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Aquaculture: Spirulina and Other Microalgae
January 1986 - April 1994

TITLE: Aquaculture: Spirulina and Other Microalgae
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Aquaculture Information Center
National Agricultural Library
PUBLICATION DATE: August 1994
SERIES: QB 94-47
NAL Call no.: aZ5071.N3 no.94-47
CONTACT: Alternative Farming Systems Information Center
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ISSN: 1052-5378

United States Department of Agriculture
National Agricultural Library
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Aquaculture: Spirulina and Other Microalgae
January 1986 - April 1994

Quick Bibliography Series: QB 94-47

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Aquaculture Information Center

August 1994

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National Agricultural Library Cataloging Record:

Young, Ann Townsend
Aquaculture : spirulina & other microalgae.
(Quick bibliography series ; 94-47)
1. Spirulina--Bibliography. 2. Microalgae--Bibliography. 3. Algae culture--Bibliography. I. Title.
aZ5071.N3 no.94-47
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Citation # NAL Call No.
Article title.
Author. Place of publication: Publisher. Journal Title.
Date. Volume (Issue). Pages. (NAL Call Number).

Example:
1 NAL Call No.: DNAL 389.8.SCH6
Morrison, S.B. Denver, Colo.: American School Food Service Association. School foodservice journal. Sept 1987. v. 41 (8). p.48-50. ill.

BOOK:

Citation # NAL Call Number
Title.
Author. Place of publication: Publisher, date. Information on pagination, indices, or bibliographies.

Example:
1 NAL Call No.: DNAL RM218.K36 1987
Exploring careers in dietetics and nutrition.
Kane, June Kozak. New York: Rosen Pub. Group, 1987.
Includes index. xii, 133 p.: ill.; 22 cm. Bibliography: p. 126.

AUDIOVISUAL:

Citation # NAL Call Number
Title.
Author. Place of publication: Publisher, date.
Supplemental information such as funding. Media format (i.e., videocassette): Description (sound, color, size).

Example:
1 NAL Call No.: DNAL FNCTX364.A425 F&N AV
All aboard the nutri-train.
Mayo, Cynthia. Richmond, Va.: Richmond Public Schools, 1981. NET funded. Activity packet prepared by Cynthia Mayo. 1 videocassette (30 min.): sd., col.; 3/4 in. + activity packet.

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Aquaculture: Spirulina and Other Microalgae

SEARCH STRATEGY

Set	Description
S1	SPIRULINA/TI
S2	CHLORELLA/TI
S3	DUNALIELLA/TI
S4	SCENEDESMUS/TI
S5	PORPHYRIDIUM/TI
S6	MICROALG?/TI
S7	MICRO/TI
S8	ALGA?/TI
S9	MICRO/TI(1N)ALGA?/TI
S10	(SPIRULINA OR CHLORELLA OR DUNALIELLA OR SCENEDESMUS OR PORPHYRIDIUM OR MICROALG? OR MICRO(1N)ALGA?)/TI
S11	AQUACULTURE/TI
S12	ALGOCULTURE/TI
S13	MARICULTURE/TI
S14	CULTIVAT?/TI
S15	CULTURE/TI
S16	PHYTOTECHNOLOG?/TI
S17	(AQUACULTURE OR ALGOCULTURE OR MARICULTURE OR CULTIVAT? OR CULTURE OR PHYTOTECHNOLOG?)/TI
S18	RACEWAY?/TI
S19	TANK?/TI
S20	BIOMASS/TI
S21	PRODUCTION/TI
S22	UTILIZATION/TI
S23	USE/TI
S24	FOOD?/TI
S25	FEED?/TI
S26	MEAL?/TI
S27	DIET/TI
S28	NUTRITION/TI
S29	COMMERCIAL/TI
S30	INDUSTR?/TI
S31	ECONOMIC?/TI
S32	BIOTECHNOLOG?/TI
S33	MARKET?/TI
S34	BIOREACTOR?/TI
S35	(RACEWAY? OR TANK? OR BIOMASS OR PRODUCTION OR UTILIZATION OR USE OR FOOD? OR FEED? OR MEAL? OR DIET OR NUTRITION OR COMMERCIAL OR INDUSTR? OR ECONOMIC? OR BIOTECHNOLOG? OR MARKET? OR BIOREACTOR?)/TI
S36	S17 OR S35
S37	S36 AND S10
S38	PY=1986 : PY= 1989
S39	PY=1990 : PY=1994
S40	S38 OR S39
S41	S40 AND S37

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Aquaculture: Spirulina and Other Microalgae

1 NAL Call. No.: 450 J8212J
Some peculiarities of the community of Dunaliella Teod. species and bacteria in culture
Borysova, O.V.
Kyiv : "Naukova dumka"; 1986.
Ukrains'kyi botanichnyi zhurnal v. 43 (4): p. 60-63; 1986.
Includes references.

Language: Ukrainian

Descriptors: Dunaliella; Species; Aquatic communities; Bacteria

2 NAL Call. No.: SH391.S67F6
Algoculture la spirulina, un espoir pour le monde de la faim [Algoculture, the spirulina, a hope for world hunger].
Fox, Ripley D.
La Calade, Aix-en-Provence : Edisud,; 1986.
319 p. : ill. ; 24 cm. Originally presented as the author's thesis (doctoral-l'Universite Louis Pasteur de Strasbourg).
Bibliography: p. 277-288.

Language: French

Descriptors: Spirulina; Algae culture; Algae as food

3 NAL Call. No.: TP1.J686
The application of environmental stress in the biotechnological exploitation of microalgae.
Dubinsky, Z.
London : Elsevier Applied Science Publishers; 1988.
Journal of chemical technology and biotechnology v. 42 (4): p. 306-308; 1988. Includes references.

Language: English

Descriptors: Algae; Biotechnology; Environment; Stress; Temperatures; Plant composition

4 NAL Call. No.: TD930.A32
Application of Spirulina mixed feed in the breeding of bay scallop. Zhou, B.; Liu, W.; Qu, W.; Tseng, C.K.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 229-232; 1991. Includes references.

Language: English

Descriptors: Shandong; Scallops; Aquaculture; Feeding; Spirulina; Hatcheries

5 NAL Call. No.: TD420.A1E5
Binding of metal ions by particulate biomass derived from

Chlorella vulgaris and Scenedesmus quadricauda.
Harris, P.O.; Ramelow, G.J.
Washington, D.C. : American Chemical Society; 1990 Feb.
Environmental science & technology v. 24 (2): p. 220-228; 1990 Feb. Includes references.

Language: English

Descriptors: Water pollution; Pollutants; Metal ions; Ion uptake; Chlorella vulgaris; Scenedesmus quadricauda; Water purification; Binding; Biomass; Adsorption; Desorption

6 NAL Call. No.: QR1.L47
Bioactivity of immobilized microalgal cells: application potential of vegetable sponge in microbial biotechnology.
Iqbal, M.; Zafar, S.I.
Oxford :; 1993 Dec.
Letters in applied microbiology v. 17 (6): p. 289-291; 1993 Dec. Includes references.

Language: English

Descriptors: Rhodophyta; Immobilization; Plant tissues; Fruits; Luffa aegyptiaca; Carbohydrate metabolism; Polysaccharides; Pigments

7 NAL Call. No.: FICHE S-72
Bio-process of anaerobically digested pig manure for production of Spirulina sp.
Yang, P.Y.; Duerr, E.O.
St. Joseph, Mich. : The Society; 1987.
American Society of Agricultural Engineers (Microfiche collection) (fiche no. 87-6056): 22 p. ill; 1987. Paper presented at the 1987 Summer Meeting of the American Society of Agricultural Engineers. Available for purchase from: The American Society of Agricultural Engineers, Order Dept., 2950 Niles Road, St. Joseph, Michigan 49085. Telephone the Order Dept. at (616) 429-0300 for information and prices. Includes references.

Language: English

Descriptors: Pig farming; Manures; Anaerobic treatment; Digestion; Algae culture; Saprospira; Feed crops

8 NAL Call. No.: TP248.2.B562
Bioremoval of heavy metals by the use of microalgae.
Wilde, E.W.; Benemann, J.R.
Oxford ; New York : Pergamon Press,; 1993.
Biotechnology advances v. 11 (4): p. 781-812; 1993. Includes references.

Language: English

Descriptors: Water pollution; Heavy metals; Sorption; Algae;

9 NAL Call. No.: QR53.B56
Biosynthesis of high concentrations of an exopolysaccharide during the cultivation of the microalga Botryococcus braunii.
Fernandes, H.L.; Tome, M.M.; Lupi, F.M.; Fialho, A.M.; Sa-Correia, I.; Novais, J.M.
Surrey : Science and Technology Letters; 1989 Jun.
Biotechnology letters v. 11 (6): p. 433-436; 1989 Jun. Includes references.

Language: English

Descriptors: Algae; Cultivation; Polysaccharides; Biosynthesis

10 NAL Call. No.: TD930.A32
The biotechnology of cultivating Dunaliella for production of beta-carotene rich algae.
Ben-Amotz, A.; Shaish, A.; Avron, M.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 233-235; 1991. Includes references.

Language: English

Descriptors: Dunaliella; Algae culture; Beta-carotene; Biosynthesis; Light intensity; Growth; Inhibitors; Isomerization; Phytoene; Food biotechnology; Mass; Cultivation; Salt tolerance; Glycerol

11 NAL Call. No.: TA166.T72
The biotechnology of cultivating the halotolerant alga Dunaliella. Ben-Amotz, A.; Avron, M.
Cambridge : Elsevier Publications; 1990 May.
Trends in biotechnology v. 8 (5): p. 121-126. ill; 1990 May.
Includes references.

Language: English

Descriptors: Dunaliella; Biotechnology; Algae culture; Plant products; Salt tolerance

12 NAL Call. No.: TD930.A32
Cell fragility--the key problem of microalgae mass production in closed photobioreactors.
Gudin, C.; Chaumont, D.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 145-151; 1991. Includes references.

Language: English

Descriptors: France; Algae culture; Algae; Species; Bioreactors;

Biomass production; Light regime; Optimization; Pumps; Operation; Mixing; Cells; Damage; Hydrodynamics; Stresses

13 NAL Call. No.: TP248.27.A46S62 1987
Chilean experiences on microalgae culture.
Ayala, F.; Vargas, T.; Cardenas, A.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 228-236. ill; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: Chile; Saprospira; Dunaliella; Algae culture; Layout and planning; Natural light; Feasibility studies

14 NAL Call. No.: SH389.H36
CRC Handbook of microalgal mass culture.. Handbook of microalgal mass culture Microalgal mass culture
Richmond, Amos
Boca Raton, Fla. : CRC Press,; 1986.
528 p. : ill. ; 27 cm. Includes bibliographies and index.

Language: English

Descriptors: Algae culture; Handbooks, manuals, etc

15 NAL Call. No.: TP248.27.A46S62 1987
Cultivation and application of microalgae in People's Republic of China. Li, S.H.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 41-54; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Literature review. Includes references.

Language: English

Descriptors: China; Algae culture; History; Research projects; Research policy

16 NAL Call. No.: QR1.E9
Culture and nitrite uptake in immobilized Scenedesmus obliquus.
Jeanfils, J.; Thomas, D.
Berlin, W. Ger. : Springer International; 1986 Aug.
Applied microbiology and biotechnology v. 24 (5): p. 417-422. ill; 1986 Aug. Includes references.

Language: English

Descriptors: Scenedesmus; Immobilization; Nitrites; Uptake; Assimilation

17 NAL Call. No.: 381 J8224
Detailed study of anaerobic digestion of spirulina maxima algal biomass. Samson, R.; LeDuy, A.
New York, N.Y. : John Wiley & Sons; 1986 Jul.
Biotechnology and bioengineering v. 28 (7): p. 1014-1023. ill; 1986 Jul. Includes 31 references.

Language: English

Descriptors: Saprospira; Anaerobic conditions; Biomass accumulation; Anaerobic digesters; Methane production

18 NAL Call. No.: TD930.A32
Development of an industrial-scale process for the heterotrophic production of a micro-algal mollusc feed.
Day, J.D.; Edwards, A.P.; Rodgers, G.A.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 245-249; 1991. Includes references.

Language: English

Descriptors: Uk; Algae culture; Industrial methods; Dry feeds; Powders; Mollusca; Feeding; Trials

19 NAL Call. No.: TP248.27.A46S62 1987
Development of microalgal systems for the production of liquid fuels. Barclay, W.; Wyman, C.; Lewin, R.A.; Cheng, L.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 55-64; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: U.S.A.; Algae culture; Fuel crops; Federal programs; Research projects; Fuels

20 NAL Call. No.: QK569.P65D86 1992
Dunaliella physiology, biochemistry, and biotechnology.
Avron, Mordhay; Ben-Amotz, Ami,
Boca Raton : CRC Press,; 1992.
240 p. : ill. ; 25 cm. Includes bibliographical references and index.

Language: English

Descriptors: Dunaliella

21 NAL Call. No.: QR1.Z4

Effect of cultivation temperature and light intensity on fatty acid production in the red alga Porphyridium cruentum.
Rezanka, T.; Doucha, J.; Mares, P.; Podojil, M.
Berlin, E. Ger. : Akademie-Verlag; 1987.
Journal of basic microbiology v. 27 (5): p. 275-278; 1987.
Includes references.

Language: English

Descriptors: Algae; Temperature relations; Cultivation; Light flux; Unsaturated fatty acids

22 NAL Call. No.: RA1270.P35A1
Effect of increasing copper and salinity on glycerol production by Dunaliella salina.
Lustigman, B.; McCormick, J.M.; Dale, G.; McLaughlin, J.J.A. New York, N.Y. : Springer-Verlag; 1987 Feb.
Bulletin of environmental contamination and toxicology v. 38 (2): p. 359-362; 1987 Feb. Includes references.

Language: English

Descriptors: Dunaliella; Glycerol; Production; Copper; Salinity; Toxicity

23 NAL Call. No.: TD930.A32
The extensive commercial cultivation of Dunaliella salina.
Schlipalius, L.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 241-243; 1991. Includes references.

Language: English

Descriptors: South australia; Dunaliella; Species; Algae culture; Industrial methods; Beta-carotene; Crystallization; Food colorants; Soybean oil; Diet; Supplements; Dry feeds; Powders; Algal protein

24 NAL Call. No.: QD415.A1J62
gamma-linolenic acid production by microalgae.
Hirano, M.; Mori, H.; Miura, Y.; Matsunga, N.; Nakamura, N.; Matsunaga, T. Totowa, N.J. : Humana Press; 1990.
Applied biochemistry and biotechnology v. 24/25: p. 183-193; 1990. Includes references.

Language: English

Descriptors: Linolenic acid; Biological production; Algae

25 NAL Call. No.: QD415.A1J62
Genetic engineering of microalgae for fuel production: scientific note. Dunahay, T.G.; Jarvis, E.E.; Zeiler, K.G.; Roessler, P.G.;

Brown, L.M. Totowa, N.J. : Humana Press; 1992.
Applied biochemistry and biotechnology v. 34/35: p. 331-339; 1992. Paper presented at the "Thirteenth Symposium on Biotechnology for Fuels and Chemicals," May 6-10, 1991, Colorado Springs, Colorado. Includes references.

Language: English

Descriptors: Chlorella ellipsoidea; Cyclotella; Chlorophyta; Genetic transformation; Direct DNAuptake; Gene transfer; Electroporation; Structural genes; Nitrate reductase; Acetyl-coa carboxylase; Carboxy-lyases; Gene expression; Reporter genes; Luciferase

26 NAL Call. No.: QR1.Z4
Glycerol production by Dunaliella bioculata.
Ahmed, A.M.; Zidan, M.A.
Berlin, E. Ger. : Akademie-Verlag; 1987.
Journal of basic microbiology v. 27 (8): p. 419-425; 1987. Includes references.

Language: English

Descriptors: Dunaliella; Glycerol; Production; Osmotic pressure; Photosynthesis

27 NAL Call. No.: QR53.B56
Glycerol production by Dunaliella tertiolecta immobilized within Ca-alginate beads.
Grizeau, D.; Navarro, J.M.
Kew, Eng. : Science and Technology Letters; 1986 Apr.
Biotechnology letters v. 8 (4): p. 261-264; 1986 Apr. Includes references.

Language: English

Descriptors: Dunaliella; Glycerol; Production; Immobilization; Alginates

28 NAL Call. No.: 442.8 AR26
Green microalgae can use naphthalenesulfonic acids as sources of sulfur. Soeder, C.J.; Hegewald, E.; Kneifel, H.
Berlin, W. Ger. : Springer International; 1987.
Archives of microbiology v. 148 (4): p. 260-263; 1987. Includes references.

Language: English

Descriptors: Chlorella; Scenedesmus; Sulfur; Metabolism; Naphthalene

29 NAL Call. No.: QD415.A1J62
Growth characteristics of microalgae in high-concentration CO2

gas, effects of culture medium trace components, and impurities thereon.
Negoro, M.; Shioji, N.; Ikuta, Y.; Makita, T.; Uchiumi, M.
Totowa, N.J. : Humana Press; 1992.
Applied biochemistry and biotechnology v. 34/35: p. 681-692; 1992. Paper presented at the "Thirteenth Symposium on Biotechnology for Fuels and Chemicals," May 6-10, 1991, Colorado Springs, Colorado. Includes references.

Language: English

Descriptors: Chlorophyta; Bacillariophyta; Exhaust gases; Biological treatment; Carbon dioxide; Photosynthesis; Cell culture; Nickel; Vanadium; Air pollution; Culture media

30 NAL Call. No.: 381 J8224
Improved performance of intensive semicontinuous cultures of Scenedesmus by biomass recirculation.
De la Noue, J.; Ni Eidhin, D.
New York, N.Y. : John Wiley & Sons; 1988 Apr05.
Biotechnology and bioengineering v. 31 (5): p. 397-406. ill; 1988 Apr05. Includes references.

Language: English

Descriptors: Scenedesmus; Culture media; Biomass; Recycling

31 NAL Call. No.: QD415.A1J62
Influence of ammonium chloride on growth and fatty acid production by Spirulina platensis.
Manabe, E.; Chiba, Japan; Hirano, M.; Takano, H.; Ishikawa-Doi, N.; Sode, K.; Matsunaga, T.
Totowa, N.J. : Humana Press; 1992.
Applied biochemistry and biotechnology v. 34/35: p. 273-281; 1992. Paper presented at the "Thirteenth Symposium on Biotechnology for Fuels and Chemicals," May 6-10, 1991, Colorado Springs, Colorado. Includes references.

Language: English

Descriptors: Spirulina; Lipogenesis; Fatty acids; Linolenic acid; Nutrient availability; Ammonium chloride

32 NAL Call. No.: QR1.M562
Influence of culture density, pH, organic acids and divalent cations on the removal of nutrients and metals by immobilized Anabaena doliolum and Chlorella vulgaris.
Mallick, N.; Rai, L.C.
Oxford, OX, UK : Published by Rapid Communications of Oxford Ltd in association with UNESCO and in collaboration with the International Union of Microbiological Societies, c1990-; 1993 Mar.
World journal of microbiology & biotechnology v. 9 (2): p. 196-201; 1993 Mar. Includes references.

Language: English

Descriptors: Anabaena doliolum; Chlorella vulgaris; Alginates; Immobilization; Uptake; Nutrients; Metals; Density; Ph; Organic acids; Cations; Water pollution; Drinking water

33 NAL Call. No.: QK1.A28
An investigation of cytological effects of Spirulina culture filtrate on mitosis in Allium cepa.
Changoiwala, M.; Chatterjee, P.
Meerut, India : Society for Advancement of Botany; 1987 Jun. Acta botanica Indica v. 15 (1): p. 9-17. ill; 1987 Jun. Includes references.

Language: English

Descriptors: Saprospira; Culture filtrates; Allium cepa; Mitosis; Growth inhibitors

34 NAL Call. No.: TP248.2.W69
Large scale culture of microalgae: the new agricultural revolution. Karuna-Karan, A.; Cysewski, G.; Anderson, D.; Nester, E.; Haigh, G. London : Online, c1986-; 1986.
World biotech report 1986 : proceedings of Biotech 86 Europe held in London, May 1986. v. 2 pt. 7 p. 37-51. ill; 1986. Includes references.

Language: English

Descriptors: Cash crops; Algae culture; Beta-carotene; Land use; Biotechnology; Innovations; Value added; Fluorescent dyes; Pigments; Fertilizer technology

35 NAL Call. No.: 384 F773
Lipids and macromolecular lipids of the hydrocarbon-rich microalga Botryococcus braunii. Chemical structure and biosynthesis. Geochemical and biotechnological importance.
Metzger, P.; Largeau, C.; Casadevall, E.
Wien : Springer-Verlag; 1991.
Fortschritte der Chemie organischer Naturstoffe; Progress in the chemistry of organic natural products v. 57: p. 1-70; 1991.
Literature review. Includes references.

Language: English

Descriptors: Algae; Lipogenesis; Hydrocarbons; Fatty acids; Triacylglycerols; Sterols; Carotenoids; Cell walls; Polymers; Aldehydes; Biosynthesis; Biotechnology; Geochemistry; Literature reviews

36 NAL Call. No.: 450 J829
Macro- and microalgal production within a Nitella opaca bed in

Lake Thingvallavatn, Iceland.
Kairesalo, T.; Jonsson, G.S.; Gunnarsson, K.; Jonasson, P.M.
Oxford : Blackwell Scientific; 1989 Jun.
Journal of ecology v. 77 (2): p. 332-342; 1989 Jun. Includes references.

Language: English

Descriptors: Nitella; Plant production; Lakes; Plant ecology; Seasonal growth; Biomass accumulation; Measurement; Photosynthesis; Benthos; Fauna; Plant communities; Metabolism

37 NAL Call. No.: 307.8 J82
Market applications for microalgae.
Kyle, D.
Champaign, Ill. : The Society; 1989 May.
Journal of the American Oil Chemists' Society v. 66 (5): p. 648-651; 1989 May.

Language: English

Descriptors: Algae; Microorganisms; Industrial applications; Oils and fats industry; Food biotechnology; Algae culture

38 NAL Call. No.: TP248.27.A46S62 1987
Mass culture of Porphyridium cruentum: a multiproduct stategy for the biomass valorisation.
Thepenier, C.; Chaumont, D.; Gudin, C.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 413-420. ill; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: Algae culture; In vitro; Tubes; Polysaccharides; Enzymes; Modifications

39 NAL Call. No.: TD930.A32
Meat meal and algae (Spirulina) as ingredients of calf starter rations. Bhaskar, B.V.; Amrith Kumar, M.N.; Sundareshan, K.; Sampath, S.R. London : Elsevier Applied Science Publishers; 1986.
Agricultural wastes v. 15 (1): p. 51-58; 1986. Includes references.

Language: English

Descriptors: Calves; Feeding; Diet studies; Meat meal; Saprospira; Algae meal; Growth rate; Liveweight gains; Metabolism; Total digestible nutrients; Crude proteins; Feed evaluation

40 NAL Call. No.: TP368.C7
Microalgae as food and supplement.
Kay, R.A.
Boca Raton, Fla. : CRC Press; 1991.
Critical reviews in food science and nutrition v. 30 (6): p. 555-573. charts; 1991. Literature review. Includes references.

Language: English

Descriptors: Algae; Algae culture; Energy content; Nutrient content; Nutrient density; Food composition tables; Food processing; Food supplements; Commercial farming; Energy cost of production; Literature reviews

Abstract: The microalgae Chlorella spp., Dunaliella spp., and Scenedesmus spp., and the cyanobacteria Spirulina spp., and Aphanizomenon flos-aquae, are being used as nutrient-dense foods and sources of fine chemicals. They have significant amounts of lipid, protein, chlorophyll, carotenoids, vitamins, minerals, and unique pigments. They may also have potent probiotic compounds that enhance health. Their historical and current use are reviewed in this article.

41 NAL Call. No.: TA166.T72
Microalgae biotechnology.
Benemann, J.R.; Tillett, D.M.; Weissman, J.C.
Cambridge : Elsevier Publications; 1987 Feb.
Trends in biotechnology v. 5 (2): p. 47-53; 1987 Feb. Includes references.

Language: English

Descriptors: Algae culture; Biotechnology; Production costs; Products; Photosynthesis; Waste treatment

42 NAL Call. No.: 381 J8224
Microalgae production: technical and economic evaluations. Tapie, P.; Bernard, A.
New York, N.Y. : John Wiley & Sons; 1988 Sep20.
Biotechnology and bioengineering v. 32 (7): p. 873-885; 1988 Sep20. Includes references.

Language: English

Descriptors: Algae; Production; Biotechnology; Photosynthesis

43 NAL Call. No.: QL461.S65
Microalgae Spirulina maxima (Oscillatoriaceae) in the larval diet of the screwworm (Diptera: Calliphoridae).
Friese, D.D.
Dalla, Tex. : Southwestern Entomological Society; 1992 Dec. The Southwestern entomologist v. 17 (4): p. 289-293; 1992 Dec. Includes references.

Language: English

Descriptors: Cochliomyia hominivorax; Mass rearing; Diet; Spirulina

44 NAL Call. No.: SH389.M53
Micro-algal biotechnology.
Borowitzka, Michael A.; Borowitzka, Lesley J.
Cambridge [England] ; New York : Cambridge University Press,; 1988. x, 477 p. : ill. ; 26 cm. Includes bibliographies and indexes.

Language: English

Descriptors: Algae; Algae culture; Algae products

45 NAL Call. No.: S592.17.A73S46
Microalgal mass culture and forced development of biological crusts in arid lands.
Knutsen, G.; Metting, B.
New York, N.Y. : M. Dekker; 1991.
Semiarid lands and deserts : soil resource and reclamation / edited by J. Skujins. p. 487-506; 1991. (Books in soils, plants, and the environment :). Includes references.

Language: English

Descriptors: Algae; Biomass production; Crusts; Reclamation; Arid lands; Deserts

46 NAL Call. No.: 450 R34
Morphological variability of a Scenedesmus denticulatus Lagerh. isolate in culture and some taxonomic revisions.
Fenwick, M.G.
Cambridge, Mass. : New England Botanical Club; 1988 Oct.
Rhodora v. 90 (864): p. 363-368. ill; 1988 Oct. Includes references.

Language: English

Descriptors: Scenedesmus; Taxonomy; Plant morphology; Variations

47 NAL Call. No.: TP368.T73
Natural pigments from red microalgae for use in foods and cosmetics.i. Arad, S.M.
Cambridge, U.K. : Elsevier Trends Journals; 1992 Apr.
Trends in food science & technology v. 3 (4): p. 92-97; 1992 Apr. Includes references.

Language: English

Descriptors: Foods; Food colorants; Cosmetics; Pigments; Algae

48 NAL Call. No.: TP248.27.A46S62 1987
Nutrient preparation and low cost basin construction for village production of Spirulina.
Fox, R.D.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 355-364. ill; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: Developing countries; Saprospira; Villages; Waste water treatment; Algae culture; Layout and planning; Agitation; Public health engineering; Cost benefit analysis

49 NAL Call. No.: RB152.J6
The nutritional quality of Scenedesmus acutus in a semi-industrial plant in Peru.
Gross, R.; Schoeneberger, H.; Gross, U.
Park Forest : Chem-Orbital; 1986 May.
Journal of environmental pathology, toxicology, and oncology : official organ of the International Society for Environmental Toxicology and Cancer v. 6 (5/6): p. 47-57; 1986 May. Includes references.

Language: English

Descriptors: Scenedesmus; Nutritional value; Plant proteins; Plant analysis

50 NAL Call. No.: QR1.E9
Outdoor mass culture of Spirulina maxima in sea-water.
Tredici, M.R.; Papuzzo, T.; Tomaselli, L.
Berlin, W. Ger. : Springer International; 1986 Apr.
Applied microbiology and biotechnology v. 24 (1): p. 47-50. ill; 1986 Apr. Includes references.

Language: English

Descriptors: Saprospira; Culture media; Nitrogen; Ph; Biomass determination

51 NAL Call. No.: TP248.27.A46S62 1987
Photobioreactors for the axenic mass cultivation of microalgae.
Pohl, P.; Kohlhase, M.; Martin, M.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. 209-217. ill; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: German federal republic; Algae culture; In vitro; Growth chambers; Layout and planning; Aseptic state; Computer applications; Fluorescent light

52 NAL Call. No.: TP248.27.A46S62 1987
Photoinhibition as a limiting factor in outdoor cultivation of Spirulina platensis.
Vonshak, A.; Guy, R.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 365-370; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: Israel; Saprospira; Algae culture; Natural light; Photosynthesis; Inhibitors; Strain differences; Ponds; Resistance to injurious factors

53 NAL Call. No.: TP248.2.B562
The potential of microalgal biotechnology: a review of production and uses of microalgae.
De La Noue, J.; Pauw, N. de
Oxford : Pergamon Press; 1988.
Biotechnology advances v. 6 (4): p. 725-770; 1988. Literature review. Includes references.

Language: English

Descriptors: Algae; Algae culture; Biotechnology; Chemical composition; Nutritional value; Harvesting; Genetic engineering

54 NAL Call. No.: TD930.A32
Potential production of protoplasts from Porphyridium sp. using an enzymatic extract of its predator Gymnodinium sp.
Roth-Bejerano, N.; Van Moppes, D.; Sivan, A.; Arad (Malis), S.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 127-131; 1991. Includes references.

Language: English

Descriptors: Algae; Species; Genetic engineering; Protoplasts; Production; Genetic improvement; Gymnodinium; Enzymes; Extracts; Cell walls; Degradation; Osmotic pretreatment; Respiration rate; Photosynthesis; Growth curve; Cell division

55 NAL Call. No.: TP248.27.A46S62 1987
A prerequisite for industrial microalgaculture: efficient utilization of solar irradiance.
Richmond, A.

London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 237-244; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: Israel; Algae culture; Growth chambers; Design requirements; Natural light; Solar radiation

56 NAL Call. No.: QR1.F44
Production and regeneration of spheroplasts from the cyanobacterium Spirulina platensis.
Lanfaloni, L.; Grifantini, R.; Petris, A.; Gualerzi, C.O.
Amsterdam : Elsevier Science Publishers; 1989 May.
FEMS microbiology letters - Federation of European Microbiological Societies v. 59 (1/2): p. 141-146. ill; 1989 May.
Includes references.

Language: English

Descriptors: Saprospira; Regeneration; Growth rate; Genetic engineering

57 NAL Call. No.: TP248.65.L57W67 1987
Production of eicosapentaenoic and arachidonic acids by the red alga Porphyridium cruentum.
Cohen, Z.
Champaign, Ill. American Oil Chemists' Society; 1988.
Proceedings : World Conference on Biotechnology for the Fats and Oils Industry / edited by Thomas H. Applewhite. p. 285-287; 1988.
Includes references.

Language: English

Descriptors: Eicosapentaenoic acid; Arachidonic acid; Algae

58 NAL Call. No.: S494.5.B563I5 1988
Production of food, feed, biochemical and bioenergy from microalgae. Venkataraman, L.V.; Becker, E.W.
Paris, France : Societe francaise de microbiologie; 1988.
Proceedings : 8th International Biotechnology Symposium, Paris 1988 / edited by G. Durand, L. Bobichon, J. Florent. p. 910-922; 1988. Includes references.

Language: English

Descriptors: Algae; Algae culture; Cultured products; Production; Industrial applications; Biotechnology

59 NAL Call. No.: QR1.F44
Production of gamma-linolenic acid from the marine green alga

Chlorella sp. NKG 042401.
Miura, Y.; Sode, K.; Nakamura, N.; Matsunaga, N.; Matsunaga, T.
Amsterdam : Elsevier Science Publishers; 1993 Mar01.
FEMS microbiology letters - Federation of European Microbiological Societies v. 107 (2/3): p. 163-168; 1993 Mar01.
Includes references.

Language: English

Descriptors: Chlorella; Linolenic acid; Productivity; Yields; Growth; Salinity; Nitrogen; Environmental factors; Industrial applications

Abstract: gamma-Linolenic acid (GLA) production using a high GLA producing marine green alga, Chlorella sp. NKG 042401, was studied. GLA was presented in the galactolipid fraction (37.9%/total fatty acids). The effects of growth conditions on GLA production were studied. Optimum salinity for GLA production was 5 g l-1, at which salinity the highest cell concentration was achieved, resulting in a 1.6-fold increase in GLA productivity. Total fatty acid, however, was not drastically affected by change of salinity. Nitrogen starvation decreased the ratio of unsaturated fatty acids, and consequently GLA ratio in total fatty acid decreased. The urea adduct method was used to concentrate GLA from crude extract. As a result, after 5 sequential concentration procedures, GLA was concentrated 5-fold with a yield of 49%.

60 NAL Call. No.: QD415.A1J62
Production of methyl ester fuel from Microalgae.
Nagle, N.; Lemke, P.
Totowa, N.J. : Humana Press; 1990.
Applied biochemistry and biotechnology v. 24/25: p. 355-361; 1990. Includes references.

Language: English

Descriptors: Algae; Lipids; Extraction; Fatty acid esters; Biological production

61 NAL Call. No.: 307.8 J82
The production potential of eicosapentaenoic and arachidonic acids by the red alga Porphyridium cruentum.
Cohen, Z.
Champaign, Ill. : The Society; 1990 Dec.
Journal of the American Oil Chemists' Society v. 67 (12): p. 916-920; 1990 Dec. Includes references.

Language: English

Descriptors: Rhodophyta; Strains; Eicosapentaenoic acid; Arachidonic acid; Chemical composition; Algal cultures; Growth

62 NAL Call. No.: 450 P697

Results of a large scale screen of microalgae for the production of protease inhibitors.
Cannell, R.J.P.; Kellam, S.J.; Owsianka, A.M.; Walker, J.M.
Stuttgart, W. Ger. : Georg Thieme Verlag; 1988 Feb.
Planta medica v. 54 (1): p. 10-14; 1988 Feb. Includes references.

Language: English

Descriptors: Algae; Protease inhibitors; Antineoplastic agents; Medicinal properties

63 NAL Call. No.: SH388.75.R67 1991
Rotifer and microalgae culture systems proceedings of a U.S.-Asia workshop, Honolulu, Hawaii, January 28-31, 1991.
Fulks, Wendy; Main, Kevin L.
United States, National Oceanic and Atmospheric Administration
Honolulu, Hawaii : Oceanic Institute,; 1991.
xi, 364 p. : ill. ; 28 cm. Sponsored by the National Oceanic and Atmospheric Administration, United States Department of Commerce. Includes bibliographical references.

Language: English

Descriptors: Algae culture; Rotifera

64 NAL Call. No.: 391.8 F73
The safety evaluation of Dunaliella bardawil as a potential food supplement. Mokady, S.; Abramovici, A.; Cogan, U.
Exeter : Pergamon Press; 1989.
Food and chemical toxicology : an international journal published for the British Industrial Biological Research Association v. 27 (4): p. 221-226; 1989. Includes references.

Language: English

Descriptors: Dunaliella; Food supplements; Food safety; Mutagenicity; Biochemistry; Food consumption; Adverse effects; Rats

65 NAL Call. No.: TP248.27.A46S62 1987
Scaling up a tubular photoreactor for continuous culture of Porphyridium cruentum from laboratory to pilot plant (1981-1987).
Chaumont, D.; Thepenier, C.; Gudin, C.; Junjas, C.
London : Elsevier Applied Science; 1988.
Algal biotechnology / edited by T. Stadler ... [et al.].. p. 199-208. ill; 1988. Proceedings of the 4th International Meeting, September 15-17, 1987, Villeneuve-d'Ascq, France. Includes references.

Language: English

Descriptors: France; Algae culture; In vitro; Tubes; Growth chambers; Continuous cropping; Layout and planning; Urea; Aseptic

state; Ph; Biomass; Production costs

66 NAL Call. No.: QK1.R4
Sea water used for the culture of alga Spirulina platensis.
Popovici, G.; Boldor, O.; Toma, T.; Nicola, N.; Titu, H.
Bucuresti : Editura Academiei Republicii Socialiste Romania; 1986 Jul. Revue roumaine de biologie. Serie de biologie vegetale v. 31 (2): p. 131-136. ill., plates; 1986 Jul. Includes references.

Language: English

Descriptors: Saprospira; Algae culture; Growth; Growing media; Sea water

67 NAL Call. No.: QR1.M562
Strain selection for beta-carotene production by Dunaliella.
Markovits, A.; Gianelli, M.P.; Conejeros, R.; Erazo, S.
Oxford, OX, UK : Published by Rapid Communications of Oxford Ltd in association with UNESCO and in collaboration with the International Union of Microbiological Societies, c1990-; 1993 Sep.
World journal of microbiology & biotechnology v. 9 (5): p. 534-537; 1993 Sep. Includes references.

Language: English

Descriptors: Dunaliella; Strains; Growth rate; Beta-carotene; Nitrates; Yields

68 NAL Call. No.: 381 J8224
A study of the energetics and economics of microalgal mass culture with the marine chlorophyte Tetraselmis suecica: implications for use of power plant stack gases.
Laws, E.A.; Berning, J.L.
New York, N.Y. : John Wiley & Sons; 1991 Apr25.
Biotechnology and bioengineering v. 37 (10): p. 936-947; 1991 Apr25. Includes references.

Language: English

Descriptors: Algae; Biomass

Abstract: The marine phytoplankter Tetraselmis suecica was grown in shallow outdoor flumes for a period of approximately 6 months at the Natural Energy Laboratory of Hawaii. In full sunlight, gross production rates were 15-20 g C m(-2) d(-1). The corresponding photosynthetic efficiencies (PE's) were 9-10%. Respiration losses removed about half the gross production. The CO2 Utilization efficiencies of 96 +/- 11% were achieved by bubbling CO2 into the culture with the use of a counterflow sump system. Adding the CO2 in the form of carbonated water resulted in utilization efficiencies of 81 +/- 11%. Archimedes screws proved superior to both paddle wheels and propellers as a means of circulating the water in the flumes. Insertion of foil arrays

into the flumes to effect systematic mixing of the culture significantly enhanced production. The enhancement was greater when the foils were oriented at a small angle relative to the horizontal than when they were oriented at the same angle relative to the vertical. Light modulation effects are implicated as the probable cause of most of the enhancement. Substitution of electric power plant stack gases for pure CO2 resulted in no significant change in the production of T. suecica grown in chemostat culture.

69 NAL Call. No.: TD930.A32
Suitability of Chlorella vulgaris UAM 101 for heterotrophic biomass production.
Orus, M.I.; Marco, E.; Martinez, F.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 179-184; 1991. Includes references.

Language: English

Descriptors: Chlorella vulgaris; Algal cultures; Biomass production; Dry matter; Culture media; Glucose; Effects; Mitochondria; Respiration rate; Nitrates; Uptake; Simulation models; Growth models; Photosynthesis; Oxygen; Emission; Cells; Protein content

70 NAL Call. No.: TD930.A32
Temperature as an important factor affecting productivity and night biomass loss in Spirulina platensis grown outdoors in tubular photobioreactors. Torzillo, G.; Sacchi, A.; Materassi, R.
Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 95-100; 1991. Includes references.

Language: English

Descriptors: Italy; Spirulina; Biomass production; Temperature; Effects; Productivity; Dark; Losses; Bioreactors; Carbohydrates; Synthesis; Protein synthesis

71 NAL Call. No.: SF5.A8 1990
True availabilities of amino acids in soybean meal, fish meal, meat and bone meal, feather meal and spirulina meal determined with rooster. Hsu, A.; Lee, M.L.; Lu, J.J.; Lin, Y.F.
Chunan, Miaoli, Taiwan : The Organization Committee, Fifth AAAP Animal Science Congress; 1990.
Proceedings, the 5th AAAP Animal Science Congress, May 27-June 1, 1990, Taipei, Taiwan, Republic of China. v. 3 p. 100; 1990. Includes references.

Language: English

Descriptors: Feeds; Protein; Amino acids; Fowls

72 NAL Call. No.: 47.8 B77
Use of the beta-carotene rich alga Dunaliella bardawil as a source of retinol. Ben-Amotz, A.; Edelstein, S.; Avron, M.
Oxfordshire : Carfax Publishing Company; 1986 Dec.
British poultry science v. 27 (4): p. 613-619; 1986 Dec.
Includes references.

Language: English

Descriptors: Chicks; Diets; Dunaliella; Beta-carotene; Retinol; Body weight; Egg yolk color; Lutein

73 NAL Call. No.: 442.8 AN72
Use of the cell wall-less alga Dunaliella bioculata in herbicide screening tests.
Felix, H.R.; Chollet, R.; Harr, J.
Warwick : Association of Applied Biologists; 1988 Aug.
Annals of applied biology v. 113 (1): p. 55-60; 1988 Aug.
Includes references.

Language: English

Descriptors: Dunaliella; Herbicides; Herbicidal properties; Screening tests; Growth rate; Phytotoxicity

74 NAL Call. No.: QR1.R4
Utilizacao de sub-produtos da industria alcooleira na obtencao de biomassa de Spirulina maxima. II. Emprego do residuo da destilacao do mosto fermentado (Vinhaca) [Utilization of by-products from alcoholic fermentation industry to biomass production of Spirulina maxima. II. Use of molasses alcohol distillate waste].
Ferraz, C.A.M.; Aquarone, E.; Krauter, M.; Balloni, W.; Florenzano, G. Sao Paulo, Brazil : Sociedade Brasiliera de Microbiologia; 1986 Jan. Revista de microbiologia v. 17 (1): p. 15-21. ill; 1986 Jan. Includes 17 references.

Language: Portuguese

Descriptors: Saprospira; Biomass accumulation; Molasses; Vinasse; Fermentation; Ethanol; Production

75 NAL Call. No.: TX341.P53
Utilization of beta-carotene from Spirulina platenis by rats.
Kapoor, R.; Mehta, U.
Dordrecht : Kluwer Academic; 1993 Jan.
Plant foods for human nutrition v. 43 (1): p. 1-7; 1993 Jan.
Includes references.

Language: English

Descriptors: Spirulina; Beta-carotene; Bioavailability; Rats

76 NAL Call. No.: QP501.C6
Variations in amino acid composition of phytoplanktonic production in sewage treatment ponds at Meze. Effects on the valorization of microalgal biomass. Lautier, J.; Maleville, A.; Cousse, H.; Mouzin, G.; Lagarrigue, J. Oxford : Pergamon Press; 1993 Apr.
Comparative biochemistry and physiology : B : Comparative biochemistry v. 104 (4): p. 775-779; 1993 Apr. Includes references.

Language: English

Descriptors: France; Sewage; Waste water treatment; Ponds; Phytoplankton; Biological production; Algae; Biomass; Amino acids; Composition

Abstract: 1. The amino acid composition of phytoplankton of sewage treatment ponds at Meze evolves with taxonomic origins of the population, growing conditions and sample time. 2. It is characterized by the presence of aliphatic compounds and amino diacids, and also by the weak representation of sulphur amino acids. 3. Chlorophyceae populations which present the highest concentration of amino acids could be used in aquaculture for the larval growth of molluscs. 4. Equally, with Bacillaryophyceae populations, they should represent a major constituent of the feeding of young mammals given their wealth of essential amino acids. 5. Production of Cyanophyceae could eventually be of value for dermocosmetology since they contain ornithin, precursor of growth factors.

77 NAL Call. No.: QP501.C6
Variations in fatty acid composition of phytoplanktonic production in sewage treatment ponds at Meze. Effects on the valorization of microalgal biomass. Lautier, J.; Maleville, A.; Cousse, H.; Mouzin, G.; Lagarrigue, J. Oxford : Pergamon Press; 1993 Apr.
Comparative biochemistry and physiology : B : Comparative biochemistry v. 104 (4): p. 769-773; 1993 Apr. Includes references.

Language: English

Descriptors: France; Sewage; Waste water treatment; Ponds; Phytoplankton; Fatty acids; Composition; Biological production; Algae; Biomass

Abstract: 1. Fatty acids composition of phytoplankton in sewage treatment ponds of Meze evolves over time with taxonomic origins of the population. 2. The major types seen in the course of an annual cycle are differentiated by the unsaturation level of their total fatty acids. 3. This level is high for Bacillaryophyceae, lower for Cyanophyceae, between the two preceding levels for chlorophyceae. 4. Only the fractions rich in polyunsaturated fatty acids can represent an essential constituent of feeding regime in aquaculture. 5. Due to the

presence of short-sequenced saturated fatty acids, reputed to be skin irritants, liposoluble extracts of the phytoplankton represent only a limited interest for cosmetic trade.

78 NAL Call. No.: TD930.A32
A vertical alveolar panel (VAP) for outdoor mass cultivation of microalgae and cyanobacteria.
Tredici, M.R.; Carlozzi, P.; Zittelli, G.C.; Materassi, R. Essex : Elsevier Applied Science Publishers; 1991.
Bioresource technology v. 38 (2/3): p. 153-159; 1991. Includes references.

Language: English

Descriptors: Italy; Anabaena azollae; Spirulina; Algae culture; Mass; Cultivation; Biomass production; Techniques; Bioreactors

79 NAL Call. No.: QR53.B56
Vertical tubular reactor for microalgae cultivation.
Miyamoto, K.; Wable, O.; Benemann, J.R.
Kew : Science and Technology Letters; 1988 Oct.
Biotechnology letters v. 10 (10): p. 703-708; 1988 Oct. Includes references.

Language: English

Descriptors: Algae; Cultivation; Color; Food supplements; Oxygen

80 NAL Call. No.: QR53.J68
Vitamin content of four marine microalgae. Potential use as source of vitamins in nutrition.
Fabregas, J.; Herrero, C.
Amsterdam : Elsevier Science Publishers on behalf of the Society for Industrial Microbiology; 1990 Jun.
Journal of industrial microbiology v. 5 (4): p. 259-264; 1990 Jun. Includes references.

Language: English

Descriptors: Algae; Sea water; Vitamins; Nutritional requirements; Food supplements

81 NAL Call. No.: R856.A1A32
Zur mixotrophen Kultivation von Chlorella vulgaris in homokontinuierlicher Chemostatkultur [Mixotrophic cultivation of Chlorella vulgaris in homocontinuous cultivation in a chemostat].
Roth, P.; Burger, S.
Berlin, E. Ger. : Akademie-Verlag; 1987.
Acta biotechnologica v. 7 (1): p. 17-21; 1987. Includes references.

Language: German

Descriptors: Chlorella vulgaris; Cultivation methods; Cell culture; Protein content; Lipids; Carbohydrates; Nucleic acids; Phototropism

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