

PatBase - Search results 06 May 2017

Search query (1): PN=(US20120171733 OR US20140051131 OR WO2016041028 OR US20120129245 OR US7041493 OR WO2015050775 OR US20100255458)

Results: 7

16-027968

Exam. Estefanía P.

Search history

Search PN=(US20120171733 OR US20140051131 OR WO2016041028 OR US20120129245 OR US7041493 OR WO2015050775 OR
1: US20100255458) (Results 7)

Title: Bioreactor and bioprocessing technique

Abstract: Source: US2002025547A The inventive bioprocessing system (and technique) relies on non-invasive optical chemical sensing technology wherein an optical excitation source excites an optical chemical sensor. The optical chemical sensor then emits luminescence or absorbs light which is measured by a detector. The luminescence emitted from the chemical sensor or the amount of light absorbed by the chemical sensor is related to the concentration of an analyte, such as oxygen. If the luminescence emitted changes, or if the amount of light absorbed changes, then the concentration of the analyte has changed. Using such a system to measure and adjust multiple parameters at one time allows one to efficiently and cost-effectively determine optimal conditions for a given cell type and/or cell environment, for example. By combining cell cultivation with optical chemical sensing technology, cultivation can be successfully and rapidly performed, controlled and monitored in small volumes in an automated, parallel fashion at less expense than current bioprocess techniques.

Classifications:

International (IPC 8-9): C12M1/34 C12M1/36 C12Q1/00 C12Q1/02 G01N21/25 G01N21/64 G01N21/76 G01N21/82 G01N33/52 G01N33/53 G01N35/00 (Advanced/Invention)

International (IPC 1-7): C12M1/34 C12Q1/00 C12Q1/02 C12Q1/68 G01N33/48 G01N33/53

CPC: G01N21/253 C12M23/12 C12M41/26 C12M41/32 C12M41/34 G01N21/643 G01N21/6452 G01N21/76 G01N21/82 G01N33/52 G01N2021/6482

European: C12M23/12 C12M41/26 C12M41/32 C12M41/34 G01N21/25B2 G01N21/64H2 G01N21/64P2 G01N21/76 G01N21/82 G01N33/52 S01N21/64P10

US: 356/246 356/319 356/320 356/326 422/82.05 435/287.1 435/287.3 435/287.300P 435/288.1 435/288.3 435/288.4 435/288.400S 435/288.7 435/288.700S 435/4 435/40.5 435/40.500P 435/6.16

PatBase - US2002025547_AA

Patent Application Publication Feb. 18, 2002 Sheet 1 of 14 US 2002/005547 A1

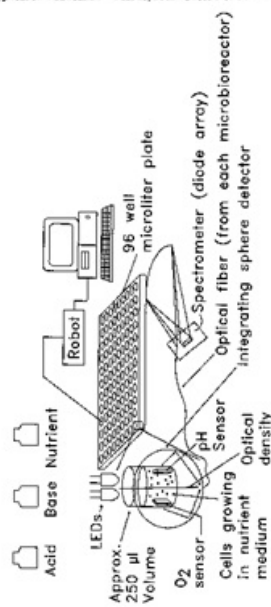


FIG. 1

Family:

Publication number	Publication date	Application number	Application date
AU2001282908 AA	20020225	AU20010282908	20010814
AU200182908 A5	20020225	AU20010082908	20010814
CA2419474 AA	20030212	CA20012419474	20010814
CA2419474 C	20131022	CA20012419474	20010814
DE01961662 T1	20070503	DE20010961662T	20010814
EP1309719 A1	20030514	EP20010961662	20010814
EP1309719 A4	20070307	EP20010961662	20010814
EP2371942 A2	20111005	EP20100011734	20010814
EP2371942 A3	20121128	EP20100011734	20010814
US2002025547 AA	20020228	US20010928662	20010814
US2004121453 AA	20040624	US20030733412	20031212
US6673532 BB	20040106	US20010928662	20010814
US7041493 BB	20060509	US20030733412	20031212
WO0214539 A1	20020221	WO2001US22595	20010814
WO0214539 C2	20030403	WO2001US22595	20010814

Priority:

EP20010961662 20010814 US20000225108P 20000814 US20010928662 20010814
 US20030733412 20031212 WO2001US22595 20010814 US20000225108P 20000814

Probable Assignee: HEWLETT PACKARD DEVELOPMENT CO LP

Assignee(s): (std): RAO GOVIND ; UNIV MARYLAND ; UNIV MARYLAND AT BALTIMORE COU ; UNIV MARYLAND BIOTECH INST

Assignee(s): OF MARYLAND BALTIMORE COUNTY UNIV ; OF MARYLAND BIOTECHNOLOGY INST UNIV ; UNIVERSITY OF MARYLAND BALTIMORE COUNTY ; UNIVERSITY OF MARYLAND AT BALTIMORE COUNTY ; UNIVERSITY OF MARYLAND BIOTECHNOLOGY INSTITUT ; UNIVERSITY OF MARYLAND BIOTECHNOLOGY INSTITUTE ; HEWLETT PACKARD DEVELOPMENT CO ; HEWLETT PACKARD DEVELOPMENT CO LP ; MARYLAND BALTIMORE COUNTY UNIV ; OF MARYLAND AT BALTIMORE COUNTY UNIV

Inventor(s): (std): RAO GOVIND

Inventor(s): GOVIND RAO

Agent(s): GOWLING LAFLEUR HENDERSON LLP; GLAWE DELFS MOLL; FLESHNER AND KIM LLP

Designated states: AE AG AL AM AT AU AZ BA BB BE BF BG BJ BR BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DZ EC EE ES FI FR GA GB GD GE GH GM GN GQ GR GW HR HU ID IE IL IN IS IT JP KE KG KP KR KZ LC LI LK LR LS LT LU LV MA MC MD MG MK ML MN MR MW MX MZ NE NL NO NZ PL PT RO RU SD SE SG SI SK SL SN SZ TD TG TJ TM TR TT TZ UA UG US UZ VN YU ZA ZW

Legal status (INPADOC)
[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
AU2001282908 AA	20020225	LSPB	+	published / reissued	
AU200182908 A5	20020225	LSPB	+	published / reissued	
CA2419474 AA	20030212	LSPB	+	published / reissued	
CA2419474 AA	20030212	LSNP	+AFNE	NATIONAL PHASE ENTRY	
CA2419474 AA	20060711	LSES	+EEER	EXAMINATION REQUEST	
CA2419474 C	20131022	LSGT	+	granted / extensions (spc, cpc, pte)	
DE01961662 T1	20070503	LSPB	+	published / reissued	
EP1309719 A1	20030514	LSPB	+	published / reissued	
EP1309719 A1	20030514	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20030214
EP1309719 A1	20030827	LSAS	RAP1	TRANSFER OF RIGHTS OF AN EP PUBLISHED APPLICATION	OWNER NAME : UNIVERSITY OF MARYLAND BIOTECHNOLOGY INSTITUTE
EP1309719 A1	20030827	LSAS	RAP1	TRANSFER OF RIGHTS OF AN EP PUBLISHED APPLICATION	OWNER NAME : UNIVERSITY OF MARYLAND AT BALTIMORE COUNTY
EP1309719 A1	20070307	LSES	+A4	DESPATCH OF SUPPLEMENTARY SEARCH REPORT	EFFECTIVE DATE : 20070206
EP1309719 A1	20070307	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/76 20060101ALI20070131BHEP
EP1309719 A1	20070307	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/25 20060101ALI20070131BHEP
EP1309719 A1	20070307	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 35/00 20060101ALI20070131BHEP
EP1309719 A1	20070307	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/82 20060101ALI20070131BHEP
EP1309719 A1	20070307	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : C12M 1/36 20060101ALI20070131BHEP
EP1309719 A1	20070307	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/64 20060101ALI20070131BHEP
EP1309719 A1	20070307	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : C12M 1/34 20060101AFI20070131BHEP
EP1309719 A1	20070919	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20070817
EP1309719 A1	20130807	LSAS	RAP1	TRANSFER OF RIGHTS OF AN EP PUBLISHED APPLICATION	OWNER NAME : UNIVERSITY OF MARYLAND AT BALTIMORE COUNTY
EP2371942 A2	20111005	LSPB	+	published / reissued	
EP2371942 A2	20121128	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/25 20060101ALI20121022BHEP
EP2371942 A2	20121128	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : C12M 1/36 20060101ALI20121022BHEP
EP2371942 A2	20121128	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/82 20060101ALI20121022BHEP
EP2371942 A2	20121128	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/64 20060101ALI20121022BHEP
EP2371942 A2	20121128	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 21/76 20060101ALI20121022BHEP

EP2371942 A2	20121128	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : C12M 1/34 20060101AFI20121022BHEP
EP2371942 A2	20121128	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : G01N 35/00 20060101ALI20121022BHEP
EP2371942 A2	20130626	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20130516
EP2371942 A2	20160106	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20151204
US2002025547 AA	20020228	LSPB	+	published / reissued	
US2004121453 AA	20040624	LSPB	+	published / reissued	
US6673532 BB	20040106	LSGT	+	granted / extensions (spc, cpc, pte)	
US6673532 BB	20011026	LSAS	AS	ASSIGNMENT	OWNER NAME : UNIVERSITY OF MARYLAND BALTIMORE COUNTY, MARYLAND DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:RAO, GOVIND; REEL/FRAME:012288/0857 EFFECTIVE DATE : 20010831
US6673532 BB	20030123	LSAS	AS	ASSIGNMENT	OWNER NAME : UNIVERSITY OF MARYLAND BIOTECHNOLOGY INSTITUTE, MA DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:UNIVERSITY OF MARYLAND BALTIMORE COUNTY; REEL/FRAME:013689/0454 EFFECTIVE DATE : 20030114
US6673532 BB	20070706	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US6673532 BB	20110329	LSRX	+RR	REQUEST FOR REEXAMINATION FILED	EFFECTIVE DATE : 20110113
US6673532 BB	20110705	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
US6673532 BB	20160105	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 12
US7041493 BB	20060509	LSGT	+	granted / extensions (spc, cpc, pte)	
US7041493 BB	20041028	LSAS	AS	ASSIGNMENT	OWNER NAME : HEWLETT-PACKARD DEVELOPMENT COMPANY, L.P., TEXAS DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:ANKCOM, JOHN; MILOJICIC, DEJAN S.; ROWSON, JAMES; REEL/FRAME:015301/0678; SIGNING DATES FROM 20040412 TO 20040415
US7041493 BB	20090916	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 4
US7041493 BB	20140509	LSFE	+FPAY	FEE PAYMENT	YEAR OF FEE PAYMENT : 8
WO0214539 A1	20020221	LSPB	+	published / reissued	
WO0214539 C2	20030212	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2419474 COUNTRY OF REF DOCUMENT : CA
WO0214539 C2	20030214	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2001961662 COUNTRY OF REF DOCUMENT : EP
WO0214539 C2	20030514	LSPB	+WWP	WIPO INFORMATION: PUBLISHED IN NATIONAL OFFICE	REF DOCUMENT NUMBER : 2001961662 COUNTRY OF REF DOCUMENT : EP
WO0214539 C2	20030626	LSWD	REG	REFERENCE TO NATIONAL CODE	REF COUNTRY CODE : DE REF LEGAL EVENT CODE : 8642

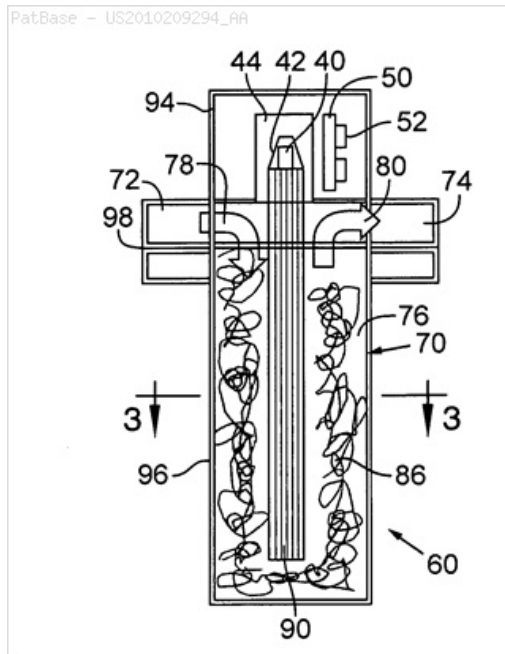
WO0214539 C2	20050607	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : JP
--------------	----------	------	------	--	-----------------------

Title: ULTRAVIOLET PHOTOREACTOR FOR THE PURIFICATION OF FLUIDS

Abstract: Source: US2010209294A In order to disinfect and to detoxify a fluid, a photoreactor contains at least two light sources. One light source activates the catalytic function of a semiconductor material in the fluid to reduce the concentration of contaminants in the fluid, such as by breaking down organic contaminants into non-toxic compounds. A second light source acts directly on living biological entities to sterilize or kill them and thereby disinfect the fluid, and can also serve to activate a semiconductor photocatalyst that in turn causes further damage to biological contaminants. The semiconductor photocatalyst is desirably attached to an optically transmitting fiber substrate in the fluid. The second light source in one embodiment is external to the fluid and illuminates the photocatalyst through transmitting surfaces in a fluid containment vessel. The light sources can comprise respective sets of plural LEDs.

Classifications:

International (IPC 8-9): A61L2/10 A61L2/16 A61L9/00 A61L9/20 B01D53/88 B01J19/12 C02F1/32 C02F1/70 C02F1/72 C12M1/00 C12M1/40 C12M1/42 C12N1/10 C12N1/12 C12N1/20 C12Q3/00 H05B3/00 (Advanced/Invention);
A61L2/10 A61L2/16 A61L9/00 B01J19/12 C02F1/32 C02F1/70 C02F1/72 (Core/Invention)
CPC: C02F1/32 B01J19/12 A61L9/205 B01D53/885 B01D2255/802 B01D2259/804 B01J19/123 C02F1/325 C02F1/725 C02F2201/3222 C02F2201/3224 C02F2201/3227 C02F2201/326 C02F2209/20 C02F2209/24 C02F2305/10 H05B3/0052 F24J2/067 F24J2/1047 C12N1/20 C12M21/02 C12M31/02 C12M31/08 C12M31/10 C12M43/04 C12M43/08 C12N1/10 C12N1/12 Y02P20/59 Y02E10/40
European: A61L9/20P B01D53/88B B01J19/12D2 C02F1/32D C02F1/72K C12M21/02 C12M31/02 C12M31/08 C12M31/10 C12M43/04 C12M43/08 C12N1/10 C12N1/12 C12N1/20 H05B3/00L1C L01D255/80B L01D259/804 M02F201/322D M02F201/322G M02F201/322M M02F201/326 M02F209/20 M02F209/24 M02F305/10
US: 204/157.15 204/158.2 210/205 210/748.01 250/432R 422/105 422/105S 422/107 422/119 422/119S 422/121 422/186.3 422/186.300S 422/24 422/24P 435/252.1 435/252.100S 435/257.1 435/257.100S 435/258.1 435/258.100S 435/292.1 435/292.100S 435/3 435/3P

**Family:**

Publication number	Publication date	Application number	Application date
CN102317430 A	20120111	CN200880021071	20080618
US2010209294 AA	20100819	US20080665003	20080620
US2010255458 AA	20101007	US20080665032	20080618
US2013294968 AA	20131107	US20130931667	20130628
US2013323128 AA	20131205	US20130963602	20130809
US8506886 BB	20130813	US20080665003	20080620
US8834805 BB	20140916	US20130931667	20130628
US9017613 BB	20150428	US20130963602	20130809
WO08156813 A1	20081224	WO2008US07654	20080620

Priority:

US20070003575P 20071119	US20070936642P 20070620	US20080665003 20080620
US20080052562P 20080512	US20080665032 20080618	US20070936645P 20070622
WO2008US07654 20080620	WO2008US67273 20080618	US20130931667 20130628
US20090665003 20091216	US20130963602 20130809	

Probable Assignee: UVCLEANING SYSTEMS INC**Assignee(s):** (std): ALGAEDYNE CORPORATION ; KINKAID CHRISTOPHER PIPER TOBY ; OWEN MARK ; SAMMI MANOJ K ; THORNE JAMES ; UVCLEANING SYSTEMS INC**Assignee(s):** ALGAEDYNE CORP**Inventor(s):** (std): OWEN MARK ; SAMMI MANOJ K ; THORNE JAMES ; OWEN MARK D ; KINKAID CHRISTOPHER PIPER TOBY ; TOBY KINKAID CHRISTOPHER PIPER**Agent(s):** KLARQUIST SPARKMAN LLP; WILSON SONSINI GOODRICH AND ROSATI; PETERSEN DAVID P

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN SV SY SZ TD TG TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

View legal status timeline

Patent	Date recorded	Event group	Code	Event	Details
CN102317430 A	20120111	LSPB	+	published / reissued	
CN102317430 A	20120111	LSPB	+C06	PUBLICATION	
CN102317430 A	20140108	LSDW	-C02	DEEMED WITHDRAWAL OF PATENT	

					APPLICATION AFTER PUBLICATION (PATENT LAW 2001)	
US2010209294 AA	20100819	LSPB	+		published / reissued	
US2010255458 AA	20101007	LSPB	+		published / reissued	
US2010255458 AA	20100423	LSAS	AS	ASSIGNMENT	OWNER NAME : ALGAEDYNE CORPORATION, MINNESOTA DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNOR:KINCAID, CHRISTOPHER PIPER TOBY; REEL/FRA:024282/0230 EFFECTIVE DATE : 20100415	
US2013294968 AA	20131107	LSPB	+		published / reissued	
US2013294968 AA	20130715	LSAS	AS	ASSIGNMENT	OWNER NAME : UVCLEANING SYSTEMS, INC., OREGON DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:OWEN, MARK; THORNE, JAMES; SAMMI, MANOJ K.; SIGNING DATES FROM 20080818 TO 20080819; REEL/FRA:030794/0677	
US2013323128 AA	20131205	LSPB	+		published / reissued	
US2013323128 AA	20131011	LSAS	AS	ASSIGNMENT	OWNER NAME : UVCLEANING SYSTEMS, INC., OREGON DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:OWEN, MARK D.; SAMMI, MANOJ K.; THORNE, JAMES; SIGNING DATES FROM 20080818 TO 20080819; REEL/FRA:031390/0118	
US8506886 BB	20130813	LSGT	+		granted / extensions (spc, cpc, pte)	
US8506886 BB	20081013	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UVCLEANING SYSTEMS, INC., OREGON OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:OWEN, MARK; THORNE, JAMES; SAMMI, MANOJ K.; SIGNING DATES FROM 20080818 TO 20080819; REEL/FRA:021674/0303	
US8506886 BB	20091218	LSAS	AS	ASSIGNMENT	PARTYTYPE : OWNER OWNER : UVCLEANING SYSTEMS, INC., OREGON OLDPARTY : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:OWEN, MARK; THORNE, JAMES; SAMMI, MANOJ K.; SIGNING DATES FROM 20080818 TO 20080819; REEL/FRA:023701/0819	
US8834805 BB	20140916	LSGT	+		granted / extensions (spc, cpc, pte)	
US9017613 BB	20150428	LSGT	+		granted / extensions (spc, cpc, pte)	
US9017613 BB	20160503	LSRE	CC	CERTIFICATE OF CORRECTION		
WO08156813 A1	20081224	LSPB	+		published / reissued	
WO08156813 A1	20091216	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 12665003 COUNTRY OF REF DOCUMENT : US	
WO08156813 A1	20091222	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE	
WO08156813 A1	20101208	LSNE	-122	EP: PCT APPLICATION NON-ENTRY IN EUROPEAN PHASE	REF DOCUMENT NUMBER : 08779681 COUNTRY OF REF DOCUMENT : EP KIND CODE OF REF DOCUMENT : A1	

Title: ALGAE REACTOR

Abstract: Source: US2012129245A The invention relates to a lighting system for illuminating algae in an aqueous liquid. The lighting system includes a light source comprising a plurality of LEDs, a mounting structure for supporting the LEDs and a housing for accommodating the light source and the mounting structure. At least a portion of the housing is transparent for light emitted by the light source. The housing is at least partly filled with a cooling liquid, such that, in use, heat from the LEDs is transferred by the cooling liquid from the LEDs by means of convection. The invention further relates to a reactor comprising such lighting system.

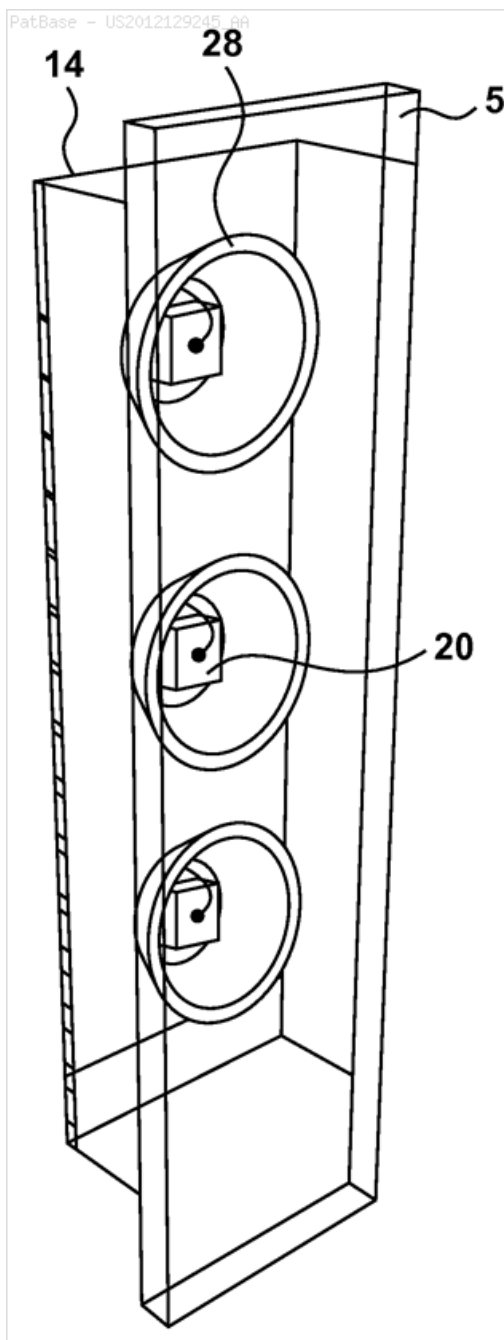
Classifications:

International (IPC 8-9): C12M1/00 C12M3/00 C12N1/12 F21V13/10 F21V21/00 F21V7/00 (Advanced/Invention)

CPC: C12M21/02 C12M31/08 C12M31/10 C12M41/18 F21V7/00 F21V21/00

European: C12M21/02 C12M31/08 C12M31/10 C12M41/18

US: 362/235 362/235S 362/243 362/243S 362/247 362/247S 362/249.02 362/249.020S 435/257.1 435/257.100P 435/292.1 435/292.100S



Family:

Publication number	Publication date	Application number	Application date
AU2010277555 AA	20110203	AU20100277555	20100730
AU2010277555 BB	20160107	AU20100277555	20100730
CA2769740 AA	20110203	CA20102769740	20100730
EP2459693 A2	20120606	EP20100740603	20100730
IN01754CN2012 A	20130412	IN2012CN01754	20120227
US2012129245 AA	20120524	US20120360834	20120130
US2013102069 AA	20130425	US20120707685	20121207
US2014030801 AA	20140130	US20130031061	20130919
WO11012714 A2	20110203	WO2010EP61153	20100730
WO11012714 A3	20110331	WO2010EP61153	20100730

Priority:

US20090229806P 20090730
US20120707685 20121207

US20120360834 20120130
US20130031061 20130919

WO2010EP61153 20100730

Probable Assignee: TENDRIS SOLUTIONS BV

Assignee(s): (std): NEEB TACO WIJNAND ; ROOYMANS JOHANNES OTTO ; TENDRIS SOLUTIONS B V ; TENDRIS SOLUTIONS BV

Inventor(s): (std): NEEB TACO WIJNAND ; ROOYMANS JOHANNES OTTO

Agent(s): FB RICE; TORYS LLP; MOOIJ MAARTEN; MOOIJ MAARTEN ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
AU2010277555 AA	20110203	LSPB	+	published / reissued	
AU2010277555 AA	20160505	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2010277555 BB	20160107	LSGT	+	granted / extensions (spc, cpc, pte)	
CA2769740 AA	20110203	LSPB	+	published / reissued	
CA2769740 AA	20150810	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20150724
EP2459693 A2	20120606	LSPB	+	published / reissued	
EP2459693 A2	20120606	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20120206
EP2459693 A2	20160824	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20160722
IN01754CN2012 A	20130412	LSPB	+	published / reissued	
US2012129245 AA	20120524	LSPB	+	published / reissued	
US2012129245 AA	20120416	LSAS	AS	ASSIGNMENT	OWNER NAME : TENDRIS SOLUTIONS B.V., NETHERLANDS DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:NEEB, TACO WIJNAND; ROOYMANS, JOHANNES OTTO; SIGNING DATESFROM 20100923 TO 20101006; REEL/FRAME:028049/0206
US2013102069 AA	20130425	LSPB	+	published / reissued	
US2014030801 AA	20140130	LSPB	+	published / reissued	
WO11012714 A2	20110203	LSPB	+	published / reissued	
WO11012714 A2	20120130	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2769740 COUNTRY OF REF DOCUMENT : CA
WO11012714 A3	20120130	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO11012714 A3	20120130	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2769740 COUNTRY OF REF DOCUMENT : CA
WO11012714 A3	20120131	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010277555 COUNTRY OF REF DOCUMENT : AU
WO11012714 A3	20120223	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2010277555 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20100730 KIND CODE OF REF DOCUMENT : A

Title: MICROALGAE FERMENTATION USING CONTROLLED ILLUMINATION

Abstract: Source: US2012171733A Bioreactors and methods for cultivating microalgae are provided herein. The bioreactor and methods include features and modifications to improve heterotrophic growth efficiency by providing a light signal.

Classifications:

International (IPC 8-9): C12M1/00 C12M1/42 C12N C12N1/12 C12P1/00 C12P19/04 C12P5/00 C12P7/64 F16S H04L12/46 H04L12/56 H04L12/70 H04L12/741 H04L29/12 (Advanced/Invention); C12R1/89 (Advanced/Non-invention); C12N F16S (Subclass/Invention)

International (IPC 1-7): H04L12/56

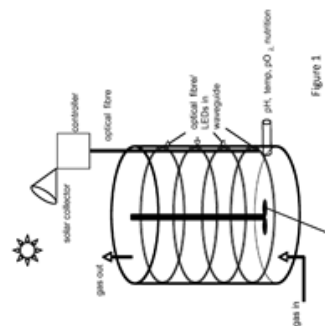
CPC: C12N1/12 C12M21/02 C12M21/12 C12M31/02 C12M31/10 A01G33/00 C12M31/08 C12P7/649 C12P7/6463 H04L12/462 Y02E50/13 H04L45/74 H04L12/4625 H04L12/4633 H04L12/4641 H04L61/103 H04L29/12028 H04L12/66 H04L45/66 Y02T50/678 H04L12/4675 H04L61/2596 H04L61/6004 H04L61/6022 H04L61/6095 C12P1/04

European: A01G33/00 C12M21/02 C12M21/12 C12M31/02 C12M31/08 C12M31/10 C12N1/12

US: 435/101 435/101P 435/166 435/166S 435/257.1 435/257.100S 435/292.1 435/292.100S 435/41 435/41S

PatBase - US2012171733_AA

Patent Application Publication Jul. 5, 2012 Sheet 1 of 13 US 2012/0171733 A1



Family:

Publication number	Publication date	Application number	Application date
AU2010295488 AA	20110324	AU20100295488	20100917
AU2010295488 BB	20160714	AU20100295488	20100917
BR112012018762 A2	20160503	BR20121118762	20110527
BR112012033693 A2	20161206	BR20121133693	20110629
CA2774542 AA	20110324	CA20102774542	20100917
CA2804141 AA	20121228	CA20112804141	20110629
CN102656261 A	20120905	CN201080046844	20100917
CN102656261 B	20150701	CN201080046844	20100917
CN102971992 A	20130313	CN201180032113	20110629
CN102971992 B	20160309	CN201180032113	20110629
CN103270736 A	20130828	CN201180031894	20110629
CN103270736 B	20160810	CN201180031894	20110629
CN104396192 A	20150304	CN201180031477	20110629
EP2478089 A1	20120725	EP20100817922	20100917
EP2478089 A4	20140115	EP20100817922	20100917
EP2569905 A2	20130320	EP20110735717	20110629
EP2589188 A1	20130508	EP20110730840	20110629
EP2589208 A1	20130508	EP20110730839	20110629
IL218657 A0	20120531	IL20100218657	20100917
IN00223KN2013 A	20130705	IN2013KN00223	20130128
IN02479DN2012 A	20150821	IN2012DN02479	20120321
IN04258CN2012 A	20131004	IN2012CN04258	20120514
JP2013505024 T2	20130214	JP20120529939T	20100917
JP2013514046 T2	20130422	JP20120544967T	20110527
JP2013535870 T2	20130912	JP20130518676T	20110629
JP5617137 B2	20141105	JP20120544967T	20110527
JP5830093 B2	20151209	JP20130518676T	20110629
KR20120081156 A	20120718	KR20127009781	20100917
MX2013000140 A1	20130703	MX20130000140	20110629
RU2013103703 A	20140920	RU20130103703	20110629
RU2551814 C2	20150527	RU20130103703	20110629
SG10201505168T A	20150929	SG20151005168	20110629
SG10201505168T A1	20150929	SG20151005168	20110629
SG186487 A1	20130228	SG20120096483	20110629
US2012171733 AA	20120705	US20100395107	20100917
WO11035166 A1	20110324	WO2010US49347	20100917

Priority:

US20090243593P 20090918	US20100349662P 20100528	US20100359726P 20100629
US20100359736P 20100629	US20100374514P 20100817	US20100389747P 20101005
WO2010US49347 20100917	US20100395107 20100917	US20100411324P 20101108
US20110449918P 20110307	WO2011US42467 20110629	WO2011US42409 20110629
WO2011US42453 20110629	WO2011US38443 20110527	

Probable Assignee: PHYCOIL BIOTECHNOLOGY INT INC

Assignee(s): (std): PHYCOIL BIOTECHNOLOGY INTERNATIONAL INC ; IM CHUNG SOON ; KIM JANE ; PHYCOIL

Assignee(s): BIOTECHNOLOGY INT INC ; PHYCOIL BIOTECHNOLOGY INTERNAT INC ; HUA WEI TECHNOLOGIES CO LTD ; HUAWEI TECH CO LTD ; KHUAVEJ TEKNOLODZHIZ KO LTD

Inventor(s): (std): KHUAVEJ TEKNOLODZHIZ KO ; YIN GUOLI ; HUAWEI TECHNOLOGIES CO ; DUNBAR LINDA ; HUA WEI TECHNOLOGIES CO ; HUAWEI TECHNOLOGIES CO LTD ; XIONG YIJUN

Inventor(s): ASHWODD SMITH PETER ; ASHWOOD SMITH PETER ; CHUNG SOON IM ; DUNBAR LINDA ; HARES SUSAN ; IM CHUNG SOON ; IN GOLI ; JANE KIM ; KIM JANE ; MACK CRANE BENJAMIN T ; MACK CRANE T BENJAMIN ; SJUN ITSZJUN ; SULTAN ROBERT ; XIONG YIJUN ; YIN GUOLI

Inventor(s): YIJUN XIONG ; SUSAN HARES ; PETER ASHWOOD SMITH ; ROBERT SULTAN ; LINDA DUNBAR ; GUOLI YIN ; BENJAMIN T MACK CRANE

Agent(s): SHELSTON IP; SHELSTON IP PTY LTD; BORDEN LADNER GERVAIS LLP; SMART AND BIGGAR; ATKINSON JENNIFER; THUN CLEMENS; LORD MICHAEL; ISARPATENT; KITA AOYAMA INT PATENT BUREAU; ALLEN AND GLEDHILL LLP; SERAFINI ANDREW T ET AL

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
AU2010295488 AA	20110324	LSPB	+	published / reissued	
AU2010295488 AA	20160414	LSLE	-MK4	APPLICATION LAPSED SECTION 142(2)(D) - NO CONTINUATION FEE PAID FOR THE APPLICATION	
AU2010295488 AA	20161110	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2010295488 BB	20160714	LSGT	+	granted / extensions (spc, cpc, pte)	
BR112012018762 A2	20160503	LSPB	+	published / reissued	
BR112012033693 A2	20161206	LSPB	+	published / reissued	
CA2774542 AA	20110324	LSPB	+	published / reissued	
CA2774542 AA	20161031	LSLE	-FZDE	DEAD	EFFECTIVE DATE : 20160919
CA2804141 AA	20121228	LSPB	+	published / reissued	
CA2804141 AA	20130222	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20121228
CN102656261 A	20120905	LSPB	+	published / reissued	
CN102656261 A	20120905	LSPB	+C06	PUBLICATION	
CN102656261 A	20150701	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN102656261 B	20150701	LSGT	+	granted / extensions (spc, cpc, pte)	
CN102971992 A	20130313	LSPB	+	published / reissued	
CN102971992 A	20130313	LSPB	+C06	PUBLICATION	
CN102971992 A	20160309	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN102971992 B	20160309	LSGT	+	granted / extensions (spc, cpc, pte)	
CN103270736 A	20130828	LSPB	+	published / reissued	
CN103270736 A	20130828	LSPB	+C06	PUBLICATION	
CN103270736 A	20160810	LSGT	+C14	GRANT OF PATENT OR UTILITY MODEL	
CN103270736 B	20160810	LSGT	+	granted / extensions (spc, cpc, pte)	
CN104396192 A	20150304	LSPB	+	published / reissued	
CN104396192 A	20150304	LSPB	+C06	PUBLICATION	
EP2478089 A1	20120725	LSPB	+	published / reissued	
EP2478089 A1	20120725	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20120329
EP2478089 A1	20140115	LSES	+A4	DESPATCH OF SUPPLEMENTARY SEARCH REPORT	EFFECTIVE DATE : 20131217
EP2478089 A1	20140115	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : C12N 1/12 20060101AFI20131211BHEP
EP2478089 A1	20140115	LSRE	RIC1	CLASSIFICATION (CORRECTION)	IPC : C12M 1/00 20060101ALI20131211BHEP

EP2478089 A1	20160713	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20160608
EP2569905 A2	20130320	LSPB	+	published / reissued	
EP2569905 A2	20130320	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20121212
EP2569905 A2	20131211	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20131107
EP2589188 A1	20130508	LSPB	+	published / reissued	
EP2589188 A1	20130508	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20130110
EP2589188 A1	20131211	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20131107
EP2589188 A1	20150603	LSRE	RIN1	INVENTOR (CORRECTION)	INVENTOR NAME : DUNBAR, LINDA
EP2589188 A1	20150603	LSRE	RIN1	INVENTOR (CORRECTION)	INVENTOR NAME : XIONG, YIJUN
EP2589188 A1	20150603	LSRE	RIN1	INVENTOR (CORRECTION)	INVENTOR NAME : YIN, GUOLI
EP2589208 A1	20130508	LSPB	+	published / reissued	
EP2589208 A1	20130508	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20121211
EP2589208 A1	20131211	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20131107
IN00223KN2013 A	20130705	LSPB	+	published / reissued	
IN02479DN2012 A	20150821	LSPB	+	published / reissued	
IN04258CN2012 A	20131004	LSPB	+	published / reissued	
JP2013505024 T2	20130214	LSPB	+	published / reissued	
JP2013505024 T2	20130914	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20130913
JP2013505024 T2	20141210	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20141209
JP2013505024 T2	20150511	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20150511
JP2013505024 T2	20150528	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A821 EFFECTIVE DATE : 20150513
JP2013505024 T2	20150624	LSRV	-A02	DECISION OF REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20150623
JP2013505024 T2	20151023	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20151023
JP2013505024 T2	20160105	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A821 EFFECTIVE DATE : 20151214
JP2013505024 T2	20160113	LSAL	A911	TRANSFER OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A911 EFFECTIVE DATE : 20160112
JP2013505024 T2	20160322	LSAL	-A912	REMOVAL OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A912 EFFECTIVE DATE : 20160318
JP2013514046 T2	20130422	LSPB	+	published / reissued	
JP2013514046 T2	20130821	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20130820
JP2013514046 T2	20140312	LSRV	-A02	DECISION OF REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20140311
JP2013514046 T2	20140709	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20140708

JP2013514046 T2	20140717	LSAL	A911	TRANSFER OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A911 EFFECTIVE DATE : 20140716
JP2013514046 T2	20140812	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2013514046 T2	20140820	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20140819
JP2013514046 T2	20140904	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20140828
JP2013535870 T2	20130912	LSPB	+	published / reissued	
JP2013535870 T2	20140108	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20140107
JP2013535870 T2	20140605	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20140604
JP2013535870 T2	20140903	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20140902
JP2013535870 T2	20141203	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20141202
JP2013535870 T2	20150430	LSRV	-A02	DECISION OF REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20150428
JP2013535870 T2	20150826	LSRE	A524	WRITTEN SUBMISSION OF COPY OF AMENDMENT UNDER SECTION 19 (PCT)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A524 EFFECTIVE DATE : 20150826
JP2013535870 T2	20150904	LSAL	A911	TRANSFER OF RECONSIDERATION BY EXAMINER BEFORE APPEAL (ZENCHI)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A911 EFFECTIVE DATE : 20150903
JP2013535870 T2	20150917	LSGT	+TRDD	DECISION OF GRANT OR REJECTION WRITTEN	
JP2013535870 T2	20150930	LSGT	+A01	WRITTEN DECISION TO GRANT A PATENT OR TO GRANT A REGISTRATION (UTILITY MODEL)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A01 EFFECTIVE DATE : 20150929
JP2013535870 T2	20151029	LSFE	+A61	FIRST PAYMENT OF ANNUAL FEES (DURING GRANT PROCEDURE)	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A61 EFFECTIVE DATE : 20151023
JP5617137 B2	20141105	LSGT	+	granted / extensions (spc, cpc, pte)	
JP5830093 B2	20151209	LSGT	+	granted / extensions (spc, cpc, pte)	
KR20120081156 A	20120718	LSPB	+	published / reissued	
KR20120081156 A	20150917	LSES	A201	REQUEST FOR EXAMINATION	
KR20120081156 A	20170224	LSES	-E902	NOTIFICATION OF REASON FOR REFUSAL	
MX2013000140 A1	20130703	LSPB	+	published / reissued	
MX2013000140 A1	20140327	LSRE	HH	CORRECTION OR CHANGE IN GENERAL	
MX2013000140 A1	20140801	LSGT	+FG	GRANT OR REGISTRATION	
RU2013103703 A	20140920	LSPB	+	published / reissued	
RU2551814 C2	20150527	LSGT	+	granted / extensions (spc, cpc, pte)	
SG10201505168T A	20150929	LSPB	+	published / reissued	
SG10201505168T A1	20150929	LSPB	+	published / reissued	
SG186487 A1	20130228	LSPB	+	published / reissued	

US2012171733 AA	20120705	LSPB	+	published / reissued	
US2012171733 AA	20120627	LSAS	AS	ASSIGNMENT	OWNER NAME : PHYCOIL BIOTECHNOLOGY INTERNATIONAL, INC., CALIFOR DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:IM, CHUNG-SOON; KIM, JANE; REEL/FRAME:028455/0173 EFFECTIVE DATE : 20110308
WO11035166 A1	20110324	LSPB	+	published / reissued	
WO11035166 A1	20120308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2010295488 COUNTRY OF REF DOCUMENT : AU
WO11035166 A1	20120308	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13395107 COUNTRY OF REF DOCUMENT : US
WO11035166 A1	20120314	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2012529939 COUNTRY OF REF DOCUMENT : JP KIND CODE OF REF DOCUMENT : A
WO11035166 A1	20120314	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2012529939 COUNTRY OF REF DOCUMENT : JP
WO11035166 A1	20120315	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 218657 COUNTRY OF REF DOCUMENT : IL
WO11035166 A1	20120316	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2774542 COUNTRY OF REF DOCUMENT : CA
WO11035166 A1	20120316	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 2774542 COUNTRY OF REF DOCUMENT : CA
WO11035166 A1	20120405	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2010295488 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20100917 KIND CODE OF REF DOCUMENT : A
WO11035166 A1	20120416	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 20127009781 COUNTRY OF REF DOCUMENT : KR KIND CODE OF REF DOCUMENT : A
WO11035166 A1	20121231	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE

Title: PROCESS FOR PRODUCTION OF MICROALGAE, CYANOBACTERIA AND METABOLITES THEREOF

Abstract: Source: US2014051131A The present invention relates to processes for the production of microalgae, cyanobacteria and/or metabolites thereof. Described herein is a process involving, the use of a stimulus applied to a microalgal or cyanobacterial culture to enhance the production of one or more metabolites. Also described herein, is a process for the production of microalgae and/or cyanobacteria comprising an adaptation stage wherein an algal/cyanobacterial culture is grown on a process water feedstock and/or under light emitting diodes (LEDs) emitting light within the spectrum of light wavelengths between around 400 nm and 700 nm, and a production phase, wherein the microalgae or cyanobacteria are grown on the same process water feedstock and/or under the same light conditions used in the adaptation stage. The invention also relates to specific microalgal strains.

Classifications:

International (IPC 8-9): C05D9/00 C05F11/00 C05F17/00 C12M1/00 C12M1/04 C12M1/34 C12N1/12 C12N1/13 C12N1/36 C12N13/00 C12P1/00 C12P19/04 C12P7/42 C12P7/64

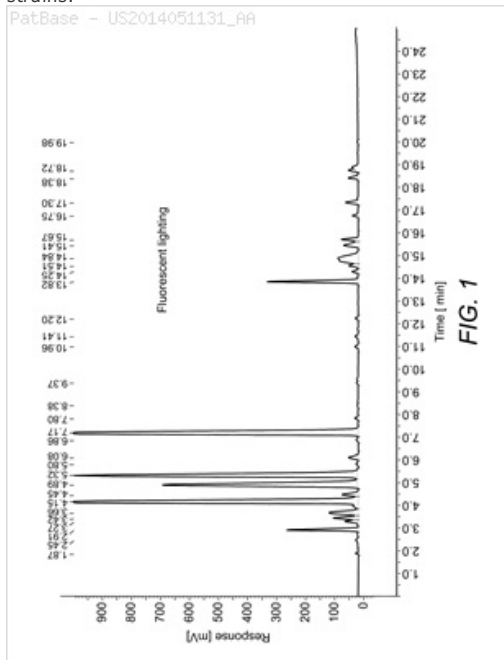
C12R1/89 (Advanced/Invention);

C12R1/89 (Advanced/Non-invention)

CPC: C12N1/12 C12P7/6427 C12P19/04 C05F11/00 C05F17/0036 C05F17/0081 C12M21/02 C12M41/06 C12M41/26 C12N1/36 C12N13/00 C12P7/64 C12R1/89 Y02P20/145 Y02W30/43

European: C05F11/00 C05F17/00H C05F17/00S C12N1/12 C12N1/36 C12N13/00 C12P19/04 C12P7/64 C12P7/64C4 C12R1/89

US: 435/101 435/134 435/245 435/257.1



Family:

Publication number	Publication date	Application number	Application date
AU2012210354 AA	20120802	AU20120210354	20120130
AU2012210354 BB	20160825	AU20120210354	20120130
AU2012210354 CA	20170119	AU20120210354	20120130
BR112013018377 A2	20160920	BR20131118377	20120130
CA2825856 AA	20130726	CA20122825856	20120130
CN103459585 A	20131218	CN201280015125	20120130
EP2668259 A2	20131204	EP20120704896	20120130
EP2668259 B1	20170329	EP20120704896	20120130
GB201101487 A0	20110316	GB20110001487	20110128
GB201101489 A0	20110316	GB20110001489	20110128
IN07398DN2013 A	20160422	IN2013DN07398	20130822
JP2014509188 T2	20140417	JP20130550958T	20120130
JP2017060478 A2	20170330	JP20160202890	20161014
NZ614107 A	20150828	NZ20120614107	20120130
US2014051131 AA	20140220	US20120981999	20120130
US9499784 BB	20161122	US20120981999	20120130
WO12101459 A2	20120802	WO2012GB50194	20120130
WO12101459 A3	20121108	WO2012GB50194	20120130

Priority:

GB20110001487 20110128 GB20110001489 20110128 WO2012GB50194 20120130
JP20130550958T 20120130

Probable Assignee: ALGAECYTES LTD

Assignee(s): (std): ALGAECYTES LTD ; BASHIR NAZIR ; DODD JOHN ; MARSALEK BLAHSOLOV ; VOSATKA MIROSLAV

Assignee(s): ALGAECYTES LIMITED

Inventor(s): (std): BASHIR NAZIR ; DODD JOHN ; MARSALEK BLAHSOLOV ; VOSATKA MIROSLAV

Inventor(s): MIROSLAV VOSATKA ; NAZIR BASHIR ; JOHN DODD ; BLAHSOLOV MARSALEK

Agent(s): SPRUSON AND FERGUSON; GOWLING LAFLEUR HENDERSON LLP; BOULT WADE TENNANT; ANDRUS INTELLECTUAL PROPERTY LAW LLP; SPENCER MATTHEW

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
AU2012210354 AA	20120802	LSPB	+	published / reissued	
AU2012210354 AA	20161027	LSRE	DA2	APPLICATIONS FOR AMENDMENT SECTION 104	TEXT : THE NATURE OF THE AMENDMENT IS AS SHOWN IN THE STATEMENT(S) FILED 10 OCT 2016
AU2012210354 AA	20170119	LSRE	DA3	AMENDMENTS MADE SECTION 104	TEXT : THE NATURE OF THE AMENDMENT IS AS SHOWN IN THE STATEMENT(S) FILED 10 OCT 2016
AU2012210354 AA	20170202	LSGT	+FGA	LETTERS PATENT SEALED OR GRANTED (STANDARD PATENT)	
AU2012210354 BB	20160825	LSGT	+	granted / extensions (spc, cpc, pte)	
BR112013018377 A2	20160920	LSPB	+	published / reissued	
CA2825856 AA	20130726	LSPB	+	published / reissued	
CA2825856 AA	20160906	LSES	+EEER	EXAMINATION REQUEST	EFFECTIVE DATE : 20160829
CN103459585 A	20131218	LSPB	+	published / reissued	
CN103459585 A	20131218	LSPB	+C06	PUBLICATION	
EP2668259 A2	20131204	LSPB	+	published / reissued	
EP2668259 A2	20131204	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20130828
EP2668259 A2	20140917	LSES	+17Q	FIRST EXAMINATION REPORT	EFFECTIVE DATE : 20140814
EP2668259 A2	20160622	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C12N 1/36 20060101ALI20160519BHEP
EP2668259 A2	20160622	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C05D 9/00 20060101ALI20160519BHEP
EP2668259 A2	20160622	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C12N 13/00 20060101ALI20160519BHEP
EP2668259 A2	20160622	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C12N 1/12 20060101AFI20160519BHEP
EP2668259 A2	20160622	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C12P 19/04 20060101ALI20160519BHEP
EP2668259 A2	20160622	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C12P 7/64 20060101ALI20160519BHEP
EP2668259 A2	20160622	LSRE	RIC1	CLASSIFICATION (CORRECTION)	CLASSIFICATIONSCHEME : IPC CLASSIFICATIONSYMBOL : C12R 1/89 20060101ALI20160519BHEP
EP2668259 A2	20160727	LSGT	+INTG	ANNOUNCEMENT OF INTENTION TO GRANT	EFFECTIVE DATE : 20160701
EP2668259 A2	20161109	LSGT	+INTG	ANNOUNCEMENT OF INTENTION TO GRANT	EFFECTIVE DATE : 20161014
EP2668259 A2	20170329	LSGT	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : GB REF LEGAL EVENT CODE : FG4D
EP2668259 A2	20170331	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : CH REF LEGAL EVENT CODE : EP
EP2668259 A2	20170415	LSNP	REG	REFERENCE TO A NATIONAL CODE	REF COUNTRY CODE : AT REF LEGAL EVENT CODE : REF REF DOCUMENT NUMBER :

879779
COUNTRY OF REF DOCUMENT :
AT
KIND CODE OF REF DOCUMENT :
T
DESIGNATED STATE(S) :
EFFECTIVE DATE : 20170415

EP2668259 B1	20170329	LSGT	+	granted / extensions (spc, cpc, pte)	
GB201101487 A0	20120919	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
GB201101489 A0	20120926	LSWD	-AT	APPLICATIONS TERMINATED BEFORE PUBLICATION UNDER SECTION 16(1)	
IN07398DN2013 A	20160422	LSPB	+	published / reissued	
JP2014509188 T2	20140417	LSPB	+	published / reissued	
JP2014509188 T2	20150128	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20150128
JP2014509188 T2	20150128	LSES	+A621	WRITTEN REQUEST FOR APPLICATION EXAMINATION	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A621 EFFECTIVE DATE : 20150128
JP2014509188 T2	20160120	LSES	-A131	NOTIFICATION OF REASONS FOR REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A131 EFFECTIVE DATE : 20160119
JP2014509188 T2	20160419	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A523 EFFECTIVE DATE : 20160419
JP2014509188 T2	20160511	LSRE	A521	WRITTEN AMENDMENT	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A821 EFFECTIVE DATE : 20160419
JP2014509188 T2	20160614	LSRV	-A02	DECISION OF REFUSAL	DESCRIPTION : JAPANESE INTERMEDIATE CODE: A02 EFFECTIVE DATE : 20160614
JP2017060478 A2	20170330	LSPB	+	published / reissued	
NZ614107 A	20150828	LSPB	+	published / reissued	
NZ614107 A	20151224	LSGT	+PSEA	PATENT SEALED	
NZ614107 A	20160129	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 30 JAN 2017 BY SPRUSON + FERGUSON EFFECTIVE DATE : 20160104
NZ614107 A	20170127	LSFE	+RENEW	RENEWAL (RENEWAL FEES ACCEPTED)	TEXT : PATENT RENEWED FOR 1 YEAR UNTIL 30 JAN 2018 BY CPA GLOBAL(PATRALEE) AB EFFECTIVE DATE : 20170113
US2014051131 AA	20140220	LSPB	+	published / reissued	
US2014051131 AA	20131021	LSAS	AS	ASSIGNMENT	OWNER NAME : ALGAECYTES LIMITED, UNITED KINGDOM DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:DODD, JOHN; MARSALEK, BLAHSOLOV; VOSATKA, MIROSLAV; AND OTHERS; SIGNING DATES FROM 20130726 TO 20130823; REEL/FRAME:031444/0396
US9499784 BB	20161122	LSGT	+	granted / extensions (spc, cpc, pte)	
WO12101459 A2	20120802	LSPB	+	published / reissued	
WO12101459 A3	20130716	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2013550958 COUNTRY OF REF DOCUMENT : JP KIND CODE OF REF DOCUMENT :

A					
WO12101459 A3	20130726	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2825856 COUNTRY OF REF DOCUMENT : CA
WO12101459 A3	20130729	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO12101459 A3	20130829	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 2012210354 COUNTRY OF REF DOCUMENT : AU DATE OF REF DOCUMENT : 20120130 KIND CODE OF REF DOCUMENT : A
WO12101459 A3	20131031	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 13981999 COUNTRY OF REF DOCUMENT : US
WO12101459 A3	20160920	LSNP	ENP	ENTRY INTO THE NATIONAL PHASE IN:	REF DOCUMENT NUMBER : 112013018377 COUNTRY OF REF DOCUMENT : BR KIND CODE OF REF DOCUMENT : A2 EFFECTIVE DATE : 20130718

Title: PHOTO-BIOREACTOR SYSTEM AND METHOD FOR PRODUCTION OF BIO-MATERIALS

Abstract: Source: US2016083679A A photo-bioreactor and method of operating are described. The photo-bioreactor includes a reactor vessel arranged to contain a fluid medium within which bio-material is grown, and at least one light-emitting rod extending into the reactor vessel, wherein the light-emitting rod has an elongate tubular member characterized by a length along a longitudinal axis and a width along an axis normal to the longitudinal axis, and designed with an outer wall that encloses one or more light-emitting devices arranged along the longitudinal axis, the outer wall being transparent to at least part of the light emitted by the one or more light-emitting devices into the reactor vessel. The photo-bioreactor further includes a drive system coupled to the elongate tubular member, and operatively configured to rotate the light-emitting rod about the longitudinal axis within reactor vessel, and circulate the fluid medium through the reactor.

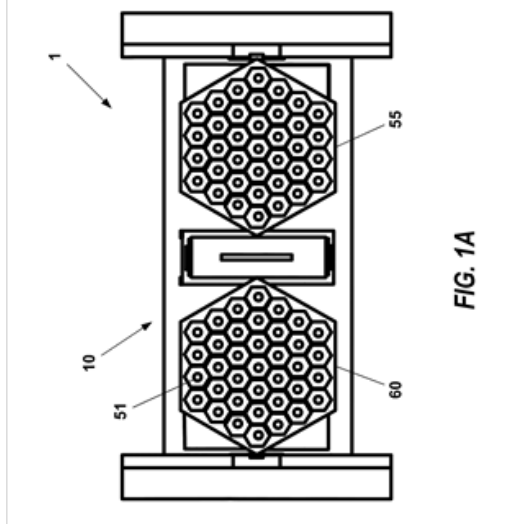
Classifications:

International (IPC 8-9): C12M1/00 C12M1/42 C12M3/00 F21S10/00 F21V11/18 F21V13/02 F21V14/06 F21V5/00 F21V7/00 G02B19/00 G02B27/00 G02B27/09 (Advanced/Invention)

CPC: G02B19/0066 G02B27/0018 C12M39/00 C12M41/08 C12M31/12 C12M21/02 C12M31/10 F21Y2105/10 F21Y2113/13 F21Y2115/10 F21V7/0091 F21W2131/406 F21Y2101/02 F21Y2113/007 F21S10/007 F21V5/008 F21V11/186 F21V14/06 C12M21/14 C12M23/02 C12M23/22 C12M23/58 C12M29/08

US: 362/235 435/292.1

PatBase - US2016083679_AA



Family:

Publication number	Publication date	Application number	Application date
CN105793765 A	20160720	CN201480065736	20141001
EP3052612 A1	20160810	EP20140851298	20140926
EP3052982 A2	20160810	EP20140821902	20141001
US2016083679 AA	20160324	US20140493259	20140922
US2016290597 AA	20161006	US20140026889	20141001
US9605238 BB	20170328	US20140493259	20140922
WO15050775 A1	20150409	WO2014US57566	20140926
WO15051031 A2	20150409	WO2014US58682	20141001
WO15051031 A3	20150911	WO2014US58682	20141001

Priority:

US20130885003P 20131001 US20140026889 20141001 US20140493259 20140922
WO2014US58682 20141001 WO2014US57566 20140926

Probable Assignee: ARIZONA TECH INNOVATION GROUP INC

Assignee(s): (std): ABUL HAJ N ALAN ; ABUL HAJ ROXANNE E ; ARIZONA TECHNOLOGY INNOVATION GROUP ; JOHNSON WAYNE L ; ARIZONA TECH INNOVATION GROUP INC ; JURIK PAVEL ; ROBE LIGHTING INC ; VALCHAR JOSEF ; ROBE LIGHTING SRO ; ROBE LIGHTING

Assignee(s): ARIZONA TECHNOLOGY INNOVATION GROUP INC

Inventor(s): (std): ABUL HAJ N ALAN ; ABUL HAJ ROXANNE E ; JURIK PAVEL ; FINK STEVEN T ; JOHNSON WAYNE L ; ABUL HAL ROXANNE E ; VALCHAR JOSEF

Agent(s): CARTER STEPHEN JOHN; KAECK STEFAN; MICHAEL K; JENNINGS STROUSS AND SALMON PLC; JOHNSON WAYNE L; GREYHER HEINZ

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
CN105793765 A	20160720	LSPB	+	published / reissued	
CN105793765 A	20160720	LSPB	+C06	PUBLICATION	
EP3052612 A1	20160810	LSPB	+	published / reissued	
EP3052612 A1	20160810	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20160429
EP3052612 A1	20170215	LSES	+R17P	REQUEST FOR	EFFECTIVE DATE : 20160429

EP3052982 A2	20160810	LSPB	+	EXAMINATION FILED (CORRECTION)	
EP3052982 A2	20160810	LSES	+17P	published / reissued	
EP3052982 A2	20160810	LSES	+17P	REQUEST FOR EXAMINATION FILED	EFFECTIVE DATE : 20160502
US2016083679 AA	20160324	LSPB	+	published / reissued	
US2016083679 AA	20150618	LSAS	AS	ASSIGNMENT	OWNER NAME : ARIZONA TECHNOLOGY INNOVATION GROUP, INC., ARIZONA DESCRIPTION : ASSIGNMENT OF ASSIGNORS INTEREST; ASSIGNORS:JOHNSON, WAYNE L; FINK, SHEILA; REEL/FRA:035931/0751 EFFECTIVE DATE : 20150602
US2016290597 AA	20161006	LSPB	+	published / reissued	
US9605238 BB	20170328	LSGT	+	granted / extensions (spc, cpc, pte)	
WO15050775 A1	20150409	LSPB	+	published / reissued	
WO15050775 A1	20160401	LSNE	NENP	NON-ENTRY INTO THE NATIONAL PHASE IN:	REF COUNTRY CODE : DE
WO15051031 A2	20150409	LSPB	+	published / reissued	
WO15051031 A3	20160401	LSNP	+WWE	WIPO INFORMATION: ENTRY INTO NATIONAL PHASE	REF DOCUMENT NUMBER : 15026889 COUNTRY OF REF DOCUMENT : US

Title: BIOPROCESS FOR THE CONVERSION OF CARBON DIOXIDE FROM INDUSTRIAL EMISSIONS, BIOPRODUCTS, USES THEREOF AND HYBRID PHOTOBIOREACTOR

Abstract: The present invention finds its field of application to be among photobioreactors for the photosynthetic conversion of carbon dioxide generated by various industrial emission sources into bioproducts of microalgal metabolism. Said hybrid photobioreactor seeks to maximise the volume of work and the rate of photosynthesis of the system. A bioprocess for the photosynthetic conversion of greenhouse gases generated by industrial emissions is also described. Furthermore, the present invention relates to bioproducts produced by the conversion bioprocess and use thereof as industrial feedstock.

Classifications:

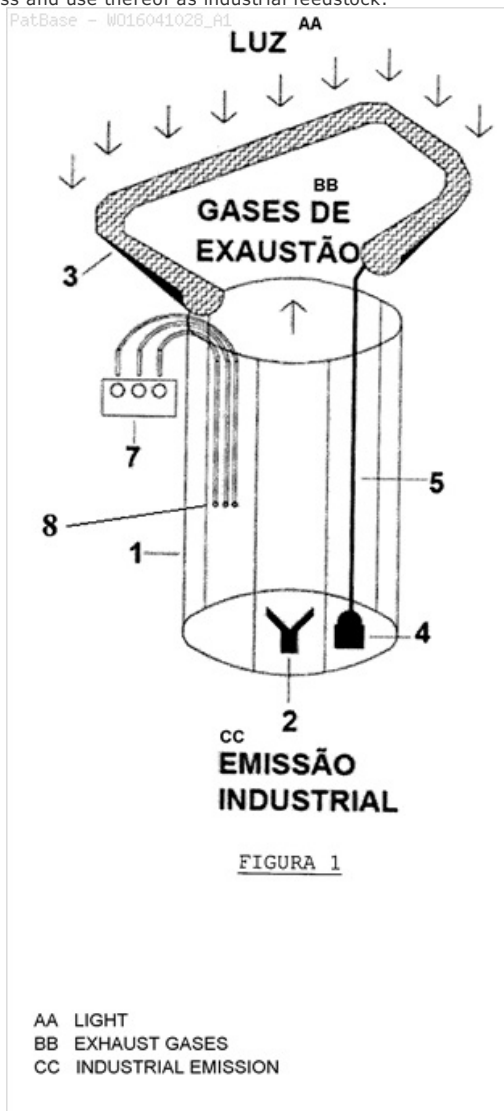
International (IPC 8-9): B01D53/62 B01D53/78 B01D53/84

C12M1/04 C12R1/89 (Advanced/Invention);

C12R1/89 (Advanced/Non-invention)

CPC: B01D53/62 B01D53/78 B01D53/84 C12M1/04 C12R1/89

Y02P20/59



Family:

Publication number	Publication date	Application number	Application date
WO16041028 A1	20160324	WO2014BR00333	20140915

Priority:

WO2014BR00333 20140915

Probable Assignee: INTERCEMENT BRASIL S A

Assignee(s): (std): INTERCEMENT BRASIL S A ; UNIV FED DE SANTA MARIA ; UNIV FED SANTA MARIA

Assignee(s): INTERCEMENT BRASIL SA ; UNIVERSIDADE FEDERAL DE SANTA MARIA

Inventor(s): (std): LOPES EDUARDO JACOB ; MARONEZE MARIANA MANZONI ; MERIDA LUIS GUILLERMO RAMIREZ ; NEVES CRISTINA ; ZEPKA LEILA QUEIROZ

Agent(s): RICCI HELCIO FERRO

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IR IS IT JP KE KG KM KN KP KR KZ LA LC LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SA SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

Legal status (INPADOC)

[View legal status timeline](#)

Patent	Date recorded	Event group	Code	Event	Details
WO16041028 A1	20160324	LSPB	+	published / reissued	

