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Una estrategia de Bioeconomía para Europa

Para hacer frente al crecimiento de la población mundial, al rápido agotamiento de muchos recursos, al aumento de la presión sobre el medioambiente y al cambio climático, Europa necesita cambiar radicalmente su manera de producir, consumir, transformar, almacenar, reciclar y eliminar los recursos biológicos. La estrategia Europa 2020 propone una bioeconomía como elemento clave para el crecimiento inteligente y ecológico en Europa. Los avances en la investigación sobre bioeconomía y la absorción de la innovación permitirán a Europa mejorar la gestión de sus recursos biológicos renovables y abrir mercados nuevos y diversificados de alimentos y bioproductos. El establecimiento de una bioeconomía en Europa ofrece grandes posibilidades: puede mantener y crear crecimiento económico y puestos de trabajo en las zonas rurales, costeras e industriales, reducir la dependencia de los combustibles fósiles y mejorar la sostenibilidad económica y medioambiental de la producción primaria y de las industrias de transformación. La bioeconomía contribuye así sensiblemente al logro de los objetivos de las iniciativas emblemáticas de Europa 2020 "Unión por la innovación" y "Una Europa que utilice eficazmente los recursos".

La Estrategia de Bioeconomía y su Plan de Acción se proponen allanar el camino hacia una sociedad más innovadora y competitiva, que utilice con más eficiencia los recursos y en la que se concilien la seguridad alimentaria y el uso sostenible de recursos renovables con fines industriales, asegurando al mismo tiempo la protección del medioambiente. Ambos inspirarán las agendas de investigación e innovación en los sectores bioeconómicos y contribuirán a una mayor coherencia de la política de medioambiente, unas mejores relaciones entre las políticas bioeconómicas nacionales, de la UE y mundial y un diálogo público más comprometido. Favorecerán las sinergias y respetarán la complementariedad con otros ámbitos políticos, instrumentos y fuentes de financiación que comparten y abordan los mismos objetivos, tales como las políticas comunes agrícola y pesquera (PAC y PPC), la Política Marítima Integrada (PMI), y las políticas de medioambiente, industria, empleo, energética y sanitaria.

La Estrategia se basa en el Séptimo Programa Marco de Investigación y Desarrollo Tecnológico (7º PM) y en el Programa Marco de Investigación e Innovación (Horizonte 2020).

Europa se enfrenta a una explotación sin precedentes e insostenible de sus recursos naturales, a cambios significativos y potencialmente irreversibles en su clima y a una pérdida constante de biodiversidad que amenaza la estabilidad de los sistemas vivos de los que depende. Esta situación se ve agravada por el crecimiento de la población mundial, que se prevé aumente en más de un 30% en los próximos 40 años, pasando de 7.000 millones en 2012 a más de 9.000 millones en 2050. La superación de estos retos complejos e interrelacionados exige investigación e innovación a fin de lograr unos cambios rápidos, concertados y sostenidos en el estilo de vida y el uso de los recursos en todos los niveles de la sociedad y la economía. El bienestar social y personal de los ciudadanos europeos y de las generaciones

SUMARIO

futuras dependerá de cómo se efectúen las transformaciones necesarias. Durante las últimas décadas, la UE ha puesto en marcha o revisado numerosas políticas para afrontar estos retos e impulsar la transformación de la economía europea. Sin embargo, la complejidad de las interdependencias existentes entre los retos puede llevar a conflictos, como la controversia sobre los usos que compiten entre sí por la biomasa. Esta deriva de la preocupación por el potencial impacto sobre la seguridad alimentaria de la creciente demanda de recursos biológicos renovables por parte de otros sectores, por el uso de los recursos naturales escasos y por el medio ambiente en Europa y terceros países. Abordar estas cuestiones pluridimensionales requiere un planteamiento estratégico y global que implica diferentes políticas. Es necesaria una interacción con conocimiento de causa para promover la coherencia entre las políticas, reducir las duplicidades y mejorar la velocidad y el alcance de la innovación. En particular, es necesaria una mayor interacción y armonización entre la investigación e innovación de la UE y las prioridades de las políticas de apoyo a la bioeconomía.

La bioeconomía proporciona una base útil para este enfoque, ya que abarca la producción de recursos biológicos renovables y la conversión de estos recursos y los flujos de residuos en productos con valor añadido, como alimentos, piensos, bioproductos y bioenergía. Sus sectores e industrias tienen un fuerte potencial de innovación debido a que utilizan una amplia gama amplia de ciencias y tecnologías industriales y de capacitación, junto con conocimientos locales y tácitos.

FUENTE: *Comisión Europea.*

Análisis de patentes

En el segundo trimestre de 2012 se han identificado en la base de datos WPI (World Patent Index) 669 familias de patentes con nuevos documentos sobre tecnologías de conversión de la biomasa para la producción de energía. De la Tabla 1 se desprende que, aproximadamente, el 46% de las referencias encontradas están relacionadas con tecnologías bioquímicas y el 38% con termoquímicas. El 16% restante se refiere a tecnologías químicas. Las tecnologías de digestión anaeróbica y combustión directa cuentan con más de ciento cincuenta resultados.

TABLA 1. Número de familias de patentes clasificadas por tecnologías

TIPOS DE TECNOLOGÍAS DE CONVERSIÓN DE LA BIOMASA	2º TRIM. 2012
Tecnologías termoquímicas	251
Combustión directa	155
Gasificación	59
Pirólisis	37
Tecnologías bioquímicas	310
Digestión anaeróbica	177
Fermentación de azúcares	133
Tecnologías químicas (transesterificación, Fischer-Tropsch síntesis de metanol)	108
Nº TOTAL FAMILIAS DE PATENTES	669

En la Tabla 2 se muestran los países líderes. Cabe destacar que el 42% de los documentos identificados se solicitaron en China y el 20% son solicitudes internacionales de patente (PCT). A continuación, aunque en mucha menor medida, destacan EE.UU. (12%), Japón (8%) y Corea (5%). España dispone de dos referencias.

TABLA 2. Ranking por países

	PAÍS	Nº REFERENCIAS
1	China (CN)	244
2	Patentes PCT (WO)	118
3	EE.UU. (US)	69
4	Japón (JP)	48
5	Corea (KR)	30
6	Patentes Europeas (EP)	20
7	Canadá (CA)	8
8	Alemania (DE)	7
9	Francia (FR)	6
10	India (IN)	5

En los apartados posteriores se recoge una selección de los documentos de patentes identificados en el trimestre analizado, así como un resumen de las noticias más significativas, clasificados por tecnologías.

Solicitudes de Patentes Publicadas

Los datos que aparecen en la tabla corresponden a una selección de las solicitudes de patentes publicadas por primera vez durante el trimestre analizado.

Si desea ampliar información sobre alguna de las patentes aquí listadas, pulse sobre el número de patente correspondiente para acceder a la información online relativa a la misma.

COMBUSTIÓN DIRECTA

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012073199	CORO IMPIANTI S R L et al.	Italia	FURNACE FOR THE COMBUSTION OF BIOMASSES. The present invention relates to a furnace for the combustion of a combustible product comprising a furnace body which defines an inner compartment, at least one combustion seat, at least partially positioned in the inner compartment and suitable for receiving said product for its combustion and feed means of the combustible product to the combustion seat. The furnace also comprises heat exchange means, thermally connected to the inner compartment to transfer the heat generated by the combustion of the product to a heat exchange fluid, at least one distribution body of the combustible product, rotatable in relation to the furnace body so as to direct the combustible product radially in the combustion seat.
WO2012075499	UNIV NORTHEASTERN et al.	EE.UU.	METHOD AND DEVICE FOR FUEL AND POWER GENERATION BY CLEAN COMBUSTION OF ORGANIC WASTE MATERIAL. Disclosed herein are systems and methods for the conversion of solid organic waste material, such as waste plastics, into fuel for the generation of heat and power. In addition, embodiments of the systems and methods disclosed herein relate to converting solid organic waste material into a gasified material for mixing with an oxidizing gas to allow for clean combustion of the fuel, thereby minimizing emissions of pollutants.
EP2458275	HDG BAVARIA GMBH HEIZSYSTEME FUER HOLZ	Alemania	FURNACE FOR BURNING COMBUSTIBLE MATERIAL, IN PARTICULAR WOOD CHIPS. The furnace has boiler with combustion chamber, and a walling in which inlet opening for combustible material and outlet opening for discharge of exhaust gas from combustion chamber are formed. A combustion grate receives and combusts combustible material by receiving combustion air from air channel, which is blown by blower. The air channel extends and circulates around the combustion chamber, so that supplied combustion air simultaneously serves as cooling air for cooling walling of boiler.

COMBUSTIÓN DIRECTA

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012064084	OH MI HYE et al.	Corea	LIQUID-COMBUSTION CATALYST COMPOSITION INCLUDING MIXED METAL-COMPLEX IONIC COMPOUND. The present invention relates to a liquid-combustion catalyst composition including a mixed metal-complex ionic compound, and more particularly, to a liquid-combustion catalyst composition including a mixed metal-complex ionic compound that is added to a combustion process of a combustion engine to quickly reach a chemical-thermal equilibrium state required for burning (for example, a hydrocarbon fuel, a fossil fuel, or a biomass fuel) and to optimize an amount of air including a required chemical equivalent of oxygen according to the chemical thermal equilibrium state, thereby improving thermal efficiency and the efficiency of the combustion engine. Accordingly, the used amount of the fuel as a heat source can be decreased, and the occurrence of sludge, clinker, fouling, and sintering due to incomplete combustion of an inorganic material within the combustion engine is prevented, so as to optimize the combustion process of the combustion engine and thus increase the combustion rate per unit area and improving productivity of the combustion engine. According to the present invention, a mixed-metal chelate compound or a mixed metal-complex ionic hydrate, which includes: one or more metal compounds selected from Mg, Ca, Mn, Zn, and Al; and one or more alkali metal compounds selected from Li, K, and Na, is dissolved in a solvent to generate mixed-metal complex ions.
US2012123972	HOMME TRUMAN K et al.	EE.UU.	SYSTEMS AND METHODS FOR MANAGING AND UTILIZING EXCESS CORN RESIDUE. Systems and methods for managing excess above-ground corn residue are disclosed. Systems and methods for combusting corn residue to produce heat for generating steam are also disclosed. Additionally, methods and systems for harvesting and pre-processing corn residue prior to combustion of the corn residue are disclosed.
US2012111246	KOBAYASHI HISASHI et al.	EE.UU.	OXYGEN ENHANCED COMBUSTION OF BIOMASS. The energy output of a power plant combustion chamber that combusts fuel comprising biomass as all or part of the fuel can be increased by feeding oxygen into the combustion chamber so that said fuel is in contact with gaseous oxidant whose oxygen content exceeds that of air by up to 5 vol. % above that of air.
EP2439446	PALAZZETTI LELIO SPA	Italia	FIREBOX. A firebox for a combustion apparatus, advantageously but not exclusively using biomass or biofuel, comprises a base structure defining a combustion chamber and a chimney for the smoke, and has a door. The chimney comprises at least a segment with a flue, cooperating with the combustion chamber, which is provided with a first pipe and a second pipe for the passage of the smoke. The first pipe is associated with choking means and said second pipe is associated with filter means located, according to the direction in which the smoke travels from the combustion chamber toward the outside, before the first pipe merges with the second pipe. The choking means are associated, by means of connection means, to the position of the door, so that, with the door open, the choking means are in a position of opening the first pipe and with the door closed the choking means are in a position of closing the first pipe.

GASIFICACIÓN

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012065272	HIGHBURY BIOFUEL TECHNOLOGIES INC et al.	Canadá	FREEBOARD TAR DESTRUCTION UNIT. A tar destruction unit for a biomass gasifier is described, comprising a catalyst and/or heating means situated within the free-board section of the gasifier. Also described is a biomass gasifier having such a tar destruction unit.
WO2012063034	JOHNSON MATTHEY PLC et al.	Gran Bretaña	PROCESS. A process is described for reducing the thiophene content in a synthesis gas mixture, comprising the steps of (i) passing a synthesis gas mixture comprising hydrogen and carbon oxides and containing thiophene over a copper-containing sorbent disposed in a sorbent vessel at an inlet temperature in the range 200-280 DEG C, (ii) withdrawing a thiophene depleted synthesis gas containing methanol from the sorbent vessel, and (iii) adjusting the temperature of the methanol-containing thiophene-depleted synthesis gas mixture. The resulting gas mixture may be used for production of chemicals, e.g. methanol production or for the Fischer-Tropsch synthesis of liquid hydrocarbons, for hydrogen production by using water gas shift, or for the production of synthetic natural gas.
US8173044	COOL PLANET BIOFUELS INC	EE.UU.	PROCESS FOR BIOMASS CONVERSION TO SYNTHESIS GAS. Biomass is processed through a biomass fractioning system that creates, through the application of selective temperature ramps and pressure shocks, a series of useful volatile components and BMF char, wherein the BMF char is reacted sacrificially with any one stream of methane, carbon dioxide, steam or oxygen to create highly pure synthesis gas with a controllable range of compositions. The resulting synthesis gas may be used in any desired manner, including conversion to oxygenates such as methanol and dimethyl ether, and to hydrocarbons.
WO2012063773	ZE ENERGY INC et al.	Japón	GASIFICATION FURNACE, GASIFICATION SYSTEM, REFORMING DEVICE, AND REFORMING SYSTEM. Provided is a gasification furnace that can gasify a biomass resource in a manner producing a low quantity of tar. The gasification furnace is provided with: a perforated plate that partitions the furnace interior into a top and a bottom; a biomass resource supply port for supplying the biomass resource over the perforated plate; a first oxidation agent supply port and a second oxidation agent supply port for supplying an oxidation agent into the furnace; a first oxidation agent supply pathway that supplies the oxidation agent from the first oxidation agent supply port from above towards below the perforated plate; a second oxidation agent supply pathway that distributes and supplies to a plurality of locations within a predetermined range in the vicinity of the perforated plate from the second oxidation agent supply port; and a dry distillation gas discharge port that discharges dry distillation gas generated by the pyrolysis and partial oxidation of the biomass resource on the perforated plate to the outside.

GASIFICACIÓN

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012055012	ENERKEM INC et al.	Canadá	PRODUCTION OF SYNTHESIS GAS BY HEATING OXIDIZED BIOMASS WITH A HOT GAS OBTAINED FROM THE OXIDATION OF RESIDUAL PRODUCTS. A process for producing synthesis gas, or syngas, from biomass. The process comprises contacting biomass with oxygen, or oxygen and steam, in an amount effective to oxidize the biomass and to heat the biomass to a temperature to no greater than 750 DEG C. At least one combustible material also is contacted with oxygen and steam to heat the at least one combustible material to a temperature of at least 1,100 DEG C, to provide a hot gas derived from the oxidized combustible material. The latter maybe residual products derived from the process itself as char, tar, or hydrocarbons. The oxidized biomass then is contacted with the hot flue gas to heat the biomass to a temperature of at least 900 DEG C, thereby producing synthesis gas. The synthesis gas then is recovered. Such process provides a method of providing heat for producing synthesis gas without consuming a portion of the synthesis gas to provide such heat, thereby providing an increased yield of synthesis gas.
US2012102834	GEN ELECTRIC	EE.UU.	STAGED GASIFIER AND RELATED PROCESSES. A gasifier system which includes a reactor; a feedstock inlet; an oxidant inlet; a raw product gas outlet; and a recycle conduit, is provided. The reactor usually includes an upper section, a central section, and a lower section. The feedstock inlet is disposed in the upper section of the reactor to receive a carbonaceous feedstock. The oxidant inlet is disposed in the lower section of the reactor to receive an oxidant. The raw product gas outlet is disposed in the upper section of the reactor. The recycle conduit is configured to couple the raw product gas outlet to the lower section of the reactor, and to recycle a raw product gas from the upper section of the reactor to the lower section of the reactor. A method for converting a carbonaceous stream into a product gas in a gasifier system is also provided.
US2012083538	AMEROL ENTPR LLC	EE.UU.	PROCESS FOR GENERATION OF SYNTHETIC FUEL FROM CARBONACEUS SUBSTANCES. A method and apparatus for the generation of synthetic motor fuels and additives to oil fuels, C1-C4 alcohols, hydrogen, methane, synthesized gas (H2+CO2) by hydrothermal treatment of carbonaceous compounds by providing a two-stage carbon gasification process operated under the supercritical conditions of H_2O and CO_2, including a first stage gasification reactor having a reaction zone for the conversion of carbonaceous compounds and a second stage reactor for the conversion of the products of the first stage reactor; feeding a aqueous suspension of carbonaceous compound in an amount of at least 30% by weight and an alkali metal or alkaline-earth metal catalyst or reactive OH- species from an electrolyzer through said first stage gasification reactor as a supercritical fluid at a volume velocity of 0.01-0.05 g of carbon per 1 cm^3 per hour, at a carbon/catalyst mole ratio of between about 70/1 and 90/1, at a temperature of 390-450 DEG C., and under a pressure of about 225 to 500 bars; feeding the reaction products from the first stage reactor to the second stage reactor over a copper-zinc catalyst at the temperature of 200-280 DEG C. and under a pressure of at least about 100 bars so that any gases generated in the first stage are converted into C1-C4 alcohols with the weight ratio of C1-C2 to C3-C4 between about 0-35% to 100-65%.

GASIFICACIÓN

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
DE102010037768	SCHAETZL WALTER	Alemania	GASIFIER E.G. FIXED BED GASIFIER OF BIOMASS, USED IN COMBINED HEAT AND POWER STATION, HAS CARBURETOR FOR PRODUCING FUEL GAS FROM BIOMASS, AND FILTER ELEMENT MADE OF STAINLESS STEEL NON-WOVEN FIBER THROUGH WHICH FUEL GAS IS CONDUCTED. The gasifier includes a carburetor for producing fuel gas from the biomass, and a filter element such as a filter candle made of stainless steel non-woven fiber through which the fuel gas from the gasifier is conducted. The stainless steel fiber is manufactured by the sintering process. A stainless steel mesh is formed around the stainless steel fiber. A filter element is arranged on a supporting basket. An independent claim is included for operating method of biomass gasifier.
GB2483985	O GEN UK LTD	Gran Bretaña	BIOMASS GASIFICATION PLANT COMPRISING FILTER CANDLES AND STEEL FIBRE TUBULAR FILTERS. A gasification plant comprises means to subject biomass to gasification in a downflow gasifier, means to generate flow of gas through the gasifier, and a filter unit 8 to remove particulate material from the gas flow from the gasifier, wherein the filter unit 8 comprises a chamber divided into an inlet zone 23 and an outlet zone 24 by a divider plate 22, with a multiplicity of hollow ceramic filter candles 20 supported by the divider plate, and wherein each ceramic filter candle 20 is provided with a gas-permeable steel fibre filter pad 30 at its downstream side. If a ceramic filter candle 20 breaks, the corresponding steel fibre tubular filter 30 will trap particulate material and will become blocked; this will suppress unwanted gas flow the broken filter candle, allowing normal filtration to occur through the unbroken candles.

PIRÓLISIS

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
US8198493	EARTH CARE PRODUCTS INC	EE.UU.	HIGH ENERGY EFFICIENCY BIOMASS CONVERSION PROCESS. Improved, fuel-efficient systems are provided for the processing of biomass, such as wood or crop residues, food waste or animal waste in order to selectively obtain thermally processed final products, such as a combination of torrefied and carbonized final products. The processes involve thermally drying incoming biomass using a dryer employing the hot gas output of a fuel-operated burner. Next, the dried product is torrefied in an indirect torrefaction reactor so as to evolve light volatile organic compounds which are used as a gaseous fuel source for the burner. Some or all of the torrefied product can be recovered, or some or all of the torrefied product is then directed to a separate carbonization reactor coupled with a reactor burner. Carbonization serves to remove most of the remaining VOCs which are used as a gaseous fuel input to the dryer.
WO2012060961	KIOR INC et al.	EE.UU.	CATALYTIC HYDROPYROLYSIS OF ROGANOPHILIC BIOMASS. A process for producing fuel from biomass is disclosed herein. The process includes torrefying biomass material at a temperature between 80 DEG C and 300 DEG C to form particulated biomass having a mean average particle size from about 1 [mu]?? to about 1000 [mu]??. The particulated biomass is mixed with a liquid to form a suspension, wherein the liquid comprises bio-oil, wherein the suspension includes between 1 weight percent to 40 weight percent particulated biomass. The suspension is fed into a hydropyrolysis reactor; and at least a portion of the particulated biomass of the suspension is converted into fuel.
US2012103781	SMAIDRIS THOMAS F	EE.UU.	BIOCHAR GENERATOR AND ASSOCIATED METHODS. A biochar generator to be carried by a vehicle may comprise a pyrolysis chamber, an auger, a heater, and a vapor condenser each connected to the pyrolysis chamber. The biochar generator may also include a synthesis gas collection chamber to collect synthesis gas, and a bio oil collection chamber to collect bio oil, each in communication with the vapor condenser. A biochar collection chamber may be included to collect biochar dispensed from the pyrolysis chamber.
US2012090221	AVELLO BIOENERGY INC	EE.UU.	METHODS FOR INTEGRATED FAST PYROLYSIS PROCESSING OF BIOMASS. Methods, process, apparatus, equipment, and systems are disclosed for converting biomass into bio-oil fractions for chemicals, materials, feedstocks and fuels using a low-cost, integrated fast pyrolysis system. The system improves upon prior art by creating stable, bio-oil fractions which have unique properties that make them individually superior to conventional bio-oil. The invention enables water and low-molecular weight compounds to be separated into a final value-added fraction suitable for upgrading or extracting into value-added chemicals, fuels and water. Initial bio-oil fractions from the process are chemically distinct, have low-water content and acidity which reduces processing costs normally associated with conventional bio-oil post-production upgrading since fewer separation steps, milder processing conditions and lower auxiliary inputs are required. Biochar is stabilized so that it can be handled safely. The integrated fast pyrolysis process includes biomass storage, preparation, pretreatment, and conversion, product recovery and processing to create and store stable biochar and bio-oil fractions.

PIRÓLISIS

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012035410	IFP ENERGIES NOUVELLES et al.	Francia	METHODS OF UPGRADING BIOOIL TO TRANSPORTATION GRADE HYDROCARBON FUELS. The present invention relates to the field of biomass derived fuels. It further relates to thermochemical production of liquids (biooils) from biomass. Specifically the present invention relates to methods of upgrading biooil. More specifically it relates to a method for upgrading biooil comprising contacting a dispersed mixture of hydrocarbon liquids, biooil, and partially upgraded biooil, with a transition metal containing catalyst and hydrogen gas at a temperature of around 330 DEG C and a pressure of about 1700 psi (11.7 MPa) for a period of time sufficient to reduce the oxygen content of the biooil such that it separates on cooling into an aqueous phase and an organic phase, and optionally, to further subject the organic phase to hydrotreating, hydrocracking or catalytic cracking to produce a mixture of hydrocarbons boiling in the range of gasoline, diesel and jet fuel.
WO2012059938	GHARDA KEKI HORMUSJI	Índia	PROCESS FOR OBTAINING PETROCHEMICAL PRODUCTS FROM CARBONACEOUS FEEDSTOCK. A process for obtaining petrochemical products from a carbonaceous feedstock is provided. The carbonaceous feedstock may be coal, coke, lignite, biomass, bitumen and the like. The carbonaceous feedstock is pulverized and fed to a pyrolysis reactor where the feedstock is pyrolyzed at 700-1000 DEG C at a pressure of 2-25 bar for 2-10 seconds, wherein the feedstock is entrained in hot syngas during the pyrolysis process.

ADITIVOS PARA MEJORAR LA COMBUSTIÓN DE LOS AGROPELLETS

Vicent Naudy, de la Sociedad de Investigación sobre Valorización Energética de la Biomasa en Francia, ha presentado una tecnología, denominada Calys, que mejora la combustión de agropellets y permite su uso en calderas de tamaño pequeño.

Los problemas que presentan los pellets de origen herbaceos son su baja densidad, su alta generación de cenizas, su bajo poder calorífico e importantes emisiones de monóxido de carbono. En esta nueva tecnología se proporciona una fórmula mejorada con aditivos que optimiza la combustión y reduce estos problemas. Sólo con un 2% de aditivos se disminuye notablemente tanto la producción de cenizas como las emisiones de monóxido de carbono (hasta siete veces menos emisiones). Si bien los agropellets para uso industrial admiten mayor diversidad de materias primas para su fabricación, las calderas pequeñas implican un proceso más selectivo.

MICROGENERACIÓN DE CALOR Y ELECTRICIDAD A PARTIR DE BIOMASA

La empresa francesa Exoès participa junto al fabricante austriaco de calderas ÖkoFEN en un proyecto de micro-cogeneración con biomasa. En este proyecto se desarrollará un micro-cogenerador que trabajará acoplado a una caldera automática de pellets y a un motor Rankine, y cuyo destino será el uso en bloques de vivienda. El prototipo será capaz de calentar una superficie de entre 500 y 1000 m^2 y dotar de agua caliente a 10000 m^2.

El motor Rankine convertirá las calorías obtenidas de una caldera automática de pellets en electricidad y calor. Con el sistema se espera lograr una eficiencia energética global superior al 90% y 3 kW eléctricos y 51 kW térmicos.

Arnaud Desrentes, de Exoès, presentó el prototipo de micocogeneración con biomasa en el 6º Congreso Internacional de Bionergía, dentro de la jornada técnica organizada por AEBIOM y la RCH-Platform sobre tecnologías de climatización con biomasa.

TRATAMIENTO DE RESIDUOS URBANOS A TRAVÉS DE UNA PLANTA MÓVIL

La empresa gipuzkoana Ecofriendly Solutions ha firmado un acuerdo en Rusia para la comercialización de la planta EF.200.T en Europa, África y América. Se trata de un sistema móvil que funciona bajo el principio de la oxidación, sin llama abierta, transformando los restos de basura en electricidad, agua destilada, vapor de agua y combustible y que evita la emisión de gases y solo una producción mínima de residuos de ceniza (carbonatos y silicatos).

Una vez que los tipos de residuos son separados, proceso que puede realizar la propia planta de manera automática expulsando ella misma los metales y vidrios de manera triturada, se introducen en una tolva con capacidad de hasta 3 m^3 y se lanzan a través de tornillos a un horno donde se someten a un tratamiento de flash-pirólisis en varias etapas. Aquí la materia orgánica se descompone y se transforma por oxidación dosificada en un gas sintético. Posteriormente, el gas pasa a un bloque de estabilización donde se separan las cenizas y los silicatos residuales.

La siguiente parte tiene lugar en el reactor de dos etapas donde se producen reacciones catalíticas sintetizándose moléculas de carbono e hidrógeno formándose hidrocarburos. El calor proveniente del enfriamiento del reactor se utiliza para generar electricidad mediante turbinas. Dicho enfriamiento provoca además la condensación de agua destilada. El vapor de agua no condensada se conduce a un depósito o sistema exterior a 300 °C.

Para comenzar a funcionar la planta necesita un suministro eléctrico de 15 kW, aunque solo durante las 12 primeras horas de funcionamiento. Pasado este periodo, el sistema se autoalimenta con la energía producida por el mismo. La planta puede ser fija o puede desplazarse ya que es transportada por un camión lo que presenta una solución para municipios pequeños.

APROVECHAMIENTO TOTAL DE LA BIOMASA FORESTAL

La Universidad de Salamanca está realizando un proyecto para diseñar una planta que permita el aprovechamiento integral de la biomasa de origen forestal. La idea es que la fracción orgánica de los residuos se transformen en energía por un proceso de pirólisis, gasificación y combustión, mientras que de la parte inorgánica se puedan aprovechar las cenizas, que se generan en el proceso de combustión, como fertilizantes para la agricultura y como material de construcción para proporcionar mejores cualidades a los hormigones. De esta forma, se eliminarían todos los residuos forestales sin tener que mandar nada a vertederos.

La iniciativa se enmarca en el Programa de Prototipos Orientados al Mercado de la Universidad de Salamanca, dentro del Proyecto de Transferencia de Conocimiento (T-CUE) de la Junta de Castilla y León.

La materia prima serían desechos inútiles, biomasa procedente de desbroces o cortafuegos. Por eso, sería necesario situar la planta en algún lugar en el que no se le esté dando uso a estos residuos y donde el transporte hacia la futura instalación resulte barato. La planta tendrá unas cinco hectáreas, el tamaño adecuado para la capacidad de producción elegida. La parcela contaría con una zona de entrada y almacenamiento de la biomasa, donde se recibe, se pesa y se realizan las primeras operaciones, como el astillado. Sería necesario después un horno y turbinas y generadores de energía. Finalmente, el diseño prevé la separación de la ceniza mediante cámaras de precipitación electrostática.

DIGESTIÓN ANAERÓBICA

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
KR20120010360	SILLA UNIVERSITY	Corea	MANUFACTURING METHOD FOR BIOGAS USING JELLYFISH. A method for producing bio gas using jellyfishes is provided to effectively utilize the jellyfishes as waste and to reduce population of the jellyfishes. CONSTITUTION: A method for producing bio gas using jellyfishes comprises: a step of preparing a substrate for bio gas production, including jellyfishes; a step of injecting anaerobes or a reaction solution containing anaerobes to the substrate; and a step of culturing the substrate under an anaerobic condition and at 20[deg.]C-50[deg.]C to prepare hydrogen gas or methane gas. The jellyfishes are Nemopilema nomurai, Aurelia aurita, Cyanea capillata, or mixture thereof.
EP2457878	YARA INT ASA	Noruega	ANAEROBIC SLUDGE TREATMENT PROCESSES. The present invention relates to an anaerobic digestion process. More particularly, the present invention relates to the use of nitrate for stimulation of anaerobic digestion of organic matter, such as sludge from wastewater, resulting in increased methane production
EP2463240	VEOLIA WATER SOLUTIONS & TECH	Francia	INSTALLATION AND PROCESS FOR RECOVERING METHANE FROM A LIQUID EFFLUENT. The invention relates to a method for recovering methane from a liquid effluent of a reactor wherein a waste stream comprising one or more organic substances has been subjected to an anaerobic degradation process in which reactor biogas, comprising methane, has been produced from said one or more organic substances, the liquid effluent comprising dissolved methane, the method comprising transferring dissolved methane from the effluent to a gas phase and using the methane to produce energy.
WO2012065260	CLEARFORD IND INC	Canadá	AN ASSEMBLE-ON-SITE METHANE-CONTAINING BIOGAS COLLECTION SYSTEM AND KIT. The invention provides an assemble-on-site system for collecting biogas from digesting sewage. The system comprises a biogas deflection assembly configured and sized to fit a primary treatment unit; and a collection interface assembly operatively associated with the biogas deflection assembly and configured for connection to a biogas capture or collection system. When installed in the primary treatment unit, the biogas deflection assembly is substantially submerged and provides for the deflection of biogas to point(s) of biogas collection in the collection interface assembly. Also provided are components of the system and kits comprising one or more of the system components and assembly instructions.
WO2012061933	CANADA NATURAL RESOURCES et al.	Canadá	BIOLOGICAL OXIDATION OF HYDROGEN SULPHIDE IN A PSYCHROPHILIC ANAEROBIC DIGESTION BIOREACTOR SUBJECTED TO MICROAEROBIC CONDITIONS. A biological process for removing hydrogen sulphide from biogas is disclosed. The process involves injecting a small quantity of air into the gas phase or the liquid phase of a psychrophilic bioreactor to allow microbial flora to convert the hydrogen sulphide into elemental sulphur.
US2012122196	LANDMARK STRUCTURES I LP	EE.UU.	METHODS AND PRODUCTS FOR BIOMASS DIGESTION. Provided herein are methods and products for biomass digestion, which includes the production of biogas, U.S. Environmental Protection Agency classified Class A Biosolids, and pathogen reduced organic liquid fertilizer. Through the digestion of waste materials using sequential phases in an efficient digestion process, enhanced biomass conversion efficiency and improved output of products (in quantity and/or quality) are obtained with a significant reduction in dwell time in each phase.

DIGESTIÓN ANAERÓBICA

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012070410	MITSUBISHI HEAVY IND ENVIRONMENTAL & CHEMICAL ENGINEERING CO LTD et al.	Japón	METHANE FERMENTATION PRETREATMENT DEVICE. Provided is a methane fermentation pretreatment device that can remove, from a solubilized liquid, small matter unsuitable for fermentation that is made minute by a solubilization treatment and passes through a screen. The methane fermentation pretreatment device comprises a solubilization tank in which a solubilization treatment is performed on organic waste; a screen that is a first solid-liquid separation means for removing matter unsuitable for fermentation contained in a solubilized liquid obtained by performing a solubilization treatment in the solubilization tank on the organic waste, by causing the solubilized liquid to pass therethrough; and a second liquid-solid separation means having a liquid cyclone that receives a solubilized liquid that passed through the screen and separates out the matter unsuitable for fermentation contained in the solubilized liquid by applying a centrifugal force on the solubilized liquid, the means also having a drainage device that receives the matter unsuitable for fermentation separated by the liquid cyclone and dries the same.
EP2453004	BERTRAND YVES	Bélgica	METHOD AND FACILITY FOR ANAEROBIC DIGESTION OF ORGANIC MATTER WITH HIGH SOLID CONTENT. The process for anaerobic fermentation of organic material having high solid content (15-50 wt.%) in an airtight fermentation tank in stratification conditions and in vertical movement from top to bottom in the fermentation tank under the action of the gravity, comprises brewing fermenting mass by alternating pressure rise of gas product and sudden dropping of the pressure of the gas product. The alternation is obtained by rhythmical withdraw of gas product. The organic material is fermented at a temperature of 35-40[deg] C or 55-65[deg] C. The process for anaerobic fermentation of organic material having high solid content (15-50 wt.%) in an airtight fermentation tank in stratification conditions and in vertical movement from top to bottom in the fermentation tank under the action of the gravity, comprises brewing fermenting mass by alternating pressure rise of gas product and sudden dropping of the pressure of the gas product. The alternation is obtained by rhythmical withdraw of gas product. The organic material is fermented at a temperature of 35-40[deg] C or 55-65[deg] C. In steady state, an amount of fermented material equal to the mass contained in the fermentation tank divided by a residence time of the fermenting mass in the tank is extracted every day in passes of extraction of the fermentation tank. The weight amount of organic material introduced in each pass of feed is such that it reduces the level or the weight of the quantity of material, which contains in the fermentation tank of defined nominal value. In steady state, the fermented material is continuously extracted and the organic material is continuously introduced at each time at a rate, which corresponds to a residence time of the fermenting mass in the fermentation tank to constantly maintain the weight or level of the fermenting mass in the fermentation tank. An independent claim is included for an installation for anaerobic fermentation of organic material having high solid content.
WO2012058755	VALUQAT SOC EN COMMANDITE et al.	Canadá	METHODS AND APPARATUSES FOR PRODUCING BIOGASES. There are provided methods for producing at least one biogas comprising submitting an organic material to an anaerobic digestion process in an apparatus effective for carrying such a process so as to produce the at least one biogas, pressurizing the produced at least one biogas, and using the at least one biogas for conveying the organic material through the apparatus. Apparatuses for producing at least one biogas are also disclosed.

DIGESTIÓN ANAERÓBICA

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
ES2362852	SOCAMEX SA	España	PROCEDIMIENTO DE TRATAMIENTO DE FANGOS RESIDUALES. La invención se refiere a un procedimiento de tratamiento de fangos residuales para optimizar la producción de biogás y la calidad del mismo, así como la calidad del fango final obtenido. El procedimiento comprende las etapas de realizar una hidrólisis y extracción de metales previa de los fangos residuales, centrifugar para separar el sobrenadante que comprende metales del fango sedimentado, y someter el fango sedimentado a digestión anaerobia en condiciones microaerofílicas en un digestor anaerobio de mezcla completa para la eliminación de H2S.
WO2012042581	ABLE CO LTD et al.	Japón	APPARATUS FOR METHANE FERMENTATION TREATMENT. This apparatus for methane fermentation treatment is formed from a multistage reaction tank divided into a plurality of reaction chambers by walls within the tank, and within the multistage reaction tank, water being treated and granulated sludge are brought into contact. The apparatus for methane fermentation treatment is characterized by being provided with a gas venting means such that gas generated in one reaction chamber, which is provided with an opening part in a wall such that the water being treated passes from an upstream reaction chamber toward a downstream reaction chamber and provided with an overflow part in the downstream-most side of the reaction chamber that makes the treated water separated from the granulated sludge overflow and in eliminates the same, is drawn underneath the water surface at a height substantially the same as an overflow surface of the overflow part and vented into the air. The apparatus for methane fermentation treatment is also provided with a sludge return means that returns granular sludge drawn beneath the water surface with the gas by the gas venting means to another reaction chamber on the upstream side of the one reaction chamber. An apparatus for methane fermentation treatment with high reaction efficiency wherein the flow state of the water being treated in the multistage reaction tank is improved is provided.
WO2012037599	THIESS SERVICES PTY LTD et al.	Australia	WASTE MANAGEMENT METHOD. A method and apparatus for treating waste in particular municipal solid waste (MSW) and/or commercial and industrial (C&I) waste. The waste is provided as an organic rich fraction to a treatment cell. The cell is sealed to encapsulate the organic rich waste fraction and permit anaerobic digestion within the cell for a predetermined period of time. Leachate is recirculated within the cell and/or biogas extracted during said anaerobic digestion. After predetermined period of time, the treatment cell 100 is opened and the treated waste removed. A treatment facility can include several treatment cells 0 which are used and re-used and cycled through various phases of treatment.
WO2012032470	CSIR et al.	Sudáfrica	TREATMENT OF ORGANIC WASTE MATERIALS. The invention provides a method of operating an anaerobic digestion system. According to the method, fresh organic material feedstock is fed, under gravity to an anaerobic digestion stage along an organic material feedstock feed line and is then subjected to anaerobic digestion in the anaerobic digestion stage. Biogas is withdrawn from the anaerobic digestion stage along a digestion stage biogas transfer line and is passed to and collected in a biogas collection stage. Digestate is withdrawn, under gravity, from the anaerobic digestion stage and is transferred to a digestate phase separation stage along a digestate transfer line. In the digestate phase separation stage, the digestate is allowed to settle and separate into phases thereof.

FERMENTACIÓN DE AZÚCARES

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012068236	DYADIC INTERNAT USA INC et al.	EE.UU.	NOVEL FUNGAL OXIDOREDUCTASES. This invention relates to novel enzymes and novel methods for producing the same. More specifically this invention relates to enzymes of fungal origin classified as oxidoreductases and produced by fungi. Nucleic acid molecules encoding such enzymes, compositions, recombinant and genetically modified host cells, and methods of use are described. The invention also relates to methods to use the novel enzymes and compositions of such enzymes in a variety of other processes, including disinfection food, deinking and biobleaching of flour, cotton, paper and pulp, and the treatment of pollution. The invention also relates to a method to aid in the conversion of lignocellulosic biomass to fermentable sugars with enzymes that degrade the lignocellulosic material and novel combinations of enzymes, including those that provide a synergistic release of sugars from plant biomass.
RO127297	INCDO INOE 2000	Rumania	TECHNOLOGY FOR PREPARING BIOETAHNOL BY CONVERTING CELLULOSIC WASTES DURING A SIMULTANEOUS SACCHARIFICATION AND FERMENTATION PROCESS. The invention relates to a technology for preparing bioethanol by converting cellulosic wastes during a simultaneous saccharification and fermentation process, consisting in separating cellulose from hemicellulose by the vapour-phase self-hydrolysis pretreatment method, acid catalyzed at a pH 2, at a temperature of 180...210 DEG C and at a pressure of 50...70 bar, residence time of 10...15 minutes, followed by the enzymatic hydrolysis of the solid cellulosic fraction separated by the saccharification method followed by the fermentation process in order to obtain solubilized monosaccharides and finally to obtain the bioethanol by the fermentation of glucide fractions and hemicellulose fractions with Saccharomyces cerevisiae at a pH of 4...6 and at a temperature of 30...40 DEG C for 24...72 h.
WO2012071470	CARGILL INC et al.	EE.UU.	COMPOSITIONS AND METHODS FOR INCREASED ETHANOL TITER FROM BIOMASS. The present application discloses the identification of novel I. orientalis ADH1, ADHa, and ADHb genes, and the production and characterization of genetically modified yeast cells in which these genes were altered. Provided herein are isolated I. orientalis ADH1, ADHa, and ADHb polynucleotides and polypeptides, genetically modified yeast cells that overexpress I. orientalis ADH1 and/or contain deletions or disruptions of ADHa and/or ADHb, and methods of using culturing these modified cells to produce ethanol.
WO2012067510	C5 YEAST COMPANY B V et al.	Holanda	YEAST STRAINS ENGINEERED TO PRODUCE ETHANOL FROM GLYCEROL. The present invention relates to genetically modified yeast cells comprising exogenous genes coding for pyruvate formate lyase and acetaldehyde dehydrogenase activities. The yeast cells further comprises genetic modifications that improve glycerol utilization such as modifications that increases NAD+ -linked glycerol dehydrogenase activity, and preferably one or more of dihydroxyacetone kinase activity and transport of glycerol into the cell. The yeast cell further preferably comprises a functional exogenous xylose isomerase gene and/or functional exogenous genes which confer to the cell the ability to convert L-arabinose into D-xylulose 5-phosphate and they may comprise a genetic modification that increase acetyl-CoA synthetase activity. The process is further characterised in that glycerol is present in or fed into the culture medium, whereby the modified yeast cell ferments the hexoses, pentoses,acetic acid and glycerol to ethanol. The invention further relates to processes for producing a fermentation product and formate from carbon sources comprising glycerol and at least one of a hexose and a pentose, wherein the genetically modified yeast cells are used to ferment the carbon sources to the fermentation product and formate. A preferred fermentation product is ethanol.

FERMENTACIÓN DE AZÚCARES

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012067571	SCANDINAVIAN TECHNOLOGY GROUP AB et al.	Suecia	NEW STRAINS OF SACCHAROMYCES CEREVISIAE. A method for producing a strain of Saccharomyces cerevisiae with introduced genes coding for xylose reductase, xylitol dehydrogenase and xylulokinase and with improved ethanol production, improved xylose conversion, reduced xylitol production and improved inhibitor tolerance is described. The method comprises culturing a strain of Saccharomyces cerevisiae at a continuous mode with a medium comprising essentially only xylose as carbon source at a temperature of 25- 38 DEG C, preferably 30-35 DEG C, and an airflow of 0.040-0.055 vvm, and increasing the dilution rate to maintain a constant cell level, said cell level being in the range of 1.5-3.0 determined by optical density or equivalent analytical means, and adding at least one inhibitor to the cells and gradually increasing the addition of said inhibitor. Further, strains of Saccharomyces cerevisiae obtained by the method according to the invention are described.
WO2012063344	TOYOTA MOTOR CO LTD et al.	Japón	METHOD FOR MANUFACTURING ETHANOL USING RECOMBINANT YEAST. In order to improve the xylose metabolic capability of yeast cells which are capable of metabolizing xylose, this method is provided with a step for soaking yeast cells capable of metabolizing xylose in a solution containing acetic acid, and a subsequent step for culturing the yeast cells in a xylose-containing culture medium to conduct ethanol fermentation.
US2012115200	GREENFIELD ETHANOL INC	Canadá	CONTINUOUS PROCESS FOR THE PRODUCTION OF ETHANOL FROM LIGNOCELLULOSIC BIOMASS. A continuous process for the recovery of ethanol from hemicellulose and cellulose from lignocellulosic biomass. Yield of fermentable sugars can be maximized by continuous operation of the pre-treatment system and careful selection of pretreatment conditions including the addition of only small amounts of dilute mineral acid and low pressure. With this approach, the xylose component that is mainly present in its unfermentable oligomeric form in known pre-hydrolysis Kraft processes can be recovered more efficiently and as a monomer that can be fermented by xylose fermenting yeasts and bacteria. Due to the use of only dilute acids, there is a very low loss of glucose and xylose hence very low production of toxic chemicals (e.g. HMF, furfural) in the pretreatment step. The resulting overall fermentation efficiency of both hexose and pentose sugars is 90% of the theoretical maximum.
WO2012059105	UNIV DENMARK TECH DTU et al.	Dinamarca	DSMZ 24726 FOR SECOND GENERATION BIOETHANOL PRODUCTION. The present invention relates to a novel anaerobic, extreme thermophilic, ethanol high- yielding bacterium. The invention is based on the isolation of the bacterial strain referred to herein as "DTU01", which produces ethanol as the main fermentation product, followed by acetate and lactate. The isolated organism is an extremely interesting and very promising organism for the establishment of a sustainable bioethanol production process. The invention further relates to a method for producing a fermentation product such as ethanol.
US2012107888	QTEROS INC	EE.UU.	MODULATION OF FERMENTATION PRODUCTS THROUGH VITAMIN SUPPLEMENTATION. Improved yields of biofuels and other chemicals are obtained by culturing a cellulolytic microorganism, such as Clostridium phytofermentans, Clostridium sp. Q.D, or Clostridium biocatalysts thereof in modulated amounts of vitamins, such as thiamine or nicotinic acid. Provided are methods to increase yields of ethanol and other fermentation products through vitamin supplementation. Recombinant microorganisms with altered metabolic pathways that obviate the need to modulate media components during hydrolysis and fermentation of biomass are also described.

FERMENTACIÓN DE AZÚCARES

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
FR2966154	CIE IND DE LA MATIERE VEGETALE CIMV	Francia	PROCESS FOR PRODUCING BIOETHANOL BY ENZYMATIC HYDROLYSIS OF CELLULOSE. The invention concerns a process for producing bioethanol comprising the steps of pretreatment (consisting in destructuring the lignocellulosic vegetable raw material by placing it in the presence of a mixture containing formic acid, acetic acid and water, then in separating cellulose), of enzymatic hydrolysis and of alcoholic fermentation, characterized in that it comprises, prior to the enzymatic hydrolysis, a step of partial elimination of the lignins so as to obtain a residual overall level of lignins (T), expressed as percentage by weight, which is non-zero and which is included in a range determined by a lower limit, and an upper limit Bsup, respectively equal to 0.30% and 4%. In order to obtain conditions of acidification before the enzymatic hydrolysis step, the process comprises a step for re- acidification of the mixture, which is carried out by means of an acid, or of a mixture of acids, of determined pKa, and in particular by means of weak organic acids such as acetic acid and/or formic acid.
WO2012056056	UNIV MALAGA et al.	España	TRANSGENIC TREES HAVING A GREATER QUANTITY OF BIOMASS AND CARBOHYDRATES. Transgenic trees having a greater quantity of biomass and carbohydrates. The present invention describes the generation of transgenic trees (black poplars) which overexpress a pine gene encoding a Zn-finger type transcription factor of the Dof (DNA-one finger) transcription factor family. The trees obtained through genetic engineering are characterised by presenting greater biomass content, a height exceeding the controls, and greater photosynthetic activity which translates into higher content of sugars than non-transformed trees, together with greater vegetative growth and number of leaves.
WO2012049172	LYSANDO HOLDING AG et al.	Liechtenstein	PHAGE RECEPTOR PROTEINS IN FERMENTATION PROCESSES. The present invention relates to a fermentation process for the production of an organic compound of interest, wherein the fermentation process comprises the following steps: incubation of components comprising polysaccharides with a phage receptor protein in an aqueous medium and fermentation of the mixture of the incubation step to the organic compound of interest, wherein the organic compound of interest consists of C, H and O atoms only.
WO2012051523	ANDRITZ TECH & ASSET MAN GMBH et al.	Austria	HIGH SOLIDS ENZYME REACTOR OR MIXER AND METHOD. A reactor apparatus including: an internal mixing chamber including a first chamber section having a cross-sectional area expanding from a biomass inlet to the internal mixing chamber to the a second chamber section; the second chamber section having a substantially uniform internal cross-sectional area from the opposite end of the first chamber section to a discharge end of the mixing chamber; the biomass inlet is coupled to a source of pre-treated biomass external to the reactor vessel, and a rotating mixing device in the internal mixing chamber and coaxial with an axis of the first chamber section.

FERMENTACIÓN DE AZÚCARES

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
WO2012042840	KAWASAKI HEAVY IND LTD et al.	Japón	METHOD FOR PRODUCING ETHANOL WITH CELLULOSIC BIOMASS AS STARTING MATERIAL. The purpose of the present invention is to prevent excessive breakdown and caramelization of sugars, prevent decline in sugar yield, and effectively use flash steam in a method for producing ethanol by alcohol fermentation of sugars obtained by hydrolyzing cellulosic biomass in a supercritical or subcritical state. This method for producing ethanol with cellulosic biomass as a starting material is characterized in that during a saccharification/breakdown step, a saccharified/broken-down slurry taken from a hydrothermal reactor such as a pressure vessel is flash steamed in a first flash tank to a temperature between 150 DEG C and 200 DEG C, with the retention time of the saccharified/broken-down slurry set at less than 3 minutes, in that the saccharified/broken-down slurry taken from the first flash tank is further flash steamed in a second flash tank to a temperature between 100 DEG C and 120 DEG C, and in that first flash steam produced by the first flash tank is used as a heat source in the saccharification/breakdown step or in a distillation step.

MEJORAR LA AUTOSUFICIENCIA DE LAS DEPURADORAS, AUMENTANDO EL POTENCIAL DEL BIOGÁS GENERADO DE LODOS

Uno de los retos planteados en la jornada "Ultimas tendencias en la gestión del agua", celebrada en Abril en el centro tecnológico AINIA, fué como gestionar de forma eficiente el agua para las industrias alimentarias y las depuradoras urbanas. En esta jornada, se abordaron dos estrategias centradas en la optimización del tratamiento de los lodos generados por dichas instalaciones.

La primera estrategia basada en pre-tratamientos avanzados, que faciliten la degradación biológica de los lodos, consiste en la aplicación de ozono, cavitación hidrodinámica o ultrasónica, etc. que permiten hidrolizar y/o incrementar la biodegradabilidad del lodo y así mejorar el ratio de producción de biogás en el proceso posterior de digestión anaerobia.

La segunda estrategia es que dicha digestión se haga, además de con lodos de la depuradora, con residuos orgánicos importados de las industrias alimentarias próximas, en un proceso de tratamiento conjunto. Todo ello es posible gracias a que los digestores de las depuradoras urbanas suelen estar infrautilizados y pueden digerir más material orgánico del que aporta el lodo. Lo que se consigue es incrementar la producción de biogás y mejorar el balance energético y económico de la instalación.

EL BIOGAS EN LAS CARRETERAS HOLANDESAS

Noruega, Suecia, Finlandia y Holanda son algunos de los países más avanzados en el uso del biogás en el transporte, y más concretamente en autobuses urbanos e interurbanos. Recientemente, CNG Net, filial de la compañía holandesa Nallast Nedam, firmó un acuerdo con la empresa de transportes de viajeros por carretera Connexxion por el que se compromete a suministrar 12 millones de m^3 de biogás para los 225 autobuses que circulan en el área metropolitana formada por las ciudades de Arnhem y Nimega antes de que finalice 2012. Según CNG Net, este acuerdo supone "la mayor concensión dentro del transporte público para la utilización de biogás refinado y es único en Europa". Para cumplir con este objetivo, CNG Net construirá tres nuevas estaciones de abastecimiento de biogas.

La compañía gasista holandesa lleva a cabo diversos convenios de colaboración con empresas de transporte de pasajeros para extender el uso del biometano. Otro actor importante en este campo es Bios Group, con el que

CNG Net contrató el pasado año la presentación de un servicio de suministro durante cuatro años para la flota de autobuses de la ciudad de Haarlem. En todos los casos, la empresa matriz, Ballast Nedam, se encarga del diseño, construcción y mantenimiento de las estaciones de servicio asociadas a los acuerdos.

EE.UU. AUTORIZA A AUMENTAR LA MEZCLA DE BIOCOMBUSTIBLES

La Agencia de Protección del Medioambiente de Estados Unidos ha autorizado a 20 empresas a producir un nuevo etanol de grado 15, que representa un importante paso adelante para promover su producción, comercialización y consumo.

Este nuevo grado es una propuesta del sector, que supone una mejora con respecto a la proporción de mezcla de 9 a 1 de gasolina y etanol de maíz que tiene el combustible que se vende en las gasolineras, Según la EPA, el combustible E15 sólo se venderá a turismos y camiones ligeros fabricados a partir del año 2000 y no para equipos ligeros ni vehículos más antiguos. Según el Secretario de Agricultura, "estas primeras autorizaciones indican claramente que los productores de combustibles entienden que los conductores estadounidenses quieren tener más opciones cuando van a llenar el depósito de su vehículo".

USO DE CATALIZADORES INORGÁNICOS EM LA TRANSFORMACIÓN DE AZÚCARES EN ENERGÍA

Una etapa crucial en la producción de biocombustibles a partir de biomasa es la transformación de glucosa a fructosa, ya que, esta última, presenta una actividad energética mucho mayor. La reacción se realiza gracias a la presencia de un catalizador biológico o enzima.

Sin embargo, este tipo de catalizador tiene grandes problemas de operatividad. Para su correcto funcionamiento las enzimas requieren de purificaciones previas y condiciones muy específicas de pH y temperatura que evitan o encarecen los procesos de obtención de productos de alto valor añadido a partir de biomasa.

Científicos del Instituto de Tecnología Química, centro mixto del Consejo Superior de Investigaciones Científicas (CSIC) y la Universidad Politécnica de Valencia, han conseguido diseñar catalizadores más eficientes y estables que mimetizan el comportamiento de los sistemas naturales. En estas investigaciones se ha conseguido inducir la isomerización de la glucosa en fructosa en un medio acuosos empleando como catalizador artificial una zeolita hidrófoba que contiene ácidos de Lewis. De este modo, se puede reproducir el proceso biológico en condiciones de temperatura o acidez más extremas.

En esta investigación, liderada por el Instituto Tecnológico de California, también participan científicos del Laboratorio Nacional Argonne, la Universidad del Noroeste de Evanston, la Universidad del estdo de Wayne en Detroit, el Instituto Tecnológico de Massachusetts y el Centro para la Ciencia y la Tecnología Catalítica de Delaware.

TECNOLOGÍAS QUÍMICAS

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
KR20110096377	KOREA ENERGY RESEARCH INST	Corea	OIL EXTRACTION AND BIODIESEL PRODUCTION FROM MICROALGAE. A method for isolating oil from microalgae and converting into bio diesel is provided to remove chlorophyll before conversion into bio diesel and to enhance bio diesel conversion rate. CONSTITUTION: A method for isolating oil from microalgae and converting into biodiesel comprises: a step of isolating oil from the microalgae by solvent extraction, microwave method, hot water treatment, enzyme treatment, or pressing; a step of contacting the isolated oil with adsorbing agent to remove chlorophyll contained in the oil; and a step of converting the oil into bio diesel. The adsorbing agent is activated charcoal, activated clay, kaolite, zeolite, or bantonite. A solvent used in solvent extraction is hexane, petroleum ether, methanol, or chloroform.
US2012123139	MUNSON JAMES R et al.	EE.UU.	BIODIESEL PURIFICATION BY A CONTINUOUS REGENERABLE ADSORBENT PROCESS. A process for the continuous purification of biodiesel (fatty acid alkyl esters (FAAE)) is described using a powdered, granulated or extruded adsorbent. The adsorbent is contained in a column system and is regenerated for reuse multiple times. The crude biodiesel is contacted with an adsorbent packed into a column, or multiple columns in series, for a sufficient amount of time to remove impurities such as, but not limited to, soaps, metals, free glycerin, sterol glucosides and many of the other impurities that reduce the stability of biodiesel. The resulting finished biodiesel exiting the column(s) is ready for the methanol recovery process. Once the adsorbent no longer removes the desired amount of impurities, it is regenerated for reuse. The solvent used for the regeneration process is reclaimed and reused by recycling it back to the transesterification reaction.
US2012123140	SENECA LANDLORD LLC	EE.UU.	PRODUCTION OF BIODIESEL AND GLYCERIN FROM HIGH FREE FATTY ACID FEEDSTOCKS. A system and method for the conversion of free fatty acids to glycerides and the subsequent conversion of glycerides to glycerin and biodiesel includes the transesterification of a glyceride stream with an alcohol. The fatty acid alkyl esters are separated from the glycerin to produce a first liquid phase containing a fatty acid alkyl ester rich (concentrated) stream and a second liquid phase containing a glycerin rich (concentrated) stream. The fatty acid alkyl ester rich stream is then subjected to distillation, preferably reactive distillation, wherein the stream undergoes both physical separation and chemical reaction. The fatty acid alkyl ester rich stream is then purified to produce a purified biodiesel product and a glyceride rich residue stream. Neutralization of the alkaline stream, formed during the alkali-catalyzed transesterfication process, may proceed by the addition of a mineral or an organic acid.
WO2012057945	CHEVRON USA INC et al.	EE.UU.	FUEL AND BASE OIL BLENDSTOCKS FROM A SINGLE FEEDSTOCK. A method comprising the steps of providing a quantity of biologically-derived oil comprising triglycerides; processing the biologically derived oil so as to transesterify at least some of the triglycerides contained therein to yield a quantity of saturated monoesters and unsaturated monoesters; oligomerizing at least some of the unsaturated monoesters to yield a quantity of fatty acid ester oligomers; separating at least some of the saturated monoesters from the fatty acid ester oligomers; and hydrotreating at least some of the fatty acid ester oligomers to yield a quantity of alkanes.

TECNOLOGÍAS QUÍMICAS

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
EP2450424	NESTE OIL OYJ	Finlandia	A METHOD FOR RECOVERY OF OIL FROM BIOMASS. The present invention relates to a method and apparatus for recovery of lipids from microbial biomass. The method comprises providing wet microbial biomass to thermal pretreatment of at least 100 DEG C in a pressure vessel, subjecting the thermally pretreated microbial biomass to extraction using a liquid hydrocarbon as an extractant, and subsequently, recovering a product containing lipids.
US2012110897	GEN X ENERGY GROUP INC	EE.UU.	BIOFUEL PRODUCTION. This patent relates to biofuels, such as biodiesel and production of biofuels. One example, introduces a reactant to a renewable feedstock. The example produces a biofuel from the renewable feedstock and separates the reactant from the biofuel. The example recycles the reactant to react with additional renewable feedstock. The example also transfers heat from the recycled reactant to the additional renewable feedstock.
EP2446965	EVONIK DEGUSSA GMBH	Alemania	PROCESS FOR PREPARATION OF SUPPORTED CATALYSTS AND USE OF THE CATALYST FOR THE ESTERIFICATION OF FREE FATTY ACIDS IN VEGETABLE OIL. Process for preparation of a supported catalyst based on hydroxylated inorganic material selected from the group consisting of silica (SiO 2), alumina (Al 2 O 3), titania (TiO 2), zirconia (ZrO 2), lanthanum oxide (La 2 O 3) or mixtures thereof, characterized in that the hydroxylated inorganic material is contacted with organosilicon compounds selected from the group consisting of Formula 1 i.e., [(RO) y Si-[O-(RO) y Si] y -O-Si(RO) y] or Formula 2 i.e., (RO) y -Si-R 1 -S 2-4 -R 1 -Si-(RO) y with R being alkyl and R 1 being a linear or branched alkylene having from 1 to 5 carbon atoms and y being an integer from 1 to 3.
WO2012050243	SK INNOVATION CO LTD et al.	Corea	METHOD FOR PRODUCING BIODIESEL. The present invention relates to a method for converting biomass into biodiesel, and more particularly, to a method for producing biodiesel which includes a hydrolysis process prior to a hydrotreatment process, and which further includes a process of recycling generated HBD, thereby reducing the amount of consumed hydrogen required for a complete reaction, and thus reducing the amount of generated heat.
WO2012049180	NOVOZYMES AS et al.	Dinamarca	PROCESSING OF OILS AND FATS. The invention relates to processing of oils and fats comprising applying an immobilized lipolytic enzyme, wherein a liquid aqueous lipolytic enzymes preparation is added to the immobilized lipolytic enzyme between feedstock batches, and/or is added to the immobilized lipolytic enzyme step wise or continuously during feedstock processing.
US2012083617	CAL POLY CORP	EE.UU.	PROCESS FOR EXTRACTING LIPIDS FROM MICROALGAE. A process for extracting lipids from microalgae; the process involves pretreating a quantity of non-homogenized microalgae with an aliphatic alcohol for a predetermined period of time. The pretreatment liberates a substantial portion of lipids from the microalgae without requiring energy intensive cell membrane disruptive technologies. The liberated lipids are then treated with a transesterification reagent to form fatty acid methyl esters. The fatty acid methyl esters are separated from the resulting mixture and may be further purified to remove remaining solvents or other impurities. The fatty acid methyl esters produced by the process are suitable as a green energy biodiesel product.

TECNOLOGÍAS QUÍMICAS

Nº DE PUBLICACIÓN	SOLICITANTE	PAÍS ORIGEN	CONTENIDO TÉCNICO
ES2350782	FUNDACION INVESTIGACION E INNOVACION PARA EL DESARROLLO SOCIAL	España	PROCESO PARA LA ELIMINACIÓN DE LA CONTAMINACIÓN DE LOS BIORESIDUOS Y PRODUCCIÓN DE ENERGÍA CON LOS SUBPRODUCTOS OBTENIDOS. Proceso para la eliminación de la contaminación de los bioresiduos y producción de energía con los subproductos obtenidos, y donde, depósito de decantación, separa los componentes de los bioresiduos: aceites, parte superior; zona acuosa intermedia, nitrato amoniacal, fosfatos y potasa; parte inferior, materia orgánica. Introducimos CO que reacciona con el nitrato amoniacal, forma carbonato amónico. Los aceites, llevados a otro deposito, se adiciona metóxido de sodio transformandolo en biodiesel. La parte acuosa a otro deposito con hidróxido cálcico reacciona con el carbonato amónico formándose carbonato cálcico y desprendiendo amoniaco gas para combustible. El carbonato cálcico precipita y se almacena. Los compuestos nitrogenados reaccionan con el hidróxido cálcico para formar nitrato cálcico, lo emplearemos como fertilizante. Los metales pesados decantan en carbonatos, eliminandose su contaminación; secado y homogeneizado servirá como compost.
US2012079760	SAVAGE PHILLIP E et al.	EE.UU.	METHOD OF PRODUCING BIODIESEL FROM A WET BIOMASS. A method of producing a biodiesel from a wet biomass is provided. The method includes providing the wet biomass that includes water and biomass solids. The method also includes heating the wet biomass at a first temperature and a first pressure for a time period ranging from 10 to 480 minutes to form an aqueous solution and a solid agglomerate containing a hydrolyzed lipid component. The method also includes step of transesterifying the hydrolyzed lipid component to form biodiesel.
EP2431352	EVONIK DEGUSSA GMBH	Alemania	CATALYST SYSTEMS FOR BIODIESEL PRODUCTION. Use of a catalyst system comprising a transesterification catalyst comprising alkali metal- or alkaline earth metal-alkoxides or alkali metal hydroxides, and at least one activator different from the transesterification catalyst, comprising salt-like compounds, titanates or non-salt-like compounds having a density of at least 0.9 g/ml, for catalyzing transesterification reactions, is claimed. An independent claim is included for preparing fatty acid alkyl esters, comprising transesterifying at least one mono-, di- or triglyceride in the presence of at least one monohydric alcohol.
US2012065416	UNIV UTAH STATE	EE.UU.	METHODS FOR PRODUCTION OF BIODIESEL. The present invention relates to methods useful for converting microbial lipids from an oleaginous microbial biomass into fatty acid alcohol esters, without prior extraction of the lipids from the biomass. The present invention also relates to fatty acid alcohol esters produced by the methods described herein. The fatty acid alcohol esters produced by the methods described herein may be useful as biodiesel, or a component thereof. In embodiments, the converting of microbial lipids to fatty acid alcohol esters may be accomplished by contacting an acid catalyst, an alcohol and an oleaginous microbial biomass containing microbial lipids under sufficient conditions and for a sufficient period of time for in situ transesterification reaction of at least some microbial lipids to their corresponding fatty acid alcohol ester.

NUEVO PROCESO CATALÍTICO PARA LA OBTENCIÓN DE BIODIESEL A PARTIR DE ALGAS

Investigadores de la Universidad Técnica de Munich han desarrollado un nuevo catalizador basado en Niquel soportado sobre zeolita HBeta que permite la conversión cuantitativa, en unas condiciones suaves de presión y temperatura, del aceite de microalgas en hidrocarburos.

En el estudio se han tratado aceites de microalgas compuestos por lípidos neutros, como mono-, di- y triglicéridos, con ácidos grasos insaturados C18 como principal componente (88%). Tratando el aceite con el catalizador durante 8 h a 280 °C y una presión de 40 atm se consiguió la conversión del 78% del aceite en alcanos líquidos con un elevado rendimiento para la formación de compuestos dentro del rango diesel (C18).

La transformación de los aceites transcurre a través de un mecanismo bifuncional en el que participan tanto el Ni como el soporte zeolítico del catalizador. En primer lugar los dobles enlaces de los ácidos grasos insaturados de los triglicéridos se saturan con hidrógeno en los centros metálicos de Ni. A continuación los grupos ácidos se reducen con hidrógeno dando lugar al correspondiente hidrocarburo saturado.

Para el diseño del catalizadores se analizó el mecanismo y la velocidad de las reacciones involucradas en procedimiento para lograr finalmente un catalizador selectivo y estable durante la conversión de los hidrocarburos.

PROYECTO CLIMA

Conae (Confederación nacional de autónomos y microempresas) apuesta por un proyecto agrícola, "Proyecto Clima" que podría suponer para España un ahorro de 19 millones de euros al poder producir biodiesel en fábricas que actualmente están sin uso. En este proyecto se pretende cultivar 300.000 hectáreas de colza (Brassica napus) en Extremadura y Castilla-La Mancha, para producir biodiesel nacional en las fabricas de dichas comunidades.

Según los cálculos de Conae sacar adelante esta propuesta supondrá el ahorro de 5.45 millones de toneladas de CO_2, lo que se traduce en un ahorro cuantioso ya que según el protocolo de Kioto, cada país tiene que pagar 7 euros por tonelada de CO_2 si sobrepasa el límite establecido y España se gastó 770 millones de euros en comprar derechos de emisión de CO_2 durante la anterior ligeslatura, convirtiéndose en el segundo país que más derechos de emisión de CO_2 ha comprado debido al alto consumo energético de su transporte, cuidados y hogares.

BIODIESEL DE ALTA CALIDAD

En Argentina, la Universidad Nacional de Rosario (UNR) y la empresa Keclon trabajaran conjuntamente en el desarrollo de enzimas que se utilizarán para producir biodiesel de alta calidad, de mayor eficaciá y con un coste menor.

Inicialmente, se desarrollaran enzimas capaces de limpiar de impurezas el biodiesel elaborado a partir de vegetales, como es el caso de los esteril glucósidos y monoacilglicéridos saturados que forman materiales insolubles perjudicando la calidad del combustible.

El tipo de actividad desarrollada en el marco de la investigación es básicamente biológica-sintética, por lo que no interfiere en la naturaleza ni en el medioambiente. En el proceso no se utilizan los genes naturales que la biotecnología movía de un organismo a otro, sino que se diseñan genes que no existian en la naturaleza, para cumplir funciones específicas.

Se estima que en 2015 se presente este producto al mercado argentino primero y luego al brasileño y también a otros países productores de biodiesel, como India, Estados Unidos y Alemania.

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