

OBJETIVOS DE DESARROLLO SOSTENIBLE



ELECTRICIDAD, CALOR Y/O FRÍO A PARTIR DE BIOMASA

La cogeneración (CHP, *Combined Heat and Power*) se define como la producción conjunta, en un proceso secuencial, de energía mecánica y/o eléctrica y energía térmica útil (vapor, agua caliente sanitaria, aceites térmicos, gases calientes, etc.). La simultaneidad del proceso de cogeneración implica la proximidad de la planta generadora a los lugares de consumo, en contraposición al sistema convencional de producción de electricidad en centrales termoeléctricas independientes. Engloba numerosas tecnologías de eficiencia energética, pudiéndose alcanzar rendimientos de hasta el 85%.

La trigeneración es la generación combinada de electricidad, calor y frío (CCHP, *Combined Cooling, Heat and Power*). Los sistemas CCHP consisten principalmente en la integración de una unidad de cogeneración con un refrigerador por absorción/adsorción alimentado por el calor residual. Alcanzan rendimientos más elevados que los sistemas convencionales, al tiempo que permiten ahorros en energía primaria, reducción de emisiones y garantía en la seguridad de suministro. En Europa, los países que lideran la trigeneración son Austria, Dinamarca, Finlandia y los Países Bajos.

La cogeneración a partir de recursos biomásicos se encuentra hoy en día bastante extendida en Norteamérica y Europa, comenzándose a abrir paso a sistemas de trigeneración. La cogeneración en el rango de pequeñas potencias está cobrando mucho auge en paralelo con el desarrollo tecnológico que permite emplear combustibles sólidos, líquidos o gaseosos de origen biomásico con una fiabilidad y rendimiento notorios. Así, ya existen en el mercado microturbinas de gas y motores de combustión interna especialmente diseñados para biogás, y algunos motores Stirling incorporados en calderas de biomasa que permiten generar electricidad, además de calor, en unos rangos de potencia lo suficientemente pequeños para que se pueden integrar en edificios u otros sistemas consumidores de forma técnica y económicamente viable. Asimismo, ya están disponibles algunos sistemas de cogeneración basados en pilas de combustible de alta temperatura (SOFC, *Solid Oxide Fuel Cells*, y MCFC, *Molten Carbonate Fuel Cells*) alimentadas con biocombustibles (biogás, por ejemplo), que pueden operar en rangos de potencia muy variados (kW-MW). Por otra parte, también existe equipamiento para emplear el calor residual de la cogeneración para producir frío, cuyo destino suele ser la climatización de locales. Así, actualmente, los esfuerzos se dirigen a la optimización del diseño de los sistemas CCHP desde el punto de vista de la integración de los subsistemas que los constituyen, así como del propio desarrollo de dichos subsistemas para superar las limitaciones presentes que impiden adoptar la configuración teórica óptima (potencia y características de operación del motor primario, por ejemplo).

Con idea de ofrecer una visión de la situación actual en Europa en este ámbito, en la Tabla 1 se recogen los proyectos europeos del programa H2020 más recientes encontrados en la base de datos CORDIS, relacionados con sistemas CHP y CCHP alimentados con recursos biomásicos. Hoy en día, los primeros son mucho más numerosos que los segundos. En la Figura 1 se muestra la distribución de los proyectos de la Tabla 1 por sus países coordinadores. El país a la cabeza es Italia.

Tabla 1. Proyectos H2020 (por orden alfabético del acrónimo)

ARBAHEAT: Cost-effective transformation of a Highly-Efficient, Advanced, Thermal Ultra-SuperCritical coal-fired power plant into a CHP by retrofitting and integrating an ARBAFLAME biomass upgrading process	
Fecha de inicio: 01-10-2018 Coordinador: PNO Consultants BV (Países Bajos)	Fecha de finalización: 31-09-2022
Participantes:	
<ul style="list-style-type: none"> • Arbaflame AS (Noruega) • Engie Energie Nederland NV (Países Bajos) • Nederlandse Organisatie Voor Toegepast Natuurwetenschappelijk Onderzoek TNO (Países Bajos) • Sintef Energi AS (Noruega) • Vrije Universiteit Brussel (Bélgica) 	
BAMB00: Boosting new Approaches for flexibility Management By Optimizing process Off-gas and waste use	
Fecha de inicio: 01-09-2018 Coordinador: Fundación CIRCE, Centro de Investigación de Recursos y Consumos Energéticos (España)	Fecha de finalización: 28-02-2022
Participantes:	
<ul style="list-style-type: none"> • UPM GmbH (Alemania) • Turkiye Petrol Rafinerileri Anonim Sirketi (Turquía) • AIT Austrian Institute of Technology GmbH (Austria) • Energieinstitut an der Johannes Kepler Universitat Linz Verein (Austria) • Technische Universitaet Braunschweig (Alemania) 	
BIG HIT: Building Innovative Green Hydrogen systems in an Isolated Territory: a pilot for Europe	
Fecha de inicio: 01-05-2016 Coordinador: Fundación para el Desarrollo de las Nuevas Tecnologías del Hidrogeno en Aragón (España)	Fecha de finalización: 30-04-2022
Participantes:	
<ul style="list-style-type: none"> • ITM Power (Trading) Limited (Reino Unido) • Community Energy Scotland Limited (Reino Unido) • Calvera Maquinaria e Instalaciones SL (España) • Giacomini Spa (Italia) • Shapinsay Development Trust (Reino Unido) 	
Bio-HyPP: Biogas-fired Combined Hybrid Heat and Power Plant	
Fecha de inicio: 01-06-2015 Coordinador: Deutsches Zentrum Fuer Luft - und Raumfahrt EV (Alemania)	Fecha de finalización: 31-12-2019
Participantes:	
<ul style="list-style-type: none"> • Micro Turbine Technology BV (Países Bajos) • Universita Degli Studi di Genova (Italia) • Technische Universiteit Eindhoven (Países Bajos) • Hiflux Ltd (Reino Unido) • Rina Consulting Spa (Italia) 	
Bioefficiency: Highly-efficient biomass CHP plants by handling ash-related problems	
Fecha de inicio: 01-11-2016 Coordinador: Technische Universitaet Muenchen (Alemania)	Fecha de finalización: 31-10-2019
Participantes:	
<ul style="list-style-type: none"> • Valmet Technologies Oy (Finlandia) • Mitsubishi Hitachi Power Systems Europe GmbH (Alemania) • Danmarks Tekniske Universitet (Dinamarca) • Teknologian Tutkimuskeskus VTT Oy (Finlandia) • Dong Energy Thermal Power AS (Dinamarca) 	
BioVill: Bioenergy Villages (BioVill) - Increasing the Market Uptake of Sustainable Bioenergy	
Fecha de inicio: 01-03-2016 Coordinador: Deutsche Gesellschaft fur Internationale Zusammenarbeit (GIZ) GmbH (Alemania)	Fecha de finalización: 28-02-2019
Participantes:	
<ul style="list-style-type: none"> • KEA Klimaschutz- und Energieagentur Baden-Wuerttemberg GmbH (Alemania) • Wirtschaft Und Infrastruktur GmbH & Co Planungs KG (Alemania) • Gozdarski Institut Slovenije (Eslovenia) • Regionalna Energetska Agencija Sjeverozapadne Hrvatske (Croacia) • Osterreichische Energieagentur Austrian Energy Agency (Austria) 	

BLAZE: Biomass Low cost Advanced Zero Emission small-to-medium scale integrated gasifier-fuel cell combined heat and power plant

Fecha de inicio: 01-03-2019

Fecha de finalización: 28-02-2022

Coordinador: Università degli Studi Guglielmo Marconi - Telematica (Italia)

Participantes:

- Ecole Polytechnique Federale de Lausanne (Suiza)
- Solidpower SA (Suiza)
- Hygear BV (Países Bajos)
- Vertech Group (Francia)
- Walter Tosto Spa (Italia)

CH2P: Cogeneration of Hydrogen and Power using solid oxide based system fed by methane rich gas

Fecha de inicio: 01-02-2017

Fecha de finalización: 31-07-2020

Coordinador: Fondazione Bruno Kessler (Italia)

Participantes:

- Solidpower Spa (Italia)
- Hygear Technology and Services BV (Austria)
- Deutsches Zentrum Fuer Luft - und Raumfahrt EV (Alemania)
- Shell Global Solutions International BV (Países Bajos)
- Vertech Group (Francia)

COMSYN: Compact Gasification and Synthesis process for Transport Fuels

Fecha de inicio: 01-05-2017

Fecha de finalización: 30-04-2021

Coordinador: Teknologian Tutkimuskeskus VTT Oy (Finlandia)

Participantes:

- Ineratec GmbH (Alemania)
- Unipetrol Vyzkumne Vzdělávací Centrum AS (República Checa)
- Deutsches Zentrum Fuer Luft - und Raumfahrt EV (Alemania)
- GKN Sinter Metals Filters GmbH Radevormwald (Alemania)
- Amec Foster Wheeler Italiana Srl (Italia)

DEMOSOFC: DEMOnstration of large SOFC system fed with biogas from WWTP

Fecha de inicio: 01-09-2015

Fecha de finalización: 31-10-2020

Coordinador: Politecnico di Torino (Italia)

Participantes:

- Convion Oy (Finlandia)
- Società Metropolitana Acque Torino Spa (Italia)
- Teknologian Tutkimuskeskus VTT Oy (Finlandia)
- Imperial College of Science Technology and Medicine (Reino Unido)

FLEXCHX: Flexible Combined production of Power, Heat and Transport Fuels from renewable energy sources

Fecha de inicio: 01-03-2018

Fecha de finalización: 28-02-2021

Coordinador: Teknologian Tutkimuskeskus VTT Oy (Finlandia)

Participantes:

- Ineratec GmbH (Alemania)
- Johnson Matthey PLC (Reino Unido)
- Deutsches Zentrum Fuer Luft - und Raumfahrt EV (Alemania)
- UAB Enerstena (Lituania)
- Lietuvos Energetikos Institutas (Lituania)

FlexiFuel-SOFC: Development of a new and highly efficient micro-scale CHP system based on fuel-flexible gasification and a SOFC

Fecha de inicio: 01-03-2018

Fecha de finalización: 28-02-2021

Coordinador: Windhager Zentralheizung Technik GmbH (Austria)

Participantes:

- AVL List GmbH (Austria)
- Bios Bioenergiesysteme GmbH (Austria)
- Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V. (Alemania)
- Hygear BV (Países Bajos)
- Technische Universiteit Delft (Países Bajos)

FLEXYNETS: Fifth generation, Low temperature, high EXergY district heating and cooling NETWORKS	
Fecha de inicio: 01-07-2015 Coordinador: Accademia Europea di Bolzano (Italia)	Fecha de finalización: 31-12-2018
Participantes:	
<ul style="list-style-type: none"> • Planenergi Fond (Dinamarca) • Soltigua Srl (Italia) • Hochschule Fur Technik Stuttgart (Alemania) • Acciona Construccion SA (España) • Enisyst GmbH (Alemania) 	
HiEff-BioPower: Development of a new highly efficient and fuel flexible CHP technology based on fixed-bed updraft biomass gasification and a SOFC	
Fecha de inicio: 01-10-2016 Coordinador: Bios Bioenergiesysteme GmbH (Austria)	Fecha de finalización: 30-09-2021
Participantes:	
<ul style="list-style-type: none"> • Viessmann Holzfeuerungsanlagen GmbH (Austria) • AVL List GmbH (Austria) • Fraunhofer Gesellschaft zur Foerderung der Angewandten Forschung E.V. (Alemania) • Calida Cleantech GmbH (Italia) • Bosal Emission Control Systems NV (Bélgica) 	
Hybrid-BioVGE: Hybrid Variable Geometry Ejector Cooling and Heating System for Buildings Driven by Solar and Biomass Heat	
Fecha de inicio: 01-06-2019 Coordinador: INEGI - Instituto de Ciencia e Inovacao em Engenharia Mecanica e Engenharia Industrial (Portugal)	Fecha de finalización: 31-05-2022
Participantes:	
<ul style="list-style-type: none"> • Technische Universitaet Graz (Austria) • HSR Hochschule fur Technik Rapperswil (Suiza) • Solarfocus GmbH (Austria) • Alma Mater Studiorum - Universita di Bologna (Italia) • Hargassner GmbH (Austria) 	
RE-COGNITION: REnewable COGeneration and storage techNologies IntegraTion for energy autONomous buildings	
Fecha de inicio: 01-04-2019 Coordinador: Politecnico di Torino (Italia)	Fecha de finalización: 31-03-2022
Participantes:	
<ul style="list-style-type: none"> • Ethniko Kentro Erevnas Kai Technologikis Anaptyxis (Grecia) • Micro Turbine Technology BV (Países Bajos) • Windcity Srl (Italia) • Ecole Polytechnique Federale De Lausanne (Suiza) • CSEM Centre Suisse D'electronique et de Microtechnique SA - Recherche et Developpement (Suiza) 	
REMOTE: Remote area Energy supply with Multiple Options for integrated hydrogen-based TEchnologies	
Fecha de inicio: 01-01-2018 Coordinador: Politecnico di Torino (Italia)	Fecha de finalización: 31-12-2021
Participantes:	
<ul style="list-style-type: none"> • Eps Elvi Energy Srl (Italia) • Powidian (Francia) • Ballard Power Systems Europe AS (Dinamarca) • Hydrogenics Europe Nv (Bélgica) • Enel Green Power Spa (Italia) 	
Residue2Heat: Renewable residential heating with fast pyrolysis bio-oil	
Fecha de inicio: 01-01-2016 Coordinador: Rheinisch-Westfaelische Technische Hochschule Aachen (Alemania)	Fecha de finalización: 31-12-2019
Participantes:	
<ul style="list-style-type: none"> • B.T.G. Biomass Technology Group BV (Países Bajos) • Teknologian Tutkimuskeskus VTT Oy (Finlandia) • Meku Energie Systeme GmbH & CO. KG (Alemania) • Consiglio Nazionale delle Ricerche (Italia) • Politecnico di Milano (Italia) 	

SmartCHP: Smart and flexible heat and power from biomass derived liquids for small-scale CHP application: Crowdfunding our way to a geothermal future

Fecha de inicio: 01-06-2019

Fecha de finalización: 31-05-2023

Coordinador: B.T.G. Biomass Technology Group BV (Países Bajos)

Participantes:

- OWI Science for Fuels GmbH (Alemania)
- Abato Motoren BV (Países Bajos)
- Exergia Energy and Environment Consultants AE (Grecia)
- Capax Environmental Services BVBA (Bélgica)
- Greenovate! Europe (Bélgica)

SolBio-Rev: Solar-Biomass Reversible energy system for covering a large share of energy needs in buildings

Fecha de inicio: 01-05-2019

Fecha de finalización: 30-04-2023

Coordinador: National Technical University of Athens - NTUA (Grecia)

Participantes:

- Friedrich-Alexander-Universitaet Erlangen-Nuernberg (Alemania)
- Fahrenheit GmbH (Alemania)
- Consiglio Nazionale delle Ricerche (Italia)
- Akotec Produktionsgesellschaft mbH (Alemania)
- Universidad de Lleida (España)

WASTE2WATTS: Unlocking unused bio-WASTE resources with loW cost cleAning and Thermal inTegration with Solid oxide fuel cells

Fecha de inicio: 01-01-2019

Fecha de finalización: 31-12-2021

Coordinador: Ecole Polytechnique Federale de Lausanne (Suiza)

Participantes:

- Biokomp Srl (Italia)
- Commissariat a l'Energie Atomique et aux Energies Alternatives (Francia)
- Politecnico di Torino (Italia)
- Agenzia Nazionale per le Nuove Tecnologie, l'energia e lo Sviluppo Economico Sostenibile (Italia)
- Sunfire GmbH (Alemania)

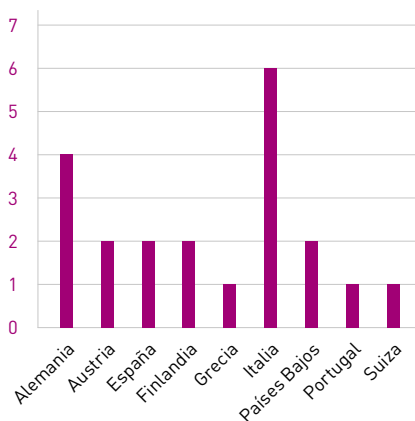


Figura 1. Distribución de proyectos H2020 por países coordinadores

Fuentes Introducción:

"Biomasa, producción eléctrica y cogeneración", IDAE 2007; D. Maraver et al., Entropy 2014, 16, 2433-2453.

PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
ES2774170	Delgado Plana Pedro (ES)	Solid biofuel powered heating appliance. Heating device powered by solid biofuel, with an external body, in which there is a combustion chamber, a hopper for housing the solid biofuel, means for feeding the solid biofuel that from the hopper lead to the combustion chamber, means for supplying air to the combustion chamber, and an outlet of combustion gases for the evacuation of the generated combustion gases. At least part of the combustion chamber is made of quartz glass.
WO2020170265	E3 Waste Solutions (IN)	System and process for producing torrefied product from biomass. There is disclosed a system and process for producing torrefied product from biomass, the system comprising a biomass shredder for reducing the size of biomass feed; a feeding chamber for accommodating the biomass; a conveyor connected to the feeding chamber; adapted for feeding the biomass into the chamber; a heating system adapted for heating the biomass with inert gas within the chamber; a rotary drum reactor for conducting torrefaction; a cyclone for release of gases and separating inert gas from the biomass; a recirculation duct for re-directing the inert gas to the heating system comprising with a blower; a gas analyzer for producer gases released from the combustion process during heating; a water cooled double jacketed screw conveyor with an injecting binder; and a pelletiser for torrefied product. A process is also described herein.
WO2020161396	Fazer Ab Oy Karl (FI)	Method for utilizing biomasses. The present invention relates to utilization of bio-based materials. In particular, the present invention relates to a method for utilization of grain based raw materials, wherein the method also comprises a versatile use of the side streams or by-products of the process. The method produces a wet fiber cake for combustion, wherein said wet fiber cake provides excellent burn values, low emission values and low amount of residual ash.
EP3693667	Inovalp (FR)	Wood-burning stove with offset variable heat exchanger. This stove comprises: - a frame, delimiting a receiving volume; - a combustion chamber, arranged outside the receiving volume; - a fuel tank, arranged in the receiving volume; - a supply tube, arranged to connect the reservoir to the enclosure; - an exhaust duct, arranged in the receiving volume to evacuate fumes combustion out of the frame; - an exhaust tube, arranged to connect the enclosure to the exhaust duct; - a heat exchanger, arranged in the receiving volume for transferring the thermal energy of the combustion fumes, the heat exchanger comprising a separation plate arranged to delimit first and second transfer surfaces; - first and second means of circulation, arranged to circulate the ambient air via the first and second transfer surfaces of the heat exchanger respectively.
WO2020153404	Mitsubishi Hitachi Power Sys (JP)	Solid fuel burner. The present invention is provided with: a venturi that constricts a channel for a mixed fluid in a fuel nozzle toward the center in a cross-section of the channel; a fuel enricher that imparts a velocity component in a direction leading away from the center of the fuel nozzle to the mixed fluid; and a channel partition member that partitions the channel of the fuel nozzle into an inner side and an outer side. Even if solid fuel particles produced by pulverizing a biomass fuel are used, the degree of enrichment of the fuel can be ensured by using a plurality of blades which impart swirl to the mixed fluid and which are not secured to the inner side of the fuel nozzle along the entire surface thereof.
US2020245813	Original Pellet Grill Company Llc (US)	Double-sealed high-temperature resistant dc ignitor for use with wood pellet burner assemblies. Embodiments of the inventive concept provide a double-sealed high-temperature resistant DC ignitor for use with a wood pellet burner assembly. The DC ignitor includes a non-heating element portion. The non-heating element portion is connected to at least one of a battery or an AC to DC electrical transformer attached to the wood pellet burner assembly. A heating element is connected to the non-heating element portion, and extends by at least one inch into a combustion region of the wood pellet burner assembly. The heating element portion is configured to be heated by power received from the battery or the AC to DC electrical transformer. The DC ignitor provides safe, reliable, and fast combustion of wood pellets that congregate in a combustion region of the wood pellet burner assembly.

Nº Publicación	Solicitante (País)	Contenido técnico
FR3059676	Ragt Energie (FR)	Pellets for an improved combustion boiler. The present invention relates to the formulation and production of biofuels, or pellets, based on lignocellulosic biomass, making it possible to preserve or treat the problems of clinker, corrosion and / or fouling. in the boilers. Pellet heating has many advantages which make it an efficient, most economical and very practical heating method. The high density of this fuel, combined with its low humidity, gives it a very high energy performance. Pellets are among the most environmentally friendly biofuels. They consist of biomass, more particularly of lignocellulosic substrates, and in fact originate from plant and / or wood residues and therefore are a by-product of sawing in the case of wood pellets. Their environmental impact is very low since these products are manufactured and consumed locally, unlike fossil fuels (oil, gas, coal) often requiring significant transport.
WO2020153870	Sharov Oleg Mikhajlovich (RU)	Solid fuel boiler. The proposed utility model relates to thermal power engineering and concerns a design for a boiler powered by solid fuel, preferably biofuel in the form of pellets and dry chips, which design can be used in the production of high-power boilers. A solid fuel boiler comprises a water jacket, a vertical cylindrical firebox closed from above, a vertical cylindrical combustion chamber and a burner which are mounted in the firebox, and vertical fire tubes. Said vertical fire tubes are disposed to one side of the firebox and are arranged linearly in the form of a rectangular grid. The technical result of the utility model is a reduction in the external dimensions and weight of the solid fuel boiler.
WO2020137003	Shimose Microbes Laboratory Corp (JP)	Treatment device for palm oil mill residue, and treatment method therefor. This treatment device for palm oil mill residue is provided with a reduced-pressure fermentation dryer in which: softened empty fruit bunches obtained by subjecting empty fruit bunches of palm to a softening treatment, and a waste solution obtained after palm oil has been separated out from palm fruit, are accommodated as a palm oil mill residue in a closed container, and stirred while being heated to a predetermined temperature range under decompression; an organic component of organic matter included in the softened empty fruit bunches is broken down using microbes to obtain softened fibrous material; and oil and fat obtained by fermentation and drying of the waste solution are uniformly adsorbed/absorbed to the softened fibrous material to obtain biomass fuel. Also provided is a heat source apparatus 7 that is arranged at a later stage from the reduced-pressure fermentation dryer 3 and that combusts the resulting biomass fuel to generate a heat source. Consequently, the foregoing makes it possible to: generate biomass fuel from the palm oil mill residue, such fuel having a high caloric value and enabling the combustion temperature to be raised; and combust the biomass fuel to efficiently generate a heat source.
WO2020154014	Weber Stephen Products Llc (US)	Pellet Grills. Pellet grills and associated methods of operation are disclosed. An example pellet grill includes a burn pot including an upper end having a first opening, a lower end located opposite the upper end and having a second opening, and a sidewall extending between the upper and lower ends. The example pellet grill further includes a fuel grate positioned within the burn pot between the upper and lower ends. The fuel grate is configured to support pellet fuel within the burn pot. The fuel grate includes a plurality of ash openings dimensioned to enable ash produced from combustion of the pellet fuel to pass downwardly through the fuel grate toward the second opening.

Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020148551	Al Chalabi Rifat (GB)	Process for producing activated carbon and hydrogen. The process includes activating a char in an oven by heating the char with steam to generate activated carbon and syngas. The process also includes monitoring parameters of the syngas produced and controlling the oven in response to the parameter. The process converts a feedstock, typically organic waste, into useable products.
WO2020136291	Grau Almirall Josep (ES)	Facility for the transformation of organic waste and associated procedure. The present invention relates to a facility for the transformation of organic waste and an associated procedure. The facility comprises a cogeneration unit which generates hot air and electricity for powering the facility and/or for diverting to a consumer network, a reactor where a process of pyrolysis and optionally a gasification of the organic waste is performed, and a refinery where a fragmented condensation of the organic waste is executed. Due to the configuration thereof, the facility and the procedure for the transformation of organic waste enable the extraction of the entirety of the energy contained in said organic waste.

WO2020166659	Ichikawa Office Inc et al.(JP)	Method for producing biomass gas, method for producing hydrogen, system for producing biomass gas, and system for producing hydrogen. Provided are a method for producing biomass gas and a method for producing hydrogen that include: a pyrolytic gasification step in which a biomass gas is obtained by using biomass as a starting material and performing gasification by water vapor containing a metal component; and a hydrogen production step.
ES1249954	Ingeneo Equipos Ind SL (ES)	Compact installation of biomass combustion for heat generation through filtered synthesis gas for the treatment of organic materials of plant origin. Compact biomass combustion installation for heat generation by means of filtered synthesis gas for the treatment of organic materials of plant origin characterized in that it is mainly composed of the elements: a. A gasifier (1) in which the biomass is gasified b. A filter (2) where the synthesis gas is purified using filter elements c. A synthesis gas burner (3) where the combustion of the generated gas occurs.
WO2020154801	IQ Energy inc (CA)	System and processes for upgrading synthetic gas produced from waste materials, municipal solid waste or biomass. A system and process for producing synthetic gas from solid fuel comprising waste material, municipal solid waste or biomass, and for upgrading the synthetic gas produced. The system and process utilizes a first thermal chamber having a gasification zone in which a fuel stream is gasified by thermal oxidation to produce a first synthetic gas stream and heat; a pyrolysis reactor housed within the first thermal chamber where fuel undergoes pyrolysis to produce a second synthetic gas stream; and a thermal catalytic reactor comprising a second thermal chamber having a catalyst chamber within with a selected catalyst. The first synthetic gas stream is completely thermally oxidized to produce high temperature flue gas that imparts heat to the catalyst chamber in which the second synthetic gas stream is thermally cracked and directed over the catalyst to yield a finished gas or liquid product having a desired chemical composition as determined by the selected catalyst.
EP2855640	Petursdottir Lilj (GB)	Advanced sequential batch gasification process. The invention relates to a two stage process for the thermal treatment of wastes consisting of a batch gasification process followed by a syngas combustion process. A system and method are provided comprising of one or more first process stage batch gasification chambers which are connected to a common second process stage chamber, the syngas combustion chamber, or alternatively a syngas conditioning chamber and afterwards a combustion of the syngas in either a combustion chamber, reciprocating engine, boiler, gas turbine or an internal combustion device. The process can also be used to process biomass and fuels by gasification. The gasification chamber has separated nozzle areas corresponding to plenum sections of the bottom where a mixture of air and recirculated flue-gas is blown under the combustible material. Flue gas flow is regulated by varying the production of syngas in the gasification chambers by a feedback signal from devices such as draught sensors, thermocouples, fan speeds indicators, steam flow meters, oxygen concentration meters and power production indicators.
US10710043	Raven Sr Llc (US)	Compact and maintainable waste reformation apparatus. Methods and apparatus for compact and easily maintainable waste reformation. Some embodiments include a rotary oven reformer adapted and configured to provide synthesis gas from organic waste. Some embodiments include a rotary oven with simplified operation both as to reformation of the waste, usage of the synthesized gas and other products, and easy removal of the finished waste products, preferably in a unit of compact size for use in austere settings. Yet other embodiments include Fischer-Tropsch reactors of synthesized gas. Some of these reactors include heat exchanging assemblies that provide self-cleaning effects, efficient utilization of waste heat, and ease of cleaning.
EP3692116	Torrgas Tech BV (NL)	Process to prepare a char product and a syngas mixture. The invention is directed to a process to prepare a char product and a syngas mixture comprising hydrogen and carbon monoxide from a solid torrefied biomass feed comprising the following steps: (i) subjecting the solid biomass feed to a pyrolysis reaction thereby obtaining a gaseous fraction comprising hydrogen, carbon monoxide and a mixture of gaseous organic compounds and a solid fraction comprising of char particles; (ii) separating the char particles as the char product from the gaseous fraction; (iii) subjecting the gaseous fraction obtained in step (ii) to a continuously operated partial oxidation to obtain a syngas mixture further comprising water and having an elevated temperature and (iv) contacting the syngas mixture with a carbonaceous compound to chemically quench the syngas mixture. The temperature of the syngas is reduced in step (iv) from between 1000 and 1600° C. to a temperature of between 800 and 1200° C.

Nº Publicación	Solicitante (País)	Contenido técnico
US2020224110	Univ China Petroleum East China (CN)	Method of biomass grading pyrolysis gasification in a circulating fluidized bed. The invention provides a method of biomass grading pyrolysis gasification in a circulating fluidized bed comprising: feeding biomass into the lower-middle part of a carrying fluidized bed, mixing with high temperature synthesis gas and heat carrier from a turbulent fluidized bed, heating the biomass to carry out a pyrolysis reaction, and carrying the pyrolysis product upward; subjecting the cracked oil and gas to a gaseous phase catalytic cracking in an upper-middle part of the carrying fluidized bed, cracking the tar into methane, ethane and the like; subjecting the heat carrier, semi-coke and fuel gas after the reaction to the multi-stage of gas-solid separation, a large particle carrier and semi-coke following a first-level separation are used as the fuel gas cracking catalyst and the filter material for filtering and removing dust, and enter into a moving bed filter to separate out an ultra-fine ash and subsequently return to the turbulent fluidized bed so as to perform gasification reaction, the ultra-fine ash is delivered to the outside as a silicon-potash fertilizer product; the medium and small particle carrier and semi-coke separated from a second-level separation are directly recycled to the turbulent fluidized bed, the fine particles separated from a third-level separation is discharged to the outside as a silicon-potash fertilizer product, the moving bed filter further catalytically cracks a small amount of tar in the fuel gas into methane and ethane and removes the ultra-fine ash simultaneously, the purified fuel gas is delivered to the outside as a product.
US2020208068	Univ King Fahd Pet & Minerals (SA)	Co-gasification of vacuum gas oil (vgo) and biomass to produce syngas/hydrogen. The invention is directed to a co-gasification process that uses biomass and VGO as a feedstock to produce syngas which includes a mixture of carbon monoxide and hydrogen.

Biogás

Nº Publicación	Solicitante (País)	Contenido técnico
US2020206680	Air Liquide Advanced Tech Llc (US)	Production of biomethane using a high recovery module. The invention relates to a process for recovering methane from digester biogas or landfill gas. More specifically, the invention pertains to biomethane production that substantially removes carbon dioxide from a digester biogas or landfill gas using first, second, and third purification stages each comprising one or more membranes selective for carbon dioxide over methane. A retentate from the first stage is separated by the one more membranes of the second stage into a second state retentate, forming a biomethane product gas. A permeate from the first stage is separated by the one or more membranes of the third stage into a third stage retentate and a third stage permeate. Recovery of methane from the the biogas is boosted by feeding the third stage retentate to the first purification stage. The recovery may be optionally further boosted by compressing the second stage permeate with the biogas at a main compressor.
US2020255311	Applied Biomimetic AS (DK)	Power generation process. A process for the generation of power is disclosed. The process comprises receiving a wastewater stream containing organic matter and passing the wastewater stream to an anaerobic digester in which the organic matter contained therein is broken down to produce biogas. The liquid content of said wastewater stream is reduced before said stream enters the anaerobic digester by passing the wastewater stream through an osmotic power unit. The said stream is passed over one side of a semi-permeable membrane which permits the passage of water but not the passage of salts, an aqueous stream of higher salinity than said wastewater stream being passed over the other side of said membrane such that latent osmotic energy present in said aqueous stream of higher salinity is converted into electricity.
WO2020148664	Aprotek (FR)	Superabsorbent polymer for accelerating the degradation of waste of organic origin. The present invention relates to the technical field of fermentation of waste of organic origin, in particular agricultural and agro-industrial waste, and more specifically waste comprising lignocellulosic residues. Surprisingly, it has been discovered that regularly adding at least one superabsorbent polymer to digesters during anaerobic fermentation allows effective and very simple enhancement of the degradation of the lignocellulosic residues that are present. The invention thus allows the users not only to overcome a major technical problem, but also to make substantial savings by reducing the residence times and by virtue of the gain generated for biogas production. The invention also relates to the method implementing this new agent.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020163584	California Bioenergy Llc (US)	Systems for aggregating and processing of biogas to biomethane. A biogas collection and purification system that includes a plurality of sources of biogas and a network of conduits configured to convey the biogas from the sources to a central processing facility for processing the biogas into methane. The central processing facility removes impurities to convert biogas to biomethane and may include an H2S removal stage; an activated carbon scrubber; a gas drier; and a carbon dioxide removal stage. The facility also has a biomethane gas compressor configured to deliver the biomethane for use in power plants, for CNG production. Ancillaries to the system include fuel cells for direct electricity generation from biogas/biomethane.
EP3676364	Helmholtz Zentrum Umweltforsch (DE)	Method for adjusting the content of volatile organic acids (voa) in a biogas digester filled with an organic substrate and pellets loaded with microorganisms. The aim of the invention is to provide a cost-effective and fast-acting method for adjusting the content of volatile organic acids (VOA) in the contents of a biogas digester. To this end, pellets containing a mixed culture of acetogenic and methanogenic microorganisms are introduced into the biogas digester.
FR3092665	IFP Energies Now (FR)	Method for measuring the concentration of gaseous species in a biogas. The invention relates to a method for in situ measurement of the concentration of gaseous chemical species contained in a biogas circulating in a line, for example of a biogas treatment plant or of a system utilizing a biogas. The method of the invention is implemented by means of an optical measurement system comprising a light source and a spectrometer. The source emits UV radiation through the biogas within a measurement area situated in the line. The spectrometer detects at least a portion of said UV radiation having passed through the biogas and generates a digital signal of the luminous intensity depending on the wavelength of the portion of the UV radiation having passed through the biogas. A determination is then made of the concentration of the chemical species from the digital signal of the luminous intensity.
WO2020169887	Kalmari Erkki et al. (FI)	A method of producing biogas and an arrangement related thereto. The present invention relates to the field of renewable bioenergy. More specifically, the present invention relates to a method and an arrangement for producing biogas. Also, use of the arrangement for producing biogas is within the scope of the present invention.
WO2020152017	Kazda Marian (DE)	Method for automatically monitoring biogas reactors. The invention relates to a method for automatically monitoring the stability of methane generation in one or more biogas reactors for anaerobically fermenting an organic substance, having the steps of: - determining the CO2 partial pressure (pCO2) in the liquid reactor contents under anaerobic measuring conditions during the biogas generation process using a measuring system, wherein the CO2 measured values are automatically ascertained in adjustable periodic time intervals, and - using the ascertained values as parameters for a process evaluation in order to assess the stability of the biogas and methane formation process. The methane generation process can also be a biological methanation process, in particular a biological methanation in an in situ method, in which the organic substance is supplied in addition to hydrogen and optionally carbon dioxide. The invention allows an automatic monitoring of the process stability in the bioreactor, said monitoring accompanying the process, using the CO2 partial pressure values ascertained in the reactor contents.
WO2020144711	Modak Harshvardhan (IN)	A process for the treatment of sewage. The present invention discloses a process for treatment of sewage employing membrane technology, which brings about recovery of reuse quality water to almost about 90% of original volume with least energy consumption as compared to that needed for traditional STP using aeration. It does not generate any sludge & occupies considerably less space per m3 of sewage. It can be easily installed in existing sewage treatment plants to accommodate incremental quantity of sewage. It gives an additional benefit of leaving behind a concentrated reject, which can be subjected to anaerobic digestion to recover biogas. The plate and frame configuration and the reverse osmosis technique is found to be giving the most preferred process characteristics. Thus applications of membrane technology helps to make available a significant quantity of clear colorless water suitable for reuse & concentrated sewage for recovery of biogas & electricity.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020099651	NGF Nature Energy Biogas AS (DK)	A method of producing biomass degradation products. A method of producing biomass degradation products from soft biomass is disclosed, the method comprising the steps of - providing a soft biomass, pretreating the soft biomass in a pretreatment step at a pressure below 2 bar by heating the soft biomass to at a pretreatment temperature between 65 and 100 degrees Celsius to obtain a pretreated biomass, hydrolyzing the pretreated biomass in a first hydrolyzation step to obtain a biomass hydrolysate, and posttreating the biomass hydrolysate in a pressurized posttreatment step by heating the biomass hydrolysate to a posttreatment temperature above 150 degrees Celsius to obtain a posttreated biomass, hydrolyzing the posttreated biomass in a second hydrolyzation step, wherein biogas is obtained from at least the first hydrolyzation step or the second hydrolyzation step.

Bioalcoholes (bioetanol, biometanol, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020146357	Danisco US Inc (DK)	Hybrid yeast with increased ethanol production. Described are compositions and methods related to hybrid yeast that produces an increased amount of ethanol from starch-containing substrates compared to its parental yeast. Such yeast is well-suited for use in fuel alcohol production to increase yield.
EP3688170	DSM IP Assets BV (NL)	Improved glycerol free ethanol production. The invention relates to a recombinant recombinant yeast comprising a nucleotide sequence allowing the expression of a glucoamylase (EC 3.2.1.20 or 3.2.1.3). This cell can be used for the production of ethanol and advantageously produces little or no glycerol.
US10731183	Ecolab USA Inc (US)	Methods using short chain peracids for controlling corn ethanol fermentation process infection and yield loss. A process for the use of peracid compositions to eliminate and/or control the growth of undesirable bacteria, including contaminating bacteria, in the fermentation production of alcohol is disclosed. Beneficially, the peracid compositions and methods of use of the same do not interfere or inhibit the growth or replication of yeast and have low or no adverse environmental impact.
US10724054	Novozymes AS (DK)	Use of serine proteases for improving ethanol yield. S53 proteases and the use of S53 protease in processes for converting starch to ethanol are provided.
EP3652279	Ragulia Andrii (UA)	Multifunctional modifying additive containing solid nanosize carbon particles for fuel based on bioethanol and gasoline. A multifunctional modifying additive to motor fuels on the basis of bioethanol and gasoline that comprises an organic solvent and liquid-phase organic stabilizer and additionally - solid nanosize particles of carbon of arbitrary shapes in the amount of 0,0001 to 0,5 wt %. The additive ensures more complete combustion of fuel, reduces rates of wear of internal combustion engine parts and simultaneously reduces the level of harmful combustion products in the exhaust gases.
US10738331	Reed Tavis (US)	Bacteria based cellulosic ethanol fermentation process. A process for the creation of ethanol from cellulosic materials using the bacteria Cellulomonas sp. and aerobic Zymomonas mobilis in the same medium under the same conditions to breakdown cellulosic materials into glucose and to ferment that glucose into ethanol and three significant byproducts, glycerol, acetic acid, and lactic acid.
EP3683302	Tomsa Destil SL (ES)	Strain of saccharomyces cerevisiae and use thereof for making alcoholic products. The present invention relates to a new osmo-ethanol-tolerant strain of yeast of the species Saccharomyces cerevisiae, and its use for producing ethanol or preparing alcoholic products. The strain described is also useful for the production of biomass.
CA3028926	Toyota Motor Co Ltd (JP)	A recombinant yeast and a method for producing ethanol using the same. The invention is intended to metabolize acetic acid in a medium at the time of culture, such as ethanol fermentation by yeast, and to reduce acetic acid concentration. Specifically, the invention relates to a recombinant yeast resulting from introduction of the acetaldehyde dehydrogenase gene (EC 1.2.1.10) and regulation of an enzyme involved with trehalose accumulation.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020134427	Univ South China Tech (CN)	Use of sll0528 gene in improving ethanol tolerance of Synechocystis SP. PCC 6803. Disclosed is the use of a sll0528 gene in improving the ethanol tolerance of Synechocystis sp. PCC 6803, wherein same falls within the field of industrial microorganisms. The sll0528 gene in Synechocystis sp. PCC 6803 is knocked out and overexpressed by means of homologous recombination, resulting in an Synechocystis sp. PCC 6803 strain Osl0528 with a significantly improved ethanol tolerance. In a BG11 medium supplemented with ethanol of different concentrations (1.5%, 2.0%, 2.5% and 3.0% v/v), the growth state of the algae strain is significantly better than that of the wild-type algae strain. The resulting ethanol-tolerant algae strain has important theoretical and practical significance for constructing a genetically engineered bacterium for producing ethanol fuel, and thus has wide application prospects.
US2020239508	Uroos Maliha (PK)	Extraction of lignin from lignocellulosic waste material using pyridinium ionic liquid. An exemplary embodiment presents a method of lignin extraction from lignocellulosic biomass. Lignin is a rich and economical source of various valuable products. It is a platform chemical for renewable biofuels, composite materials, biofilms etc. Delignification of lignocellulosic biomass affords cellulose-rich material as an additional product that is already known for many applications like bioethanol and other chemicals. The method includes grinding the lignocellulosic biomass, mixing the dried lignocellulosic biomass powder with ionic liquid, stirring and heating of the mixture followed by solvent extraction of lignin from the mixture.

Biodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
US2020222855	Archer Daniels Midland Co (US)	Processes of producing biodiesel and biodiesel produced therefrom. The present disclosure discloses processes for treating, producing, or producing and treating biodiesel. Products produced with the various processes of the present invention are also disclosed.
EP3010995	Argent Energy UK Ltd (GB)	Process for producing biodiesel and related products. There is described a biodiesel composition and process for producing biodiesel and related products. There is also described related fuels and fuel blends comprising biodiesel. The biodiesel composition is prepared from a mixture comprising fats, oils and greases from sewer waste. The composition comprises a mixture of esters of which 7-10.5 weight % is methyl octadecanoate (stearate). Specified percentages of other methyl esters are also claimed, including methyl tetradecanoate (myristate), methyl hexadecanoate (palmitate), methyl cis-9-octadecenoate (oleate) and others.
EP2679687	Cibus Europe BV (NL)	Fatty acid blends and uses therefor. Provided herein are blends of oils or fatty acids comprising more than 50% medium chain fatty acids, or the fatty acid alkyl esters thereof, and having low melting points. Such blends are useful as a fuel or as a starting material for the production of, for example, a biodiesel. Also provided are genetically altered or modified plants, modified such that the amount of medium chain fatty acids generated by the plants are increased.
WO2020141255	Neste Oyj (FI)	Process for integrated production of renewable fuels and chemicals. The present disclosure provides a versatile process for producing valuable renewable hydrocarbons from triglyceride containing feedstock. In the stepwise process, the triglyceride containing feedstock is first split to provide a mixture comprising fatty acids, glycerol and water, from which a phase separation provides an oily phase, and an aqueous phase. Said oily phase comprising fatty acids is subjected to fractionation. Fractionation divides the fatty acids to specific fractions, which may be refined to products with controlled hydroprocessing. Products may comprise paraffinic renewable aviation fuel components, paraffinic renewable base oil, renewable paraffinic diesel fuel components, renewable paraffinic technical fluid, or any combination thereof.
AU2019239565	Omya Int AG (CH)	Method for transesterification of carboxylic acid esters. The present invention relates to a method for transesterification of carboxylic acid esters by heterogeneous catalysis using a catalyst that is obtainable by calcination of surface-reacted calcium carbonate. The invention further relates to the use of said method in the production of fuel or fuel components, such as biodiesel. Further aspects of the present invention relate to the transesterified ester obtainable by the inventive method and to its use as fuel or as fuel component. Still another aspect of the present invention relates to a corresponding transesterification catalyst and to its use in transesterification reactions.

Nº Publicación	Solicitante (País)	Contenido técnico
EP2009079	Petrobras (BR)	<p>Catalytic cracking process for production of diesel from seeds of oleaginous plants. The present invention comprises a thermocatalytic cracking process for the production of diesel oil from a charge of vegetable origin made from seeds of oleaginous plants in refineries possessing at least two FCC reactors (1,2). At least one of such reactors (1) processes heavy gas oil or residue (A) under conventional conditions whilst at least one of such reactors (2) processes the charge of vegetable origin (B) made from seeds of oleaginous plants under conditions suitable for production of diesel oil. Said process employs the same catalyst utilised in the fluid catalytic cracking process which, simultaneously, processes a conventional charge. The diesel, or biodiesel, oil produced by means of said process is of superior quality having a cetane number exceeding 40 given that the cracking reactions occur at low temperatures and the products obtained are less oxidised and consequently purer than products obtained by means of existing technology.</p>
EP2247703	QS Biodiesel Ltd (GB)	<p>Transesterification of vegetable oils. A method for producing Diesel grade fuel of plant origin by transesterifying a refined vegetable oil with a C1-C4 alcohol in the presence of a catalyst and at least 0.2 parts by volume, related to unit volume of refined vegetable oil, of an aliphatic hydrocarbon solvent with a boiling point of 40-200°C, comprises mixing the oil, alcohol, catalyst and solvent in a single reaction vessel under conditions which promote transesterification to 95-98% completion and which suppress reverse glycerolysis, without stopping transesterification, without separating the reactor contents into a polar phase and an apolar phase, and without repeating transesterification in a further step on the apolar phase. In the preferred embodiments, the oil is sunflower oil, the alcohol is methanol, the catalyst is KOH, the solvent hexane, and the reaction conditions are boiling temperature.</p>
EP3674384	Rigas Tehniska Univ (LV)	<p>Biodiesel fuel and method for production thereof. The present invention relates to the production and utilization of renewable fuel for diesel engines and heating devices usually named as biodiesel, consisting of fatty acid methyl esters. The present invention is a method for conversion of vegetable oil to biodiesel in one stage process at atmospheric pressure and low temperature without synthesis of glycerol as a by-product. The objective has been achieved by the reaction of vegetable oil with methyl formate at 28-32°C, using potassium tert-butoxide solution in tert-butanol or tetrahydrofuran as catalyst during 30-45 minutes at predefined methyl formate to oil and catalyst to oil molar ratio. Biodiesel was obtained with FAME content of at least 90%, flash point, density, viscosity, carbon residue, and cold flow properties according to the standard LVS EN 14214+A1 simultaneously with by-product - mixture of glycerol monoformate, glycerol diformate and glycerol triformate, and glycerol with glycerol content less than 9%.</p>
EP2376383	SBI Bioenergy Inc (CA)	<p>Solid, heterogeneous catalysts and methods of use. Solid mixed catalysts and methods for use in conversion of triglycerides and free fatty acids to biodiesel are described. A batch or continuous process may be used with the catalysts for transesterification of triglycerides with an alkyl alcohol to produce corresponding mono carboxylic acid esters and glycerol in high yields and purity. Similarly, alkyl and aryl carboxylic acids and free fatty acids are also converted to corresponding alkyl esters. The described catalysts are thermostable, long lasting, and highly active.</p>
US10738251	Trent Univ (CA)	<p>Biodiesel compositions containing pour point depressants and crystallization modifiers. This present disclosure relates to biodiesel compositions comprising polymeric pour point depressants, and crystallization modifiers, to improve cold flow properties for biodiesel fuels.</p>

Bio-jet fuels

Nº Publicación	Solicitante (País)	Contenido técnico
EA2016374791	Eco-Oil Miljöbränslen I Sverige AB (SE)	Conversion of alcohols to hydrocarbons using a dual catalyst system comprising basic oxide on mixed oxide or mesoporous carrier and etched metal loaded zeolite catalyst. A method for converting an alcohol to hydrocarbons comprises two serially placed catalysts. The fraction of aromatics is reduced to desired levels. The method comprises: a) contacting the alcohol with a first catalyst on a carrier, said carrier is selected from a mixed oxide and a mesoporous carrier, said first catalyst comprises at least one basic oxide and optionally at least one selected from the group consisting of metals and metal oxides, then b) contacting the resulting mixture from step a) with a second catalyst wherein said second catalyst is an etched metal loaded zeolite catalyst wherein the etched metal loaded zeolite catalyst is manufactured with a method comprising etching with subsequent loading of metal onto the catalyst, wherein the metal is in the form of nanoparticles, and wherein at least two different metals are loaded onto the etched zeolite catalyst. The hydrocarbons are recovered and used for instance for fuel including gasoline, kerosene, diesel, and jet propellant, and jet fuel. Naturally, other uses of hydrocarbons should not be excluded.
EP3190165	Gas Technology Inst (US)	Bubbling bed catalytic hydroxyprolysis process utilizing larger catalyst particles and smaller biomass particles featuring an anti-slugging reactor. This invention relates to a process for thermochemically transforming biomass or other oxygenated feedstocks into high quality liquid hydrocarbon fuels. In particular, a catalytic hydroxyprolysis reactor, containing a deep bed of fluidized catalyst particles is utilized to accept particles of biomass or other oxygenated feedstocks that are significantly smaller than the particles of catalyst in the fluidized bed. The reactor features an insert or other structure disposed within the reactor vessel that inhibits slugging of the bed and thereby minimizes attrition of the catalyst. Within the bed, the biomass feedstock is converted into a vapor-phase product, containing hydrocarbon molecules and other process vapors, and an entrained solid char product, which is separated from the vapor stream after the vapor stream has been exhausted from the top of the reactor. When the product vapor stream is cooled to ambient temperatures, a significant proportion of the hydrocarbons in the product vapor stream can be recovered as a liquid stream of hydrophobic hydrocarbons, with properties consistent with those of gasoline, kerosene, and diesel fuel. Separate streams of gasoline, kerosene, and diesel fuel may also be obtained, either via selective condensation of each type of fuel, or via later distillation of the combined hydrocarbon liquid.
EP3476917	IFP Energies Now (FR)	Starting method of a method for producing kerosene and diesel oil from hydrocarbon compounds produced by Fischer-Tropsch synthesis. The present invention relates to a process for starting a process for producing kerosene and gas oil from hydrocarbon compounds produced by Fischer-Tropsch synthesis. The start-up process comprises a step of catalytic Fischer-Tropsch synthesis reaction with a synthesis gas to produce a heavy hydrocarbon fraction and a light hydrocarbon fraction, a reduction step (RE) of a hydrotreatment catalyst by contacting with a gas comprising hydrogen, a step of bringing the heavy hydrocarbon fraction into contact with the hydrotreatment catalyst (DM). During the contacting step, the temperature (TEMP) of the catalyst is increased to a temperature between 260 ° C and 360 ° C. A step of bringing into contact (TR) a mixture comprising the heavy hydrocarbon fraction and the light hydrocarbon fraction with the hydrotreatment catalyst is then carried out.
US10723621	logen Corp (CA)	Method for producing renewable fuels. According to the present invention, organic material is converted to biogas through anaerobic digestion and the biogas is purified to yield a combustible fluid feedstock comprising methane. A fuel production facility utilizes or arranges to utilize combustible fluid feedstock to generate renewable hydrogen that is used to hydrogenate crude oil derived hydrocarbons in a process to make transportation or heating fuel. The renewable hydrogen is combined with crude oil derived hydrocarbons that have been desulfurized under conditions to hydrogenate the liquid hydrocarbon with the renewable hydrogen or alternatively, the renewable hydrogen can be added to a reactor operated so as to simultaneously desulfurize and hydrogenate the hydrocarbons. The present invention enables a party to receive a renewable fuel credit for the transportation or heating fuel.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020141255	Neste Oyj (FI)	Process for integrated production of renewable fuels and chemicals. The present disclosure provides a versatile process for producing valuable renewable hydrocarbons from triglyceride containing feedstock. In the stepwise process, the triglyceride containing feedstock is first split to provide a mixture comprising fatty acids, glycerol and water, from which a phase separation provides an oily phase, and an aqueous phase. Said oily phase comprising fatty acids is subjected to fractionation. Fractionation divides the fatty acids to specific fractions, which may be refined to products with controlled hydroprocessing. Products may comprise paraffinic renewable aviation fuel components, paraffinic renewable base oil, renewable paraffinic diesel fuel components, renewable paraffinic technical fluid, or any combination thereof.
ES2773662	Res Triangle Inst (US)	Catalytic biomass pyrolysis process. Described herein are processes for converting a biomass starting material (such as lignocellulosic materials) into a low oxygen containing, stable liquid intermediate that can be refined to make liquid hydrocarbon fuels. More specifically, the process can be a catalytic biomass pyrolysis process wherein an oxygen removing catalyst is employed in the reactor while the biomass is subjected to pyrolysis conditions. The stream exiting the pyrolysis reactor comprises bio-oil having a low oxygen content, and such stream may be subjected to further steps, such as separation and/or condensation to isolate the bio-oil.
CN106544375	Univ Tsinghua (CN)	Method for preparing whole biomass base aviation biofuel. The invention provides a method for preparing whole biomass base aviation biofuel. The method includes the steps that raw materials are pretreated, cellulase catalytic hydrolysis is conducted, glucose is biologically fermented and converted into 2,3-butanediol, at least one of lignocellulose biomass, a lignin solid and solid enzymolysis residue is carbonized and sulfonated, xyloic acid is catalytically dehydrated and degraded into furfural, the 2,3-butanediol is subjected to acid catalysis dehydration and converted into methyl ethyl ketone, an aldol reaction happens to the furfural and the methyl ethyl ketone, and oxygen-containing precursor hydrodeoxygenation treatment is conducted. By the utilization of the method, the whole biomass base aviation biofuel with the main raw materials and catalysts coming from lignocellulose can be prepared, the raw materials are renewable, cellulose, hemicellulose and lignin in the lignocellulose are comprehensively used, atom economy and environmental friendliness are achieved, and the net emission of carbon dioxide is remarkably reduced.
US10731085	UPM Kimmene Corp (FI)	Renewable hydrocarbon composition. The present invention provides a composition comprising 10-40 mass % of C8-30 linear alkanes, up to 20 mass % of C7-20 aromatic hydrocarbons, at least 90 mass % of which are monoaromatic, and no more than 1 mass % in total of oxygen-containing compounds; wherein the total amount of C8-30 alkanes in the composition is 50-95 mass %, and the total amount of C8-30 alkanes, C7-20 aromatic hydrocarbons and C8-30 cycloalkanes is at least 95 mass %; wherein the composition comprises 45-90 mass % in total of C8-30 cycloalkanes and C8-30 branched alkanes; and wherein the amounts are based on the mass of the composition. Also provided is a method of producing the composition comprising the step of hydroprocessing a biological feedstock using a catalyst and the step of fractionating the product of the hydroprocessing step.
EP3688121	Valero Services Inc (US)	Production of renewable fuels and intermediates. The present disclosure relates to methods for the production of transportation fuels from renewable paraffinic feed stocks. The methods disclosed herein present an environmentally-friendly process for using renewable paraffinic feed stocks from various sources. The renewable paraffinic feed stocks can be used to produce a variety of hydrocarbon fuels, including renewable gasoline. The disclosure also relates to fuel products and fuel blend stocks produced from renewable paraffinic feed stocks.
EP2698416	Virent Inc et al. (US)	Synthesis of liquid fuels from oxygenated hydrocarbons. Processes and reactor systems are provided for the conversion of oxygenated hydrocarbons to hydrocarbons, ketones and alcohols useful as liquid fuels, such as gasoline, jet fuel or diesel fuel, and industrial chemicals. The process involves the conversion of mono-oxygenated hydrocarbons, such as alcohols, ketones, aldehydes, furans, carboxylic acids, diols, triols, and/or other polyols, to C 4+ hydrocarbons, alcohols and/or ketones, by condensation. The oxygenated hydrocarbons may originate from any source, but are preferably derived from biomass.

Otros biocombustibles (bio-hidrógeno, bio-oils, biopropano, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
US2020263098	Alliance Sustainable Energy (US)	Systems and methods for producing fuel intermediates. The present disclosure relates to a method that includes pyrolyzing a biomass to produce a pyrolysis oil and upgrading the pyrolysis oil to yield a first upgraded pyrolysis oil, where the pyrolysis oil is in at least one of a liquid phase and/or a vapor phase, the pyrolyzing is performed in a pyrolysis reactor at a first temperature between 400° C. and 600° C., the biomass has a residence time of less than five seconds in the pyrolysis reactor, the upgrading is performed in a fluidized bed reactor, and the upgrading is catalyzed using a zeolite.
US10711201	Commissariat Energie Atomique (FR)	Method for converting algal biomass into a gas or into biocrude by hydrothermal gasification or hydrothermal liquefaction, respectively. The invention relates to methods for converting algal biomass into a gas or into biocrude comprising (a) gasification or hydrothermal liquefaction of an algal biomass in at least one first reactor, (b) separation of the gas or biocrude produced thereby from the aqueous effluents and the CO ₂ produced, at the outlet of the first reactor, (c) recovery of the aqueous effluents, and (d) oxidation of the aqueous effluents in at least one second reactor. Continuous processes for culture of algal biomass and conversion of the algal biomass cultivated into a gas or into a biocrude are also disclosed.
ES2774731	Chevron USA Inc (US)	Conversion of vegetable oils to base oils and transportation fuels. The present invention is directed to methods (processes) and systems for processing triglyceride-containing, biologically-derived oils to provide for base oils and transportation fuels, wherein partial oligomerization of fatty acids contained therein provide for an oligomerized mixture from which the base oils and transportation fuels can be extracted. Such methods and systems can involve an initial hydrotreating step or a direct isomerization of the oligomerized mixture.
ES2732747	Consejo Superior de Investigaciones Científicas (ES)	Catalytic process for the production of hydrocarbons and aromatic compounds from oxygen compounds present in waterproof mixtures. Catalytic process for the production of hydrocarbons and aromatic compounds from oxygenated compounds present in aqueous mixtures. Process for the production of mixtures of hydrocarbons and aromatic compounds, for use as fuel components (preferably in the C ₅ -C ₁₆ range), by catalytic transformation of oxygenated organic compounds present in aqueous fractions derived from biomass treatments, which may comprise at least the following steps: i) contacting the aqueous mixture containing the oxygenated organic compounds derived from biomass with a catalyst comprising at least Sn and Nb, Sn and Ti, and combinations of Sn, Ti and Nb ii) reacting the mixture with the catalyst in a catalytic reactor at temperatures between 100 and 350°C and pressures of 1 to 80 bar in the absence of hydrogen; and iii) recover the products obtained by a liquid/liquid separation process of the aqueous and organic phases. (Machine-translation by Google Translate, not legally binding)
EP2041252	De Angelis Nazzareno (IT)	Integrated process for the production of biofuels from different types of starting materials and related products. Process for the production of biocombustible or biofuel mixtures suitable for different conditions of use, starting from refined or raw vegetable oils, including those extracted from seaweed, and/or from used food oils and animal fats, each of which is pre-treated with specific treatments in order to yield a dried refined oil. The latter then undergoes transesterification with an excess of lower alcohols or bioalcohols, and a subsequent separation into a raw glycerine-based phase and a phase containing mixtures of fatty acid alkyl esters and the excess alcohols or bioalcohols. The excess amount of lower alcohols/bioalcohols can be partially or completely recovered from the obtained mixture, or the mixture itself may be integrated with additional quantities of the same or different lower alcohols/bioalcohols, thereby yielding combustible products and ecological fuels suitable for various environmental conditions and for the types of apparatus and engines they must be employed in. The product can either be used by itself or as the main or secondary ingredient of a mixture with conventional fuel.

Nº Publicación	Solicitante (País)	Contenido técnico
US2020255754	Fulcrum Bioenergy Inc (US)	Feedstock processing systems and methods for producing Fischer-Tropsch liquids and transportation fuels. A method for processing feedstock is described, characterized in that incoming feedstock is processed to selectively recover biogenic carbon material from the incoming feedstock. In some embodiments the incoming feedstock is comprised of mixed solid waste, such as municipal solid waste (MSW). In other embodiments the incoming feedstock is comprised of woody biomass. In some instances, the incoming feedstock is processed to selectively recover biogenic carbon material from the incoming feedstock to produce a processed feedstock having biogenic carbon content of 50% and greater suitable for conversion into biogenic carbon Fischer Tropsch liquids. The high biogenic carbon Fischer Tropsch liquids may be upgraded to biogenic carbon liquid fuels. Alternatively, the incoming feedstock is processed to selectively recover plastic material from the incoming feedstock to produce a processed feedstock having biogenic carbon content of 50% or less.
EP3359627	Heptonstall William B (GB)	Sustainable energy system. An energy system includes a biomass fuelled electrical power (10) generating plant and a carbon capture system (18) for capturing carbon containing flue gases (16) from consuming the biomass (1) as fuel. The system also includes a plant for producing carbon based fuel by reaction of the captured carbon containing flue gases and a source of hydrogen (12). The electrical power generating plant may include a biomass pyrolysing plant (28) for pyrolysing biomass to a charcoal, and a direct carbon fuel cell plant (30) for generating electricity from the charcoal. Alternatively the biomass may be burned to produce electricity. Carbon based fuels produced may include methanol, methane and synthetic hydrocarbon based fuels.
CA2863893	Mao Raymond Le Van (CA)	Catalytic conversion of ligno-cellulosic biomass into fuels and chemicals. The invention provides a process for producing ethyl esters and hydrocarbons from lignocellulosic biomass materials. The process comprises two steps: the first step being an acid ethanolysis (solvolysis with ethanol) of the biomass in oxidizing medium; the second step being the catalytic conversion of the by-product diethyl ether and, optionally, light ethyl esters, into hydrocarbons over ZSM-5 zeolite catalyst. Cellulose, hemicellulose and part of the lignin are converted in the first step. The oxidizer used in this first conversion step is preferably and most preferably hydrogen peroxide activated by Fe (II) (Fenton-type reagent), and/or Ti (IV) ions. The final products may include ethyl levulinate (diesel-grade additive), light ethyl esters (ethyl formate and ethyl acetate), levulinic acid, succinic acid, methanol, gasoline-range hydrocarbons and C2-C4 hydrocarbons.
CN109081508	Univ Sichuan (CN)	Sewage treatment method for simultaneously producing nitrogen and removing nitrogen by biological hydrogen production, coupling and denitrification. The invention discloses a sewage treatment method for simultaneously producing nitrogen and removing nitrogen by biological hydrogen production, coupling and denitrification. The sewage treatment method for simultaneously producing nitrogen and removing nitrogen by biological hydrogen production, coupling and denitrification comprises the steps of sludge inoculation, reactor running and the like. In sludge inoculation, sludge which simultaneously comprises denitrification microorganisms and hydrogen production microorganisms in an anaerobic reactor, and thus, MLSS in the reactor is 15-20 g/L; according to running of the reactor, organic sewage is pumped into the anaerobic reactor, the running temperature of the reactor is controlled to be 25-37 DEG C, running pH of the reactor is controlled to be 4-10, oxidation reduction potential is controlled to be minus 200- minus 500 mV, and hydraulic retention time is controlled to be 4-12 h until sewage treatment is finished. In the method, the problem that carbon sources are insufficient in a denitrification process is solved, the hydrogen production property in a hydrogen production process of dark fermenting organisms is improved, the dosage of throwing and adding of alkali in the hydrogen production process of the dark fermenting organisms is reduced, and the running cost in a process of nitrogen removal by denitrification can be reduced.

PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
US10711394	Avic Composite Corp Ltd et al. (CN)	Composite having plant fiber textile and fabricating method thereof. The present disclosure provides a plant fiber textile, a laminate with the plant fiber textile and a fabricating method of the laminate. The plant fiber textile has a matrix resin and continuous plant fibers distributed within the matrix resin. The plant fibers are subjected to a surface modification pretreatment including a coupling treatment with a coupling agent and/or a fire retardation treatment with a fire retardant. The laminate has a stack structure including a layer of the plant fiber textile and at least one layer selected from a group consisting of following layers: glass fiber, aramid fiber or carbon fiber non-woven cloth or textile, preferably distributed within the matrix resin; polymer fiber non-woven cloth or textile, preferably distributed within the matrix resin; or polymer foam or rubber material.
US10731190	DVO Inc et al. (US)	Composite components from anaerobic digested fibrous materials. The invention relates to composite components and methods of producing composite components. In yet another embodiment, the present invention relates to a method of producing a composite component using anaerobically digested biomass. In still yet another embodiment, the method further comprises using liquid effluent from the digester. In still yet another embodiment, the method further comprises wet-mat forming and cold pressing the anaerobically digested biomass and wet-mat drying under heat and pressure.
WO2020154578	Greentech Global Pte Ltd (SG)	Polyol fatty acid ester carrier compositions. The present disclosure describes methods of treating fibrous cellulosic materials with sucrose fatty acid ester containing particles (carrier systems) that allow for modifications of surfaces, including making such surfaces water resistance and/or oil/grease resistance. The methods as disclosed provide combining at least one saccharide fatty acid esters (SFAE) with a polymer (e.g., latexes) to form micellular particles and applying such particles to substrates including fibrous cellulose-based materials (e.g., pulp) to form, inter alia, molded products. Compositions comprising combinations of SFAE, a latex and optionally a mineral or other additives are also disclosed.
WO2020152178	Jena Trading Aps (DK)	Preparation of cellulose fibers. The present invention provides a method of producing an improved cellulose pulp consisting of cellulose fibers of a desired length, such as cellulose fibers having a length-weighted average fiber length $L_c(l) > 0.6$ mm and its use in cellulose pulp-comprising products, such as packaging material with improved properties.
WO2020162265	Matsuyama Keori Co Ltd (JP)	Net wrap. Provided is a net wrap which maintains the features of a net wrap made of cellulosic fiber and which eliminates drawbacks of conventional net wraps made of general-purpose synthetic resin slit-film yarns, and for which cut roll-ends of the net wrap do not bunch nor get entangled on the wind-out roll of a wrapping machine. The present invention is characterized by: being composed of a knitted fabric obtained by forming a plurality of independent chain stitches in which warp strands made of cellulosic fibers and arrayed in fabric-lengthwise parallel rows are each made into fabric-lengthwise continuous loops, and linking each loop of an independent chain stitch with another loop of another independent chain stitch via a weft strand made from a cellulosic fabric; and obtaining each of the plurality of independent chain stitches by alternately forming one or several closed loops and one or several open loops.
US2020221812	Nike Inc (US)	Biocomposite material and method for forming a biocomposite material. A biocomposite material and methods and systems for forming a biocomposite material are provided. In one example, a biocomposite material includes a biopolymer material and an internal structure imparting zonal properties to the biocomposite material, where the biopolymer material at least partially surrounds and/or extends through the internal structure. The biopolymer material includes mycelium grown from a fungal strain.

Nº Publicación	Solicitante (País)	Contenido técnico
US2020247909	Sugino Mach (JP)	Dried cellulose fibers, cellulose fiber-resin composite, and molded article. Provided are dried cellulose fibers that are satisfactory dispersible in a resin when the cellulose fibers are mixed with the resin and can improve physical properties such as tensile elastic modulus and tensile strength of a resin composite, a cellulose fiber-resin composite including the cellulose fibers, and a molded article. The dried cellulose fibers include cellulose fibers, the cellulose fiber-resin composite includes the dried cellulose fibers, and the molded article is formed from the cellulose fiber-resin composite. The cellulose fibers have an average fiber diameter of 0.1 μm more and 20 μm or less and have a hemicellulose content of 50% or less in constituent sugar components. The dried cellulose fibers have a water content of 10% by mass or less.
WO2020139088	Sultan Qaboos Univ (OM)	Preparation of high performance fiber from natural fiber (date palm). A method of preparing high-performance fibers from a natural fiber source is disclosed. The method includes separating raw fibers from the natural fiber source and dewaxing the separated raw fibers with an alcoholic solution of ethanol and water for a predetermined time at a first predetermined temperature. The method further includes sterilizing the dewaxed fibers with an acidified salt solution at a second predetermined temperature and alkalinizing the sterilized fibers with an alkali solution at a third predetermined temperature to generate the high-performance fibers.
WO2020138496	Take Plas Llc et al. (JP)	Production method for lignocellulose fibers, lignocellulose fibers, and composite material. A production method for lignocellulose fibers according to the present invention is characterized by comprising: a step for obtaining bamboo fibers in which a first defibration process is performed after heat treatment has been performed on bamboo in water vapor at 150°C to 320°C; and a step for obtaining first lignocellulose fibers in which an oxidation process and a partial defibration process are performed on the bamboo fibers using at least one of an alkali metal compound, a hypochlorite, and a chlorite, said first lignocellulose fibers having an average thickness of 0.05 μm to 100 μm, and an average length of 50 μm to 2000 μm.
US2020239508	Uroos Maliha et al. (PK)	Extraction of lignin from lignocellulosic waste material using pyridinium ionic liquid. An exemplary embodiment presents a method of lignin extraction from lignocellulosic biomass. Lignin is a rich and economical source of various valuable products. It is a platform chemical for renewable biofuels, composite materials, biofilms etc. Delignification of lignocellulosic biomass affords cellulose-rich material as an additional product that is already known for many applications like bioethanol and other chemicals. The method includes grinding the lignocellulosic biomass, mixing the dried lignocellulosic biomass powder with ionic liquid, stirring and heating of the mixture followed by solvent extraction of lignin from the mixture.

Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020136420	Bio-On Spa (IT)	Piezoelectric device comprising a membrane comprising fibres of a polyhydroxyalkanoate. A piezoelectric device comprising a membrane comprising fibres of a polyhydroxyalkanoate (PHA), having average diameter comprised between 100 nm and 2000 nm, and at least one oxide having piezoelectric properties in a subdivided form having at least one average size comprised between 1 nm and 100 nm. Preferably the PHA fibres are produced by electrospinning. Advantageously, demonstrating good piezoelectric properties and considering that the piezoelectric device according to the present invention comprises PHA, a biodegradable and biocompatible material, the device can be used in biological systems, for example in flexible micro-actuator systems for drug delivery and in the engineering of biological tissues (such as, for example, in pacemaker devices).
EP3490766	Hartika Sp Zoo (PL)	WPC containing particle board dust, a method of manufacture and use thereof. The invention relates to the WPC material comprising a significant content (i.e. between 40 and 98 %) of particle board (PB) dust obtained from recycling of wood waste, such as furniture and construction elements. The invention is also directed to the method of manufacturing of the WPC material comprising the PB dust, use of the PB dust for the manufacture of WPC material comprising PB.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020143208	Hi Tech Fiber Group Corp (CN)	Method and device for directly preparing foamed polylactic acid article using polylactic acid polymer melt. The present invention provides a method for directly preparing a foamed polylactic acid article using a polylactic acid polymer melt, comprising: preparing a polylactic acid melt, feeding same, and performing dual extrusion treatment. In the dual extrusion treatment, the outlet pressure of the first stage twin screw extruder is 15 to 17 MPa, the feeding speed of the polylactic acid polymer melt is 250 kg/h, the feeding speed of a foaming aid is 7.5-10 kg/h, and the feeding speed of a foaming gas is 2.8-7.5 L/h. The method of the present invention does not need to undergo processes of water cooling and pelletizing, repeated drying and cooling, melt mixing at elevated temperature, etc. thereby avoiding the influence on foamability, can ensure not only the foamability of the material but also the quality, and saves energy consumption by 1/3 and more. The obtained product has an adjustable expansion ratio of 3-25 times, a crystallinity of 40.3-48.5%, a tensile strength of 8.7-19.6 MPa, and an apparent density of 0.05-0.4 g/cm ³ .
US2020253403	Huang Chien-Chung (TW)	Biodegradable drinking straw. A biodegradable drinking straw and a manufacturing method thereof, the biodegradable drinking straw includes: a plant fiber material, which accounts for 5 wt % to 60 wt % of the total weight of the biodegradable drinking straw; and a biodegradable plastic selected from polylactic acid (PLA), polybutylene succinate (PBS) or a combination thereof; the biodegradable plastic accounts for 40 wt % to 95 wt % of the total weight of the biodegradable drinking straw; the fiber material is mixed into the biodegradable plastic and mixed uniformly and then extruded to form a tube body of the biodegradable drinking straw by extrusion molding. By replacing the traditional straw material with plant fibers and biodegradable plastics, the biodegradable drinking straw can be quickly decomposed naturally in the environment after being buried, thus reducing environmental pollution, and meeting the environmental protection requirements.
WO2020152715	M/S Vertex Entpr (IN)	A flexible container for holding articles with incasing portions for accommodating. A flexible container for holding articles with incasing portions for accommodating seeds is described. The said flexible container is compostable and biodegradable, that has at least one part ingrained with seeds of a preferred choice. When the said flexible container is disposed, the flexible container along with seeds undergoes decomposition and as a result, the seeds germinate to a plant life. The said flexible container combats the long-lingering on biodegradable plastic waste, carbon footprint and greenhouse gas emissions by replacing it with industrial strength compostable and biodegradable flexible containers for regular usage.
WO2020149750	Mueller Fabryka Swiec SA (PL)	Container for candle product. Container for candle product intended to be filled with a flammable material, through which a wick is passing. The container is provided with a bottom and with side walls and is made of plastic. The plastic is a polymer containing 40% to 99.99 wt.% of polylactide PLA and 0.01% to 60 wt.% of ammonium polyphosphate APP. The polylactide PLA may be a mixture of poly-L-lactide PLLA and poly-D-lactide PDLA isomers, wherein the mixture contains at least 80 wt.% of PLLA and not more than 20 wt.% of PDLA. Ammonium polyphosphate APP may be microencapsulated, wherein microcapsules have a diameter of 25µm to 55µm and may contain a melamin coating.
US10744680	Plastipak Packaging Inc (US)	System and method for recycling and recapture of bio-based plastics. A method for reclaiming bio-based plastic material is disclosed, including providing a bio-based plastic article, the article including an identifier, determining article content information from or via the identifier, and recycling the article based on article content information. Further, a system for reclaiming bio-based plastic material is disclosed, including an apparatus or device configured to obtain or determine a bio-based material content associated with a plastic article, and an apparatus or device configured to sort the plastic article based upon the bio-based material content of the plastic article. A bio-based plastic article comprising recycled bio-based material is also disclosed.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020144235	Purac Biochem BV (NL)	thermoforming of PLA-based articles. The instant invention relates to a method for producing a polylactic acid (PLA) shaped article by thermoforming and to such thermoformed PLA articles. In particular the method for producing a shaped article, comprises: heating a sheet of crystallizable polylactic acid (PLA)-based resin having a ratio of cold crystallization over total melting enthalpy (AHcc/AHm) greater than 0.70 as determined by differential scanning calorimetry (DSC), wherein heating comprises a heating step wherein the sheet is heated from a surface temperature of at most 80 °C to a surface temperature of at least 90 °C to at most 150 °C at a heating rate of 5 °C to 25 °C per second, to provide a heated sheet having a ratio of cold crystallization over total melting enthalpy (AHcc/AHm) greater than 0.5 as determined by DSC; and immediately after heating forming the heated sheet to provide a shaped article by means of a mold, wherein the mold has a temperature of at least 70 °C and at most 120 °C.
US2020263125	Univ Louisiana State (US)	Algae-based bioplastics and methods of making. Provided for are methods of producing triacylglycerol-accumulated microalgae, methods for making bioplastics from triacylglycerol-accumulated microalgae, methods for making alga-mixed plastics, and products including these bioplastics. Methods of triacylglycerol accumulation using centrifugation are also provided. Products such as plastic beads and other consumer products can be made from the bioplastics described herein.
US2020247979	Yang Kaien (US)	Method of producing plant biomass-based bioplastic. This invention relates to the field of producing bioplastics. Specifically, it relates to a method of producing all key ingredients of bioplastic making from pumpkins and making of bioplastic with these ingredients. More specifically, glycerin and other chemicals are extracted from pumpkin seed oil and mixed with starches that in the pumpkin flesh and then reinforced with pumpkin fibers to make bioplastic. The bioplastic produced with the method as disclosed in this invention possess superior properties in tensile strength and biodegradability compared to bioplastic made with petroleum derived glycerin.

Bioproductos químicos (biofertilizantes, biocosméticos, biofarmacéuticos...)

Biofertilizantes, bioadhesivos y biocosméticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020141283	C B C (FR)	Natural herbicide. The invention relates to the field of phytosanitary herbicidal compositions capable of eliminating or of limiting the growth of weeds around crops. In particular, the present invention relates to a natural herbicidal composition, to the method of producing same, and to the use of same to combat weeds that are contending with crops.
WO2020156912	Certoplast Technische Klebänder GmbH (DE)	Adhesive tape, particularly wrapping tape. The invention relates an adhesive tape, particularly wrapping tape for wrapping cables in automobiles, comprising a textile carrier, and an adhesive coating on at least one face of the carrier, characterized in that the textile carrier is produced, at least to some extent, from bio-based polymers.
WO2020145834	Drumonde Melo Catarina Alexandra (PT)	Method for producing a biofertilizer, and biofertilizer thus obtained. The present invention relates to a method for producing a biofertilizer comprising at least four steps, specifically: i) production of pure cultures or mother cultures of at least one of the species of arbuscular mycorrhiza fungi; ii) preparation of a biofertilizer that includes just one of the respective pure cultures or mother cultures from each of the species of arbuscular mycorrhiza fungi produced in step i); iii) production of multi-spore cultures of each of the species of arbuscular mycorrhiza fungi established using each of the respective pure cultures or mother cultures prepared in step ii); and iv) preparation of a biofertilizer that includes just one or an equal-parts mixture of each of the respective multi-spore cultures of the species of arbuscular mycorrhiza fungi produced in the previous step. The production method can also include a further two steps: steps v) and vi). Steps ii), iii), iv), v) and vi) are repeated as many times as required.

Nº Publicación	Solicitante (País)	Contenido técnico
RU2726309	Federalnoe Gosudarstvennoe Byudzhethnoe Obrazovatelnoe Uchrezhdenie Vysshego Obrazovaniya Donskoj Gos (RU)	Method for recycling of the liquid manure into bioorganic fertilizer. The invention relates to agriculture and can be used in preparation of waste with moisture content over 86 % in form of fertilizer for irrigation or direct introduction into soil for agricultural lands. Method of disposing of liquid manure into bioorganic fertilizer involves treatment of wastes with a chemical reagent, composting. Chemical reagent used is disinfectants and antiseptics, for example, active chlorine with concentration of 14...32 mg/l. Recovered medium with added high-oxidant chemical reagent is exposed to ferromagnetic bodies moving in rotating alternating electromagnetic field, intensity from 27 to 42 mT of industrial cyclic frequency of electric current oscillations in a network at parallel natural composting due to mesophilic temperature range from +18 to +26 °C.
WO2020159298	Korea Res Inst Bioscience & Biotechnology (KR)	Novel microalgae having high loliolide productivity. The present invention relates to novel microalgae having high loliolide productivity. Scenedesmus sp. HS4 of the present invention has high biomass productivity and high loliolide content, thereby being usable as a biological resource capable of producing loliolide, and being usable in a pharmaceutical composition or a cosmetic composition in which Scenedesmus sp. HS4-derived loliolide is required.
WO2020141967	Palmito Process Eng Sdn Bhd (MY)	Method for converting palm oil mill liquid effluent to a solid biomass to facilitate recycling. A method is disclosed for treating liquid effluent discharged from the palm oil milling process by converting it to a solid biomass with significantly reduced moisture content to make it suitable for recycling either as a biofuel or as a biofertilizer. The liquid effluent may initially be pre-treated using a mechanical separation means to reduce its suspended solids content and/or treated using a steam stripping means to reduce its volatile matter content. Its moisture is then significantly reduced using an evaporating means. The concentrated sludge discharged from the evaporating means is mixed with one or more bulking materials from the palm oil milling process to increase its porosity. The mixed biomass is then dried using a drying means to produce the solid biomass. Drying may be achieved using an external heat source or by biodrying. Drying using external heat source is achieved using a convection dryer such as a rotary dryer or conveyor dryer. Biodrying makes use of the heat generated during the initial stages of composting using either the windrowing technique or in-vessel biodrying technique. The condensate containing the evaporated components discharged from the evaporating means is either treated and recycled back to the palm oil mill or treated and discharged.
WO2020162039	Sakata Inx Corp (JP)	Active energy ray curable ink composition and method for manufacturing printed matter using same. To provide an active energy ray curable ink composition which is capable of maintaining basic properties of an ink composition such as compatibility while having an increased proportion of a biomass derived raw material. [Solution] Provided is an active energy ray curable ink composition which comprises a pigment, a compound having an ethylenically unsaturated bond, and a rosin-modified alkyd resin, wherein the rosin-modified alkyd resin is a polycondensate of an acid component that contains resin acid, fatty acid, and polybasic acid, and polyalcohol, has a solubility parameter SP value by a cloud point titration method of 9.0 to 11.0 [cal/cm ³] ^{1/2} , and has an acid value of 1 to 50 mgKOH/g.
FR3054563	Soc d'Exploitation de Produits pour les Industries Chimiques (FR)	Method for obtaining a unialgal biomass of cells of small multicellular macroalgae and endophytes of host macroalgae, and use of same in cosmetics. Method for obtaining a unialgal biomass of small multicellular macroalgae cells and endophytes of host macroalgae, characterised in that it comprises the following successive steps: -A step A) of collecting, from the natural environment, a sample of said host macroalgae; -A step B) of preparing a unialgal sample of cells of said small multicellular macroalgae and endophytes of host macroalgae, by separating them from their macroalgae hosts, from the sample taken in step A) above; -A step C) of culturing said unialgal sample of small multicellular macroalgae cells and endophytes of host macroalgae obtained in step B), in seawater to which at least one nitrogen source has been added, to obtain an aqueous suspension of said unialgal biomass of small multicellular macroalgae cells; -A step D) of harvesting said unialgal biomass of small multicellular macroalgae cells from said aqueous suspension obtained at the end of step C). Glycolic extract of said biomass, method for preparing same, use of same in cosmetics and pharmacy and compositions containing it.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020144440	Total Marketing Services (FR)	Biobased thickening composition comprising a poly(farnesene). The invention relates to a thickening composition for topical application to the skin, the lips or the skin appendages, said thickening composition comprising at least one oil of biological origin and at least one poly(farnesene) polymer having a number-average molar mass ranging from 10 000 to 120 000 g/mol. The invention also relates to a cosmetic composition comprising the thickening composition according to the invention and to the use of the thickening composition according to the invention in a cosmetic composition.
CA3001641	Zhang Mingqiang (CN)	Micro-carbon bio-fertilizer for rapidly increasing soil granular structure and preparation method thereof. Provided are a micro-carbon biological fertilizer for rapidly increasing soil aggregate structure and a preparation method, wherein the formulation composition by mass percent is 30-60% of micro-carbon, and 40-70% of plant fibers; and the preparation process is as follows: raw materials: industrial waste water rich in organic matter, and plant stems satisfying the grain standard; filtering and purifying the raw materials; biodegrading; placing semi-finished products into a jar; formulating and mixing ingredients; and sedimenting and finishing the product. The preparation process activates the macromolecular carbohydrates in the industrial waste water rich in organic matter into micro-carbon with an average value of 100 µm by means of biotechnology, has a natural affinity for soil colloids, and divides same into small particles which aggregate and are formed into an aggregate structure, thus slowing down the degree of soil hardening and acidifying, rapidly fertilizing the soil, and improving the quality and yield of the crops.

Biofarmacéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020144561	Altergon SA (CH) et al.	Compositions containing a peptide able to stimulate the GPRC6A-dependent signalling pathway. Disclosed are pharmaceutical or nutraceutical compositions comprising the peptide having the sequence NMYLPPVPPP PVVPTF or extracts containing it, in admixture with suitable excipients.
WO2020136221	Consejo Superior Investigacion (ES) et al.	Use of secoiridois for the treatment of optic neuritis. The present invention relates to the use of the secoiridois oleacein and oleocanthal to prevent or treat neuropathies that conduct to optic nerve injury such as optic neuritis. Also, the present invention relates to pharmaceutical composition or nutraceutical composition comprising said secoiridois
US10736869	ECS Health Sciences Inc et al.(US)	Compositions and methods related to cannabinoids, terpenoids and essential oils. The present invention provides cannabinoid and terpenoid compositions, among others, and methods of use including as medicines, supplements and nutraceuticals.
RU2726111	Korotenin Mikhail Aleksandrovich (RU)	Plankton strain parachlorella kessleri intended for production of food products. The invention relates to the biotechnology. Plankton strain Parachlorella kessleri MA is deposited in the All-Russian Collection of Industrial Microorganisms under registration number VKPM A1-27. Plankton strain Parachlorella kessleri VKPM A1-27 can be used for production of pharmaceutical preparations, biologically active additives, in veterinary science, for biological rehabilitation of water bodies, for increasing soil fertility and for production of food products.EFFECT: invention increases output of biomass.1 cl, 1 ex.
US2020246308	Natreon Inc (US)	Synergistic combinations of urolithins A and B for improving cognitive capacity or cognitive function. A synergistic combination of Urolithin A (3,8-dihydroxy-dibenzo-alpha-pyrone) and Urolithin B (3-hydroxy-dibenzo-alpha-pyrone) is provided in a particular effective ratio, optionally in a nutraceutical or pharmaceutical composition. The composition is for use in treating cognitive deficits, including increasing cognitive function or cognitive capacity (nootropic activity). The composition is for use in treating or preventing a dementia-related disorder in a human subject, such as anxiety or Alzheimer's disease, and for inhibition of acetylcholinesterase (AChE).
US2020253259	Quintessence Nutraceuticals Llc (US)	Nutraceuticals for the management of conditions related to type 2 diabetes. Disclosed are nutraceutical formulations, including extracts comprising the hydrophilic and lipophilic fractions of stabilized rice bran. Also disclosed are methods for using said nutraceutical formulations for the management or remediation of conditions related to type II diabetes in humans, including methods for decreasing HbA1c and fasting glucose blood concentrations, and for increasing serum fasting insulin levels.

Nº Publicación	Solicitante (País)	Contenido técnico
US10709751	Shaklee Corp (US)	Chardonnay grape seed extract. A novel grape seed extract is enriched in procyanidins, has total polyphenols of less than 70%, and has a low degree of polymerization (dp). Other fractions of the extract have minimal polyphenols, fiber, and protein, but contain more than 90% sugars. In some specific examples, the individual extracts are obtained by sequential ultrafiltration of a water extract of the grape seeds. A first ultrafiltration provides a first permeate (Fraction A) enriched in sugars which is useful as a flavorant, and a first retentate. The first retentate is reconstituted and subjected to a second ultrafiltration at a higher molecular weight cutoff to produce a second permeate (Fraction B) that is enriched in low molecular weight polyphenols, and a second retentate (Fraction C) that is enriched in seed fiber. The Fractions are individually suitable for different nutraceutical products, or can be combined with each other in any combination and/or with other nutraceutical agents to enhance vascular and cognitive health.
WO2020163675	Tanvex Biopharma USA Inc (US)	Data extraction for biopharmaceutical analysis. A method for extracting data for biopharmaceutical analysis may include selecting, based on a first path associated with a source directory, a first file included in the source directory. The first file may be parsed to identify, based on a reference mass value, one or more entries included in the first file. The one or more entries may each include a mass value. The one or more entries may be identified based on a difference between the mass value and the reference mass value being less than a threshold value. The one or more entries may be inserted into a second file.
EP3689359	Unifarco Spa (IT)	Echinacea pallida extract and relating process of preparation and pharmaceutical, cosmetic and nutraceutical compositions thereof. It is described an Echinacea pallida extract having an alkylamide content < 0.05%, an echinacoside content ≥ 2%, a total polysaccharide content ≥ 30% and a polysaccharide content with an average weight molecular weight higher than or equal to 12.000 Da, ≥ 5%. This extract is obtained with a process comprising the following steps: a) extraction of the fraction containing echinacoside by hot mixing Echinacea pallida roots in hydroalcoholic solvent, b) small volume concentration of the solvent of the mixture from the previous step until obtaining a soft extract with a concentration between 20° Bx and 40° Bx, c) extraction of the fraction containing polysaccharides by mixing Echinacea pallida root in hot water, d) small volume concentration of water until obtaining a soft extract with a concentration between 20° Bx and 40° Bx, e) union of the two soft extracts obtained in steps b) and d) and drying with one of the methods known from the technical practice. This extract is used in pharmaceutical, nutraceutical, cosmetic or food compositions.
WO2020132723	Univ Estadual Campinas et al (BR)	Miniemulsions of bioactive fractions of passiflora, compositions including such miniemulsions and formulations. The present invention relates to miniemulsions comprising one or more bioactive fractions of Passiflora (passion fruit) selected from hydrophilic fractions, lipophilic fractions obtained by supercritical extraction or concentrated hydrophilic fractions of Passiflora (passion fruit) obtained by pressurized liquid extraction of Passiflora (passion fruit) with proven benefits of the enriched bioactive fractions isolated in the present invention, the miniemulsions, and products containing such miniemulsions with antioxidant properties that prevent or correct the different factors and mechanisms responsible for skin ageing. The miniemulsion according to the present invention can be used in cosmetic, nutraceutical, nutracosmetic, pharmaceutical and food products. The present invention also relates to cosmetic formulations for facial cleansing lotion, facial moisturizing serum and facial moisturizer with sun protection.

Bioaditivos alimentarios

Nº Publicación	Solicitante (País)	Contenido técnico
US10721953	Corn Products Dev Inc (US)	Thermal-reversible gelling starch. A thermal-reversible gelling agent derived from the modified starch of a waxy corn variant having an endosperm genotype with one or two doses of the recessive amylose-extender gene (ae). The starch may be modified enzymatically, physically, or by acid hydrolysis. Such gelling agents exhibit properties that may be useful in thickening or providing otherwise unique textures to foods.

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EA035655	CHR Hansen Natural Colors AS (DK)	Water-dispersible coloring composition. Coloring agents comprising carotenoid natural pigments in the form of solid particles being dispersed in an aqueous phase comprising polysorbate as a water-soluble emulsifier, use of the coloring agents, edible products comprising the coloring agents and a method for preparing the coloring agents.
EP3689360	Fujifilm Corp (JP)	Method for producing purified salacia genus plant extract, and purified salacia genus plant extract. Provided are a method for producing a purified Salacia genus plant extract having improved flavor by increasing the α -glucosidase inhibitory activity of the extract without significantly reducing the recovery rate of the extract concomitantly with purification; and a purified Salacia genus plant extract. The method for producing a purified Salacia genus plant extract includes an extraction step of bringing a Salacia genus plant-containing raw material extract including at least one of a Salacia genus plant, a Salacia genus plant extract, and a Salacia genus plant ground product, into contact with 0.1 to 20 mass% of activated carbon in the presence of an extraction solvent.
US10709149	Koffeefruit PTE Ltd (SG)	Preparation of coffee fruit extracts and powders. The present invention provides methods for preparing antioxidant-rich products from coffee cherries for nutritional and cosmetic uses. In one aspect, the present invention provides a method for preparing a liquid coffee fruit extract and a liquid coffee fruit extract prepared by the method. In another aspect, the present invention provides a method for preparing dried coffee fruit and a dried coffee fruit product prepared by the method. In yet another aspect, the present invention provides a method for preparing a coffee fruit powder and a coffee fruit powder prepared by the method. The coffee fruit products prepared by the methods of the present invention contain high levels of powerful antioxidants capable of reducing oxidation and preventing oxidative damage for the prevention or treatment of a vast array of diseases and conditions.
WO2020154788	Nidus-Tec- Desenvolvimento de Produtos e Processos Tecnologicos Ltda (BR)	Artificial honey composition and production process. The present invention relates to a production process, composition and use of an artificial honey based on the use of inverted sugar, preferably using the enzyme invertase from yeast, with the addition of nutritive components such that the final syrup has a formulation similar to that of natural honey and can have improved pharmaceutical functions and biological functions, being healthier. The artificial honey of the present invention relates to a product of strictly plant origin, which is produced without the use of animal work or biological materials, and can be commercialized in various sectors, including the vegan sector. More specifically, the artificial honey of the present invention is produced from inverted sucrose, preferably by means of the enzymatic catalysis of VHP/VVHP/demerara brown sugars rich in minerals, vitamins and natural antioxidants of great pharmacological interest and various types of substances of interest. The artificial honey of the present invention has no chemical substances that are harmful to human health (e.g. pigments, preservatives or other chemical additives) added to it or produced in it, but can be flavoured and/or aromatized with artificial honey flavouring, flavouring identical to natural honey and, optionally, natural honey flavouring, and may also contain fibre, vitamin supplements, minerals, vitamins, amino acids, natural extracts, being optionally directly consumed or used for manufacturing other food products.
EP3683277	San Ei Gen FFI Inc (JP)	Method for suppressing bubbling in naturally derived water-soluble pigment. The invention suppresses foaming that occurs when a naturally derived water-soluble pigment, such as spirulina blue, an anthocyanin-based pigment, a gardenia pigment, or a monascus pigment, is added to an aqueous solvent, such as water, and dissolved. A solid composition containing a naturally derived water-soluble pigment is subjected to a compression treatment.
EP3684197	Unilever NV (NL)	Composition comprising vegetable oil and apple cider vinegar. The objective of the present invention is to provide compositions containing vegetable oils and an anti-oxidant system to prevent oxidation of the triglycerides in the vegetable oil in food products, in particular in products which are often stored for a long time. The antioxidant system should not give an undesired colour, and neither an undesired taste, to a food composition. Additionally, it should be a natural compound and/or common food ingredient, and fitting to the food composition with regard to taste and colour. This has been achieved by providing a food composition containing vegetable oil and apple cider vinegar, wherein the weight ratio of citric acid and malic acid to total organic acids in the apple cider vinegar is more than 2%.

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AU2020101198	Univ Guizhou (CN)	A kind of method for making fairy tofu with dried leaves of Premna Puberula Pamp. The present invention discloses a method for making Fairy Tofu by using dried leaves of P puberula. It consists of following steps of: (1) picking mature blades at a vigorous P puberula growth stage, obtaining dry powder by fixating, drying and pulverizing; (2) regulating the pH value of drinking water to 4.0-7.0 and heating to the temperature between 90-95 DEG C; (3) adding dry powder of P puberula to the drinking water at the temperature between 90-95 DEG C in the solid-liquid rate of 1:(20-40) (g/mL) , stirring while it is hot for 30-90 s, filtering; (4) collecting filtrate, adding food coloring of 0.60%-1.2% (v/v) filtrate volume as well as saturated clarified limewater solution in a ratio of 1/40-1/60 (v/v) to the filtrate at the same time, standing after stirring evenly to condense, and thus obtain Fairy Tofu. The Fairy Tofu produced by the present invention is a kind of all-natural food with high nutrition value and health efficacy, also has wide marketing prospect.
US10709152	Univ Hanyang Ind Univ Coop Found (KR)	Chlamydomonas mutants produced using RGEN RNP and method for preparing pigment using the same. The present invention relates to a new alga having an improved ability to produce a pigment, and when a mutant of the present invention is used, a carotenoid-based pigment, specifically, a xanthophyll can be produced by consuming less energy, so that it is possible to efficiently produce the pigment at the industrial level. Further, the pigment can be applied as a raw material for a food, a health functional food and a medicine, which include the pigment. In particular, since a DNA fragment is not likely to be inserted into a target base sequence or a base sequence other than the target, it is expected that the procedure of constructing the mutant is not regulated as a GMO, so that it is expected that the procedure of constructing the mutant can create a big economic effect in terms of an industry which produces lutein and zeaxanthin by using microalgae.
US10736333	WM Wrigley Jr Company (US)	Gelled confection with reduced sugar. A low sugar, low cariogenic, low-laxation gelled confection having acceptable texture, stability, clarity, and flavor delivery, that contains a doctoring agent comprising sucromalt, inulin, brown rice syrup, or combinations thereof; erythritol as the bulking sweetener agent; and a gelling agent comprising gelatin, pectin, starch, dextrin, hydrocolloid, milk proteins, or combinations thereof; wherein the doctoring agent to erythritol ratio is 90:10 to 70:30 wt % solids and the gelled confection has consumer acceptable texture, stability, clarity, and flavor delivery.

Bioproductos alimenticios para animales

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AU2019214524	Aker Biomarine Antarctic AS (NO)	Marine protein hydrolysate with low fluoride and trimethylamin content. The present invention provides marine protein hydrolysates for use in pharmaceuticals, nutraceuticals functional foods, foods, beverages, and animal feeds, as methods for making marine protein hydrolysates.
DK3099791	Dupont Nutrition Biosci APS	Protein. The present inventions relates to a modified GH10 xylanase enzyme or a fragment thereof having xylanase activity wherein said modified GH10 xylanase or fragment thereof has increased thermostability compared with a parent GH10 xylanase enzyme, the parent GH10 xylanase having been modified at, at least, two of the following positions 7, 33, 79, 217 and 298, wherein the numbering is based on the amino acid numbering of FveXyn4 (SEQ ID No. 1). In particular, the modified xylanase enzyme according to the present invention has the following modifications: N7D; T33V; K79Y, V, F, I, L or M (preferably K79Y, F or V, more preferably Y); A217Q, E, P, D or M (preferably A217Q, E or P, more preferably Q); and T298Y, F or W (preferably Y or F, more preferably Y).
US2020268819	Erber AG (AT)	Use of at least one Glycyrrhiza plant-based preparation, an antidote made from same, and the use of said antidote. The use of at least one Glycyrrhiza plant preparation selected from the group of flour of a whole, dried Glycyrrhiza plant, flour of the leaves of the dried Glycyrrhiza plant, flour of roots of the dried Glycyrrhiza plant, aqueous dry extract of the Glycyrrhiza plant, aqueous/ethanolic dry extract of the Glycyrrhiza plant, aqueous extract of the Glycyrrhiza plant, optionally together with at least one excipient, for reducing the toxic effect of at least one polypeptide fungitoxin in agrarian products.

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US2020268014	Fraunhofer-Gesellschaft zur Foerderung der Angewandten Forschung Ev (DE)	Protein ingredient made from oilseeds of sunflowers or rape, and the production thereof. A method for obtaining a protein ingredient for animal feed from seeds of sunflowers or rape includes shelling the sunflower seeds or rapeseeds up to a shell content of <2.5 wt %, mechanically partially extracting the oil from the shelled sunflower seeds or rapeseeds by pressing, up to a fat or oil content in the region of >6 and <25 wt %, and carrying out at least one extraction step for further extraction of the oil with at least one organic solvent or supercritical CO ₂ , up to an oil content of less than 3.5 wt %; and subsequently desolventing, wherein at least one protein-denaturing treatment of the sunflower seeds or rapeseeds is carried out between the shelling of the sunflower seeds or rapeseeds and the obtaining of the protein ingredient. Due to its good digestibility, the protein ingredient can be used as an at least partial replacement for animal proteins in animal feeds.
US2020245644	Purina Animal Nutrition LLC (US)	Methods of feeding high fat poured feed blocks. Methods of feeding ruminants involve positioning the feed blocks in a pasture accessible to the ruminants. The feed block may have a total fat content of about 7 wt % to 33 wt % and an intake modifier to control intake of the feed blocks. High fat pellets having a high total fat content provide at least a portion of the fat in the high fat feed blocks. The methods control a rate of ingestion of high fat feed blocks by ruminants while not negatively affecting performance, and in some instances, ingestion of the blocks results in improved performance.
US2020268018	Radcliffe Tom (US)	Pet food formulation. A cat food has chicken meat and mouse meat, vitamin supplements, and one or more mineral ingredients. The mouse meat may be less than ten percent by weight of the total weight of meat.
CA3058707	Syngenta Crop Protection AG (CH)	A soybean cultivar. The present invention is in the field of soybean varieties CW1660188, EW1660376, CW1660229, CW1660193, CW1660068, EW1660140, CW1660195, EW1660025, AND/OR EW1660054 breeding and development. The present invention particularly relates to the soybean varieties CW1660188, EW1660376, CW1660229, CW1660193, CW1660068, EW1660140, CW1660195, EW1660025, AND/OR EW1660054 and its seed, cells, germplasm, plant parts, and progeny, and methods of using CW1660188, EW1660376, CW1660229, CW1660193, CW1660068, EW1660140, CW1660195, EW1660025, AND/OR EW1660054 in a breeding program. The invention also relates to uses of soybean varieties CW1660188, EW1660376, CW1660229, CW1660193, CW1660068, EW1660140, CW1660195, EW1660025, AND/OR EW1660054.
US2020229467	Univ Auburn (US)	Animal feed binders derived from pectin- and protein-containing feedstock. A method of making a binder for extruded, pelleted, or agglomerated animal feed. The binder is made by treating biomass such as soybean hull or lemon peels with an aqueous acidic solution for a time, at a temperature, and at a pH sufficient to yield a first mixture containing biomass solids and partially dissolved biomass; and mechanically treating the first mixture of step to yield a first mechanically treated mixture; and then incorporating the first mechanically treated mixture as a binder in an animal feed. Also described are animal feeds made using the binder.
US2020248222	Univ Strathclyde (GB)	Bioprocess for coproduction of ethanol and mycoproteins. The present invention relates to the co-production and isolation of mycoprotein and ethanol from carbohydrate feedstock material (e.g cereals). The present invention also provides a fermentation system for the co-production of mycoprotein from a carbohydrate feedstock material.
US2020260758	Usarium Inc (US)	Methods of manufacturing products from material comprising oilcake, compositions produced from materials comprising processed oilcake, and systems for processing oilcake. Methods of manufacturing products from material comprising oilcake, compositions produced from materials comprising processed oilcake, and systems for processing oilcake are provided herein. A product is produced by a method comprising de-solubilizing protein in a first material comprising oilcake to produce a processed material comprising an insoluble protein fraction by extruding the first material in a pressure range of 10 bar to 80 bar. The processed material is hydrolyzed to produce a mixture comprising the insoluble protein fraction and a hydrolyzed fraction. The insoluble protein fraction is separated from the hydrolyzed fraction. The insoluble protein fraction is processed into the product by extruding the insoluble protein fraction in a pressure range of 10 bar to 80 bar.

NIPO: 116-19-007-8



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