus harengus*), enzymes, rosemary extract (500 µg/g for lipids preservation). SEANERGIE and Sementis are trademarks of ABK-GASPÉSIE Inc. The information contained herein is correct to the best of our knowledge at the date of issue without guarantee.
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