


'351 Patent

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Sampalis

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SUMMARY OF THE INVENTION

In one aspect, the invention provides novel phospholipids wherein the two fatty acids chains of the phospholipid are occupied by eicosapentanoic acid (EPA) and docosahexaenoic acid (DHA) simultaneously, within the same molecule. The phospholipid of the general formula (I):

Cited in Brenna De

The novel phospholipids and the novel flavonoid compound are derived from an extract from a marine microalgae biomass.

Refer

Ground 1: Claims 1-94 are unpatentable under 35 U.S.C. 102(b) over Beaudoin I (Ex. 1002).....	15
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Ground 3: Claims 1-13, 19-36, 42-59, 65-83, and 89-94 are unpatentable under 35 U.S.C. 102(b) over Maruyama (Ex. 1004).....	28
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Ground 5: Claims 1-6, 9, 19-29, 32, 42-52, 55, 65-76, 79, and 89-94 are unpatentable under 35 U.S.C. 102(b) over Fricke (Ex. 1006).....	39
Ground 6: Claims 1, 19-21, 24, 42-44, 47 and 65-67 are unpatentable under 35 U.S.C. 102(b) over Rogozhin (Ex. 1008).....	44
Ground 7: Claims 1-94 are unpatentable under 35 USC 103(a) over Beaudoin I in view of Bergelson (Ex. 1017).....	46
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Ground 9: Claims 1-94 are unpatentable under 35 USC 103(a) over Fujita (Ex. 1005) in view of Watanabe (Ex. 1039), and further in view of Itano (Ex. 1009) and Yasawa (Ex. 1015).....	54
Ground 10: Claims 1-94 are unpatentable under 35 USC 103(a) over Fricke (Ex. 1006) in view of Bergelson (Ex. 1017), and further in view of Yasawa (Ex. 1015), Itano (Ex. 1009) the WHO Bulletin (Ex. 1018).....	57

Petition at i-ii

Neptune's Expert

23 Q Are -- the claimed phospholipids exist in
24 krill in nature; correct?
25 A Correct.

Ex. 1093 (J. Jaczynski 10/15/13 Dep. Tr.) at 57:23-25
Cited in Reply at 5

2 Q Do you know of any polar solvents that
3 would not extract the claimed phospholipids from
4 krill?
5 A No.

Ex. 1093 (J. Jaczynski 10/15/13 Dep. Tr.) at 60:2-5
Cited in Reply at 12

Free Fatty Acid Concentration (Claims 5)

As used herein and in the claims, where the term “about” is used with a numerical value, the numerical value may vary by at least $\pm 50\%$. Preferably, the variation will be $\pm 40\%$ or $\pm 30\%$

Ex. 1001 ('351 Patent) at 21:61-64
Cited in Petition at 10; Reply at 3

Free fatty acids are present in the extract in an amount of at least 4% w/w and preferably at least 5% w/w. Polyunsatu-

Ex. 1001 ('351 Patent) at 16:46-47
Cited in Reply at 3

TABLE 5

Lipid composition, vitamins A and E, pigments and flavonoids of the extract

Monoglycerides (MG) (g/100 g sample)	$\cong 0.7$
Triglycerides (TG) (g/100 g sample)	$\cong 3.00$
Free Fatty Acids (FFA) (g/100 g sample)	$\cong 5.00$
Cholesterol (g/100 g sample)	$\cong 2.00$
Total Phospholipids (PL) (g/100 g sample)	$\cong 40.00$
Phosphatidyl Ethanolamine (PE)	
Phosphatidyl Inositol (PI) (g/100 g sample)	Free Fatty Acids (FFA) (g/100 g sample) $\cong 5.00$
Phosphatidyl Serine (PS) (g/100 g sample)	$\cong 0.20$
Phosphatidyl Choline (PC) (g/100 g sample)	$\cong 35.00$
Sphingomyelin (g/100 g sample)	$\cong 0.50$
Vitamin A ($\mu\text{g}/100$ ml)	$\cong 1,400$
Vitamin E ($\mu\text{g}/100$ ml)	$\cong 15$
Beta-Carotene ($\mu\text{g}/100$ ml)	$\cong 1,600$
Astaxanthin (mg/100 ml)	$\cong 10$
Canthaxanthin (mg/100 ml)	$\cong 10$
Flavonoid (mg/100 ml)	$\cong 7.0$

Ex. 1001 ('351 Patent) at Table 5 (17:52-18:6)
Cited in Reply at 3

Suitable For Human Consumption

When the phospholipid extract of the inventions is used as a nutraceutical, it can be in the form of foods, beverages, energy bars, sports drinks, supplements or other forms all as are known in the art.

As noted above, the phospholipid extract of the invention is also useful in cosmetic preparations, e.g., moisturizing creams, sun-block products and other topical cosmetic products as known in the art.

Ex. 1001 ('351 Patent) at 20:34-41
Cited in Reply at 2

70. A cosmetic preparation comprising: a phospholipid of the formula

* * *

wherein the extract is suitable for human consumption.

Ex. 1001

7 Q Do you as one of ordinary skill in the art believe that claim 1, which requires orally ingesting the krill extract,

8 art believe that claim, claim 1, requires orally ingesting the krill extract?

9 orally ingest the krill extract?

10 A Again, it requires what is claimed in claim 1.

11 Q That's not an answer to the question I asked.

12 Does, does it require that you orally ingest the claimed krill extract? And I think the answers are "yes," "no" or "I don't know."

13 claimed krill extract? And I think the answers are "yes," "no" or "I don't know."

14 are "yes," "no" or "I don't know."

15 A Well, it requires a cosmetic preparation.

16 preparation.

17 Q And cosmetic preparations are required to be orally ingested, right?

18 be orally ingested, right?

19 A They don't need to be orally ingested.

Ex. 1097 (J. Jaczynski 8/2013)

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