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[54] **INFANT FORMULA AND BABY FOOD CONTAINING DOCOSAHEXAENOIC ACID OBTAINED FROM DINOFLAGELLATES**

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[58] **Field of Search** 426/417, 442, 601, 801, 426/648, 602; 435/134, 257.1, 946

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,854,240	12/1974	Oldham et al.	47/1.4
4,485,173	11/1984	Gierhart	435/134
4,670,285	6/1987	Clandinin et al.	426/602
4,752,618	6/1988	Mascioli et al.	514/549
4,792,418	12/1988	Rubin et al.	554/186
4,843,095	6/1989	Rubin	514/558
4,868,001	9/1989	Maruta	426/623
4,874,629	10/1989	Chang et al.	425/601
4,911,944	3/1990	Holub	426/635
4,960,795	10/1990	Salte et al.	514/560
4,963,385	10/1990	Antoim et al.	426/602
5,013,569	5/1991	Rubin	426/385
5,130,242	7/1992	Barclay	435/134

FOREIGN PATENT DOCUMENTS

0231904	8/1987	European Pat. Off.	426/417

OTHER PUBLICATIONS

Hinden (24 Jan., 1994) "Washington Post", Business, p. 29.

Pohl et al., (9179) "Marie Alge in Pharm, Sci.", ed. Hoppe et al., de bruyter, Berlin, pp. 473–523.

Beach et al., *BBA*; 316:56–69 (1973).

Beach et al., *BBA*, 369:16–24 (1974).

Ackman, in *Fats for the Future*, (R. C. Cambie, Ed.) pp. 189–203 (1980).

Ratledge, C. "The Potential of Microorganisms for Oil . . . " World Conference on Emerging Technologies . . . pp. 318–330 (1986).

Cox, E. R., "Dinoflagellates," CRC Handbook of Microbiology vol. II, pp. 489–501.

Tuttle, et al. "An optimal growth medium for the dinoflagellates Crypthecodinium . . . " Phycologia vol. 14(1) pp. 1–8 (1975).

(List continued on next page.)

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[57] **ABSTRACT**

Infant formula and baby food compositions are presented which contain single cell edible oil which is recovered from dinoflagellates and which lacks unpleasant tastes and fishy odors. This single cell edible oil comprises at least 70% triglycerides which contain about 20–35% docosahexaenoic acid (DHA) and lack eicosapentaenoic acid (EPA). To produce the single cell oil, the dinoflagellates are cultivated in fermentors and induced to produce the single cell oil which is subsequently recovered by extraction with solvents.

16 Claims, 1 Drawing Sheet