VT BIOMASA PATENTES
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OBJETIVOS DE DESARROLLO SOSTENIBLE

7 ENERGÍA ASEQUIBLE Y NO CONTAMINANTE
8 TRABAJO DECENTE Y CRECIMIENTO ECONÓMICO
9 INDUSTRIA, INNOVACIÓN E INFRAESTRUCTURA
12 PRODUCCIÓN Y CONSUMO RESPONSABLES
13 ACCIÓN POR EL CLIMA

GOBIERNO DE ESPAÑA MINISTERIO DE CIENCIA E INNOVACIÓN
MINISTERIO DE INDUSTRIA, COMERCIO Y TURISMO
Oficina Española de Patentes y Marcas
Bioplat BIOMASA PARA LA BIOECONOMÍA
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BIOPRODUCTOS A PARTIR DE ALGAS: PROYECTOS EUROPEOS

La producción mundial de algas es superior a los treinta millones de toneladas al año. Sin embargo, ésta no es suficiente para cubrir la demanda actual debido a la gran variedad de mercados donde se utilizan: consumo directo (sobre todo en Japón, Corea y China) o posterior elaboración de alimentos, fertilizantes, uso farmacéutico y cosmético, e incluso como biocombustible. Los dos países más destacados en Europa son Francia e Inglaterra. En Francia, la utilización de algas va dirigida a la industria química, fundamentalmente la cosmética y la nutracéutica, dos áreas de enorme desarrollo en este país. Éste destina el 43% de su producción y el 25% de la I+D del sector al desarrollo de moléculas bioactivas, permitiendo el desarrollo de nuevas oportunidades de negocio. En el caso de Reino Unido, la investigación está enfocada, principalmente, hacia el área de la bioenergía.

A partir de la biomasa algal se pueden extraer una gran variedad de compuestos con valiosas aplicaciones, como pigmentos, aditivos alimentarios, estabilizantes, antioxidantes, biofertilizantes, etc.

Los pigmentos sintetizados por las algas son fácilmente asimilables por el cuerpo humano y no producen toxicidad ni alergias, por tanto, son buenos sustitutos de los colorantes químicos. Entre ellos destacan la axtasantina y el ß-caroteno, ambos de elevado valor comercial, producidos por las especies Haematococcus pluvialis y Dunaliella salina, respectivamente. Estos pigmentos poseen, además, una elevada actividad antioxidante y han adquirido una gran importancia como ingredientes funcionales en el mercado de la nutraceútica. El uso de la astaxantina, fundamentalmente, es en la industria acuícola, donde se utiliza para alimentar al salmón. Actualmente, se está investigando el uso de los pigmentos sintetizados por las algas en la industria textil como sustitutos de los contaminantes tintes sintéticos.

Otra gama de productos que se extraen de las algas son los ficocoloides. Su variable viscosidad permite su uso en la fabricación de cosméticos, productos farmaceúticos y aditivos alimentarios. Entre los ficocoloides más representativos se encuentran el agar, los carraginatos y los alginatos. El agar se obtiene de las algas rojas y se utiliza en biotecnología y microbiología como sustrato para el crecimiento de microorganismos, siendo la base de muchos geles no iónicos de bastante consistencia. En alimentación es un conocido gelificante y conservante (E-406) en confituras de frutas, verduras, golosinas y latas de conservas. En la industria farmaceútica y cosmética se emplea como excipiente en medicamentos, desodorantes y cremas. Los carraginatos tienen usos similares al agar, empleándose como estabilizantes alimentarios (E-407) en la preparación de salsas, bebidas de chocolate, así como estabilizantes de pinturas y cosméticos. Los alginatos proceden de las algas marrones como Laminaria y Macrocystis y se usan en repostería, como alimentos para animales y como fertilizantes.

Las algas también son una fuente importante de ácidos grasos polinsaturados. Entre ellos destacan el ácido docosahexanoico y el ácido eicosapentanoico. El primero se obtiene de la Crypthecodinium cohhini y se utiliza como suplemento en alimentos infantiles y dietas. La principal dificultad para obtener este tipo de ácidos es su elevado coste de producción.

Algunas especies de microalgas producen extractos que se utilizan en productos cosméticos (cremas antiarrugas, regeneradoras, protección del sol, etc.), siendo las principales especies Arthosphira, Chorella y Spirulina. En la Tabla 1 se recogen las principales aplicaciones de algunas especies representativas de microalgas.

Tabla 1. Aplicaciones de las microalgas

Tipo de microalga	Aplicación
Chlorella	Salud Aditivo de alimentación Nutrición animal Cosméticos Biocombustibles
Dunaliella Salina	Betacaroteno Suplemento alimentario Cosmético
Spirulina platensis	Farmaceúticos Nutrición humana
Haematococcus pluvialis	Astaxantina Aditivo alimentario Farmaceúticos
Artrospira	Carotenos Cosméticos
Nannocloropsis	Ácido ecosapentanoico Biodiésel

Las perspectivas para el uso industrial de las algas son optimistas, pero todavía se han de superar diversos retos para conseguir su rentabilidad. En la Tabla 2 se recogen los proyectos europeos en curso, relacionados con el uso de algas en la producción de bioproductos, pertenecientes a los programas Horizon 2020 y Life +. En la Figura 1 se muestran los países que los lideran. A la cabeza se encuentran Alemania y España, seguidos de Italia, Francia y Países Bajos.

Tabla 2. Proyectos europeos

PROGRAMA HORIZON 2020
DigitAlgaesation: A knowledge-based training network for digitalisation of photosynthetic bioprocesses
Fecha de inicio: 01/03/2021 **Fecha de finalización:** 28/02/2025 **Coordinador:** Universita degli studi di Padova (Italia) **Participantes: 12** • CentraleSupelec (Francia) • Imperial College of Science Technology and Medicine (Reino Unido) • Institut National de Recherche en Informatique et Automatique (Francia) • Danmarks Tekniske Universitet (Dinamarca) • Technische Universitaet Dresden (Alemania) • Universidad de Almeria (España) • .....
BioSilica: Materials synthesis in vivo – intracellular formation of nanostructured silica by microalgae
Fecha de inicio: 01/01/2020 **Fecha de finalización:** 31/12/2024 **Coordinador:** Weizmann Institute of Science (Israel)
HEREWEAR: Bio-based local sustainable circular wear
Fecha de inicio: 01/10/2020 **Fecha de finalización:** 30/09/2024 **Coordinador:** Centro Scientifique & Technique del'Industrie Textile Belge ASBL (Bélgica) **Participantes: 13** • Institute of Textile Technology and Process Engineering (Alemania) • Netherlands Organisation for Applied Scientific Research (Países Bajos) • RISE IVF AB (Suecia) • University of the Arts London (Reino Unido) • Fundación Eurecat (España) • Asociatia Mai Bine (Rumania) • .....

ALEHOOP: Biorefineries for the valorisation of macroalgal residual biomass and legume processing by-products to obtain new protein value chains for high-value food and feed applications

Fecha de inicio: 01/06/2020 **Fecha de finalización:** 31/05/2024
Coordinador: Contactica SL (España)

Participantes: 15
- Isanatur Spain SL (España)
- Biozoon GmbH (Alemania)
- Biosurya SL (España)
- Centiv GmbH (Alemania)
- Garlan, S.Coop. (España)
- Alginor ASA (Noruega)
- .....

MULTI-STR3AM: A sustainable multi-strain, multi-method, multi-product microalgae biorefinery integrating industrial side streams to create high-value products for food, feed and fragrance

Fecha de inicio: 01/05/2020 **Fecha de finalización:** 30/04/2024
Coordinador: A4F Algafuel SA (Portugal)

Participantes: 7
- Institute of Microbiology of the CAS, IVV (República Checa)
- Forfarmers Corporate Services BV (Países Bajos)
- Instituto de Biologia Experimental e Tecnologica (Portugal)
- International Flavors & Fragrances IFF BV (Países Bajos)
- Laboratorio Nacional de Energia e Geologia I.P. (Portugal)
- Phycom BV (Países Bajos)
- .....

NextGenProteins: Bioconversion of underutilized resources into next generation proteins for food and feed

Fecha de inicio: 01/10/2019 **Fecha de finalización:** 30/09/2023
Coordinador: Matis OHF (Islandia)

Participantes: 20
- VTT Technical Research Centre of Finland (Finlandia)
- Alma Mater Studiorum - Universita di Bologna (Italia)
- Rise Processum AB (Suecia)
- Rise Research Institutes of Sweden AB (Suecia)
- SP/F Syntesa (Islas Feroe)
- Circular Solutions EHF (Islandia)
- .....

ProFuture: Microalgae protein ingredients for the food and feed of the future

Fecha de inicio: 01/10/2019 **Fecha de finalización:** 30/09/2023
Coordinador: Institut de Recerca i Tecnologia Agroalimentaries (España)

Participantes: 30
- German Institute of Food Technologies (Alemania)
- Wageningen University (Países Bajos)
- Eigen Vermogen Van Het Instituut Voor Landbouw- en Visserijonderzoek (Bélgica)
- University of Gent (Bélgica)
- University of Twente (Países Bajos)
- Centre for Social Innovation GmbH (Austria)
- .....

ALGWAS-BIOR: Sustainable valorization of the algae industry waste-stream within an advanced clean technologies-based integrated biorefinery concept

Fecha de inicio: 01/09/2020 **Fecha de finalización:** 31/08/2023
Coordinador: Universidad de Burgos (España)

Dual-NanoMAE: Dual action Nanoparticles using MicroAlgae extracts for chronic ulcers

Fecha de inicio: 01/03/2021 **Fecha de finalización:** 28/02/2023
Coordinador: Free University of Berlin (Alemania)

SpiralG: Production of phycocyanin from the spirulina arthrospira sp. Revisiting the sourcing, extraction and co-valorization of the whole algae in the frame of an industrial biorefinery concept

Fecha de inicio: 01/05/2018 **Fecha de finalización:** 30/04/2022
Coordinador: Greensea SAS (Francia)

Participantes: 5
- Algaia (Francia)
- Milis Energy Societa Agricola SRL (Italia)
- Mial GmbH (Alemania)
- University College Dublin (Irlanda)
- National University of Ireland (Irlanda)

AlgCoustics: Single-step disentanglement and fractionation of microalgal high-value products through acoustophoresis

Fecha de inicio: 06/01/2020 **Fecha de finalización:** 05/01/2022
Coordinador: Wageningen University (Países Bajos)

AlgaeCeuticals: Development of microalgae-based natural UV Sunscreens and Proteins as cosmeceuticals and nutraceuticals

Fecha de inicio: 01/01/2018 **Fecha de finalización:** 31/12/2021
Coordinador: Ethniko Kentro Erevnas kai Technologikis Anaptyxis (Grecia)

Participantes: 8
- Agricultural University of Athens (Grecia)
- Fondazione Edmund Mach (Italia)
- Bionos Biotech SL (España)
- Fresh Formula Private Limited Cosmetics Manufacturing Company (Grecia)
- Asociacion Empresarial de Investigacion Centro Tecnologico Nacional de la Conserva (España)
- Particula Group Drustvo S Ogranicenom Odgovornoscu za Usluge (Croacia)
- .....

URBIOFIN: Demonstration of an integrated innovative biorefinery for the transformation of Municipal Solid Waste (MSW) into new BioBased products

Fecha de inicio: 01/06/2017 **Fecha de finalización:** 31/12/2021
Coordinador: Industrias Mecanicas Alcudia SL (España)

Participantes: 16
- AINIA (España)
- Urbaser (España)
- Biomasa Peninsular SA (España)
- Universidad de Valladolid (España)
- Exergy Ltd (Reino Unido)
- Novozymes A/S (Dinamarca)
- .....

Pharma-Factory: Building the product pipeline for commercial demonstration of Plant Molecular Factories

Fecha de inicio: 01/11/2017 **Fecha de finalización:** 30/11/2021
Coordinador: ST George's Hospital Medical School (Reino Unido)

Participantes: 13
- Diamante Srl (Italia)
- Universite de Rouen Normandie (Francia)
- Albajuna Therapeutics (España)
- Leaf Systems International Limited (Reino Unido)
- Transalgae Israel Ltd (Israel)
- Universidad de Lleida (España)
- .....

MAGNIFICENT: Microalgae As a Green source for Nutritional Ingredients for Food/Feed and Ingredients for Cosmetics by cost-Effective New Technologie

Fecha de inicio: 01/06/2017 **Fecha de finalización:** 30/11/2021
Coordinador: Wageningen University (Países Bajos)

Participantes: 16
- Stichting Wageningen Research (Países bajos)
- Fraunhofer Gesellschaft Zur Foerderung der Angewandten Forschung E.V. (Alemania)
- NECTON - Companhia Portuguesa de Culturas Marinhas SA (Portugal)
- Sparos LDA (Portugal)
- Erdyn Consultants (Francia)
- Alga Development Engineering and Services SL (España)
- .....

SABANA: Sustainable Algae Biorefinery for Agriculture aNd Aquaculture

Fecha de inicio: 01/12/2016 **Fecha de finalización:** 30/11/2021
Coordinador: Universidad de Almeria (España)

Participantes: 10
- FCC Aqualia SA (España)
- Gea Westfalia Separator Group GmbH (Alemania)
- Karlsruhe Institute of Technology (Alemania)
- Biorizon Biotech SL (España)
- Institute of Microbiology of the CAS VVI (Republica Checa)
- Universita degli Studi di Milano (Italia)
- .....

GAIN: Green Aquaculture Intensification in Europe

Fecha de inicio: 01/05/2018 **Fecha de finalización:** 31/10/2021
Coordinador: Ca' Foscari University of Venice (Italia)

Participantes: 19
- University of Stirling (Reino Unido)
- Alfred Wegener Institute for Polar and Marine Research (Alemania)
- IBM Ireland Limited (Irlanda)
- Agencia Estatal Consejo Superior de Investigaciones Cientificas (España)
- Longline Environment Limited (Irlanda)
- Sparos LDA (Portugal)
- .....

ASTEASY: innovative and efficient solution for production in microalgae of easily extractible and highly pure astaxanthin for added-value products

Fecha de inicio: 01/03/2020 **Fecha de finalización:** 31/08/2021
Coordinador: Universita degli Studi di Verona (Italia)

MACRO CASCADE: Cascading Marine Macroalgal Biorefinery

Fecha de inicio: 01/10/2016 **Fecha de finalización:** 31/03/2021
Coordinador: Teknologisk Institut (Dinamarca)

Participantes: 14
- SPF Ocean Rainforest (Islas Feroe)
- Stichting Wageningen Research (Países Bajos)
- Matis OHF (Islandia)
- Fermentationexperts AS (Dinamarca)
- Novozymes A/S (Dinamarca)
- Lunds Universitet (Suecia)
- .....

SeaBest: Launching first large-scale organic seaweed-to-food cultivation and processing in EU

Fecha de inicio: 01/03/2019 **Fecha de finalización:** 28/02/2021
Coordinador: Seaweed Energy Solutions AS (Noruega)

GHaNA: The Genus Haslea, New marine resources for blue biotechnology and Aquaculture

Fecha de inicio: 01/03/2017 **Fecha de finalización:** 28/02/2021
Coordinador: Universite du Mans (Francia)

Participantes: 12
- Universite de Nantes (Francia)
- Cardiff University (Reino Unido)
- University of Crete (Grecia)
- University of Szczecin (Polonia)
- University of Copenhagen (Dinamarca)
- Fundacion Canaria Parque Cientifico Tecnologico de la Universidad de Las Palmas de Gran Canaria (España)
- .....

Programa Life +

LIFE ALGAR-BBE - microALGae with ARomatic plants as Biostimulants with Biocide Effect

Fecha de inicio: 01/07/2019 **Fecha de finalización:** 30/06/2023
Coordinador: Neoalgae Micro Seaweed Products SL (España)

Participantes: 2
- Endesa (España)
- Centro Tecnológico Nacional Agroalimentario Extremadura (España)

MEWLIFE - MicroalgaE biomass from phototrophic-heterotrophic cultivation using olive oil Wastewaters

Fecha de inicio: 01/07/2018 **Fecha de finalización:** 30/06/2021
Coordinador: Processi Innovativi SRL (Italia)

Participantes: 5
- Technosind SRL (Italia)
- Labor SRL (Italia)
- BIO-P SRL (Italia)
- Centro Interuniversitario di Ricerca High Tech Recycling (Italia)
- Megara Resins - Fanis Anastassios SA (Grecia)

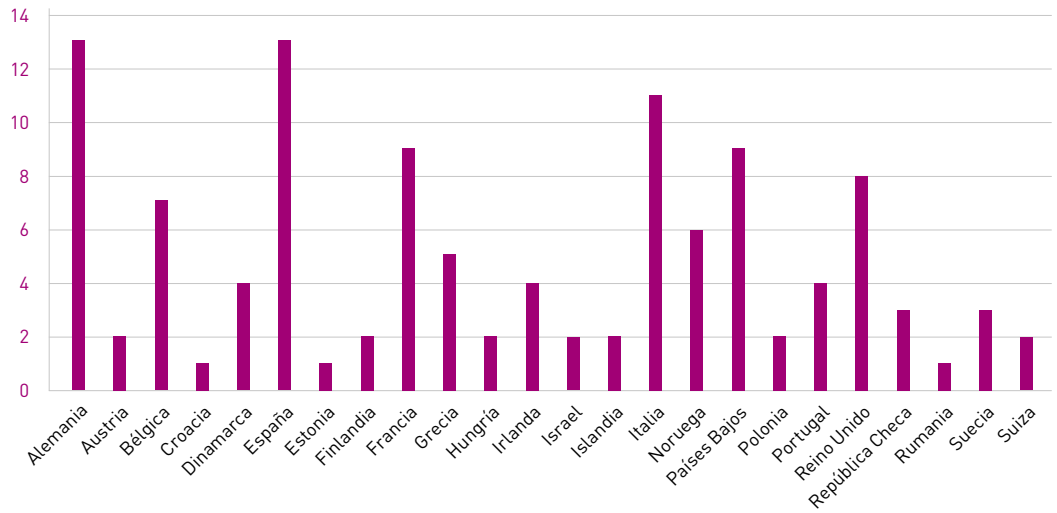

Figura 1. Países líderes de los proyectos europeos

PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2020212495	Alpenkohle GmbH (AT)	**Method for the preparation of charcoal.** The invention relates to a method for producing charcoal, comprising the following steps: a) supplying biomass, in particular wood chips, to a pyrolysis unit, in which the wood chips are pyrolyzed to form a full flow having solid, liquid and gaseous material, b) supplying the full flow and a gasification agent to an oxidation unit, wherein the full flow is oxidized at least in part and pneumatically transported, c) supplying the partially oxidized full flow from the oxidation unit to a substantially vertically arranged reduction unit, wherein the material outlet of the oxidation unit is connected to the reduction unit, wherein the cross-section of the reduction unit grows as the distance from the material outlet of the oxidation unit increases, the flow velocity of the full flow in the reduction unit is adapted to the material of the full flow and to the shape of the flow cross-section of the reduction unit such that a stable packed bed, held in flotation, forms in the reduction unit, d) removing the raw charcoal from the reduction unit via an overflow, e) separating gaseous components in a hot gas filter and collecting the charcoal and f) extinguishing the collected charcoal with water.
WO2020229824	Bai Hong Mei (CN) et al.	**Process for producing solid biomass fuel.** The present invention relates to a process for producing a solid biomass fuel, as well as a solid biomass fuel produced by said process. Additionally, the present invention relates to a combustion process comprising combusting said solid biomass fuel so as to produce energy.
WO2020213091	Biomass Energy Corp (JP)	**Burner device and combustion device.** Disclosed are: a powder burner device in which even coarsely ground biomass powder can be used as an industrial fuel; and a combustion device of which the operation can be stably and high efficiently controlled using said burner device. A burner device of the present application has: a burner pipe; a fuel supply device that supplies biomass powder to the burner pipe; and a primary air supply pipe connected to a side wall of the burner pipe, wherein the biomass powder supplied from the fuel supply device is dropped while swirling in the burner pipe by primary air from the primary air supply pipe, and is discharged from a fuel discharge port at a lower end of the burner pipe. The burner device further has a heat insulation wall having a cone-shaped inner wall below the fuel discharge port.
WO2020206544	Carleton Univ (CA)	**Waterproof polymer-coated combustible pellets, and methods for the production thereof.** Provided herein are solid fuels including a combustible material coated with an organic material or plastic, the solid-fuel being substantially water-resistant or waterproof. Also provided herein is a method for producing a water-resistant or waterproof solid fuel comprising a combustible material coated with an organic material or plastic, said method including steps of: providing a solution including the organic material or plastic in a solvent; applying the solution to the combustible material; and evaporating the solvent; thereby providing the water-resistant or waterproof solid fuel including the combustible material coated with the organic material or plastic. The combustible material may include, for example, plant-based material, torrified wood, ground wood, or coal fines. The organic material or plastic may include, for example, styrofoam or Acrylonitrile butadiene styrene (ABS).
ES1255369	Coinref SL (ES)	**Perfected combustion oven with secondary air.** Improved combustion furnace with secondary air, consisting of an industrial biomass combustion furnace, characterized by comprising in its first chamber or combustion chamber, where the grate and the system of primary air from the bottom, a second air or secondary air system, which enters through the upper part of an altar that is in said chamber, as well as through the front of the oven at the same height, from which the feeding is carried out, generating a horizontal air screen.
GB2583919	Environet UK Ltd (GB)	**A method and furnace for producing biochar.** A method of producing biochar by pyrolysis of biomass feedstock, including invasive weeds such as Japanese knotweed, comprises the steps of heating the biomass feedstock within a furnace chamber, and sealing the furnace chamber such that gases can only exit the furnace chamber via a release outlet or to a combustion chamber. Gas from the furnace chamber is then released through the release outlet and whether the released gas is combustible is tested. When the released gas is combustible, the release outlet is sealed, and gases emitted from the furnace chamber subsequently pass to the combustion chamber where they are combusted to further heat the furnace chamber. The contents of the furnace chamber are subsequently allowed to cool.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020203163	Jujo Paper Co Ltd (JP)	**Method for producing solid fuel.** Provided is a method for producing a solid fuel which uses woody biomass as a raw material, provides a solid fuel which has crushability at the same level as that of coal and can be used as a fuel for pulverized coal boilers when mixed with coal and crushed, can suppress generation of dust during molding treatment of the solid fuel, and ensures improved operability. A solid fuel is produced by a method that includes: torrefying a pulverized woody biomass having a size of 5-50 mm at an oxygen concentration of 10% or less and a material temperature of 250-350°C; and adding 0.2-10% by mass of tapioca starch to the resultant torrefied product after pulverizing the torrefied product to a size of 10 mm or less, and forming a molded product having a bulk density (measured by the "Bulk Density Test Method" of JIS K-2151-6) of 500 kg/m3 or higher.
WO2020235906	Kim Yong Hak (KR)	**Pellets for solid fuel including cotton waste and preparation method therefor.** The present invention relates to a method for preparing cotton waste-containing pellets for a solid fuel, and cotton waste-containing pellets for a solid fuel and, more specifically, to pellets for a solid fuel, which are prepared using cotton waste generated during a spinning process, and thus generate less harmful substances when incinerated as fuel and have superior thermal power.
ES2791573	Optimizacion de Recursos y Medio Ambiente SL (ES)	**Procedure and apparatus for the segregation of biomass impurities from chip.** Process and installation to segregate non-magnetic materials from a stream of biomass of chips of different granulometries (G10 -G60); pieces of plastic, paper, painted wood and powder, for the subsequent use of the biomass obtained as fuel, or in other industrial processes as raw material. According to the invention, the biomass obtained acquires greater value, by allowing it to be consumed in biomass boilers as a clean fuel. Likewise, it allows it to be used as a raw material in processes that require biomass with low polymer content. The biomass, after being chipped and screened to a granulometry less than G60, is moved on a conveyor belt with a thickness of about 80 mm in height. When it is introduced into the system, the elements to be eliminated are detected by an artificial vision system. Subsequently, after the belt falls, there is a line of blowers that remove the elements indicated by the vision system at the precise moment that they pass through the blower that is in line with the product to be removed. Next, a low speed air blower removes dust and lighter elements from the biomass stream, pushing them out of the biomass curtain as it falls. The set of elements that are removed from the biomass stream, falls to an area that is in depression, being dragged through a suction system to a cyclonic system for decantation and subsequent management.
US2020325409	Univ Kentucky Res Found (US)	**Production of fuel pellets.** A fuel pellet includes a pellet body made from a mixture of (a) hemp byproduct, kenaf byproduct or hemp and kenaf byproduct, (b) sawdust and, optionally, (c) coal fines. The fuel pellet may be made without adding a binder. A method of making the binderless fuel pellet is also described.

Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
US2020332205	Aries Gasification Llc (US)	**Universal feeder for gasification reactors.** A universal feeder system that combines with a fluidized bed gasification reactor for the treatment of multiple diverse feedstocks including sewage sludge, municipal solid waste, wood waste, refuse derived fuels, automotive shredder residue and non-recyclable plastics. The invention thereby also illustrates a method of gasification for multiple and diverse feedstocks using a universal feeder system. The feeder system comprises one or more feed vessels and at least one live bottom dual screw feeder. The feed vessel is rectangular shaped having three vertical sides and an angled side of no less than 60 degrees from the horizontal to facilitate proper flow of feedstock material that have different and/or variable flow properties. The feedstocks are transferred through an open bottom chute to a live bottom dual screw feeder and through another open bottom chute to a transfer screw feeder that conveys feedstock to the fuel feed inlets of a gasifier.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020217398	Chuden Plant Co Ltd et al. (JP)	**Supercritical water gasification system.** In the present invention, the system is equipped with a flow rate adjustment valve provided in a flow path on the downstream side of a first heat exchanger, said flow rate adjustment valve controlling the flow rate of steam. The flow rate of the steam is controlled by the flow rate adjustment valve so as to maintain the preheating temperature of a slurry and to keep the pressure of the steam for preheating the slurry higher than the pressure of the slurry. By preheating a slurry that contains wet biomass using high-pressure steam of at least the pressure of the supercritical water gasification system via the first heat exchanger, the heat exchanger can be made more compact while minimizing fuel consumption, the generation of tar and char can be suppressed, clogging of the pipes of the heat exchanger can be avoided, and fuel gases such as methane and hydrogen can be generated more efficiently from the wet biomass.
WO2020217399	Chuden Plant Co Ltd et al. (JP)	**Supercritical water gasification system.** In the present invention, a first heat exchanger preheats a slurry body including a water-containing biomass by using steam from a drum type boiler, thereby making it possible to minimize the fuel cost, reduce the size of the first heat exchanger, suppress the generation of tar and char, prevent the piping of the first heat exchanger from blocking, and more efficiently generate a fuel gas. Further, when preheating is performed, a flow rate adjusting valve adjusts the flow rate of the steam to control the temperature of the slurry body at the outlet of the first heat exchanger, thereby making it possible to avoid insufficient increase in temperature of the slurry body at the outlet of the first heat exchanger. Therefore, the present invention can eliminate the heater provided between the first heat exchanger and a gasification reactor in the conventional system.
WO2020206538	Enerkem Inc (CA)	**Production of synthesis gas from gasifying and reforming carbonaceous material.** It is provided a method of converting a carbonaceous material into syngas at a carbon conversion rate of at least 78% comprising gasifying the carbonaceous material in a fluidized bed reactor producing a crude syngas, classifying the crude syngas by particle size and density into a cut sizing device, introducing the classified particle crude syngas into a thermal reformer and reforming the classified crude syngas at a temperature above mineral melting point, producing the syngas.
WO2020191478	Kelly Karen Sue et al. (CA)	**Process for increasing carbon yield in the production of synthetic fuels and chemicals.** A process to optimize the yield of synthetic chemicals or fuels from organic feedstock. The process involves the production of a synthesis gas, followed by gas cleaning to remove impurities. It then integrates an adjustable carbon dioxide removal system which is immediately followed by a dry reforming step which accepts the cleaned synthesis gas containing a measured amount of carbon dioxide. The amount of carbon dioxide required in the dry reformer is determined by the amount and type of hydrocarbons contained in the synthesis gas and in recycled gases from downstream process reactions. Only excess carbon dioxide beyond the requirements of the reforming is vented. This process increases product yield and reduces total carbon emissions.
WO2020202023	Life Breath SRL (IT)	**Organic waste disposal plant and method.** The treatment plant comprises: a reactor for the sublimation of organic material in order to obtain a syngas; a filtration assembly for filtering the syngas in order to obtain a filtered gas, and a motor- generator assembly for producing electrical energy by means of the combustion of the filtered gas and thereby producing burnt gas; characterized in that said plant also comprises a methanation assembly, comprising: a catalyst that can extract carbon dioxide (CO2) and nitrogen (N2) from the burnt gas; an electrolyzer that can separate water into oxygen (O2) and hydrogen (H2) by means of electrolysis; and a methanation reactor, which can produce methane (CH4) by means of the Sabatier reaction using hydrogen and carbon dioxide originating from the electrolyzer and from the catalyst; the catalyst comprising a catalysis layer consisting of stone wool and nickel nanospheres, a plurality of steel microtubes containing copper microfilaments, and a system for controlling the reaction conditions.

Nº Publicación	Solicitante (País)	Contenido técnico
US2020308990	Univ Nanjing Forestry (CN)	**Apparatus and method for generating electricity and producing carbon and heat via biomass fixed bed gasification.** A method and apparatus for generating electricity and producing carbon and heat via biomass fixed bed gasification, said method and apparatus utilising medium calorific value combustible gas to satisfy high-temperature high-pressure boiler heat requirements, and increasing overall electricity generation efficiency. The method and apparatus have low nitrogen oxides amounts, satisfy environmental protection requirements, and do not require denitrification treatment. The method comprises the following steps: feeding a biomass raw material into a gasification apparatus to prepare a medium calorific value biomass combustible gas, and performing gasification on the biomass raw material at 700-850° C. under the effect of an air/water vapour pre-mixed gasification agent to produce a combustible gas, the calorific value of the combustible gas being 1600-1800 kcal, the temperature being 200-300° C.; directly feeding the combustible gas into an environmentally friendly combustion chamber for combustion, and then into a high-temperature high-pressure boiler, the gas combusting within the high-temperature high-pressure boiler to produce high-temperature high-pressure steam, which drives a steam turbine to generate electricity; utilising steam waste heat discharged by the steam turbine; using boiler tail gas to heat air by means of an air preheater, the hot air being respectively fed into the combustion chamber and the gasification apparatus by means of an air blower, and utilising the waste heat.

Biogás

Nº Publicación	Solicitante (País)	Contenido técnico
EP3719426A1	Air Liquide (FR)	**Biogas purification and liquefaction by combining a crystallisation system with a liquefaction heat exchanger.** Plant and process for the production of liquid methane from a feed gas stream comprising at least methane and carbon dioxide. A feed gas stream is injected into a CO2 crystallizer in countercurrent fashion against a stream of predominantly liquid methane, thereby crystallizing amounts of carbon dioxide from the feed gas stream. Gaseous methane recovered from the CO2 crystallizer is liquefied at a liquefaction exchanger.
WO2020234901	Atmos Power Pvt Ltd (IN)	**A biogas upgradation system with reduced methane slippage.** The present invention relates to a biogas upgradation system with reduced methane slippage by extracting maximum amount of methane and offering it in the product gas. The aforesaid system mainly comprises a pre-treatment unit, a drying unit, a methane enrichment unit, and a methane recovery unit. The pre-treatment unit removes the hydrogen sulphide from the raw biogas feed and sends it to the drying unit for moisture removal. Then, the dried biogas is directed to the methane enrichment unit for extracting the methane by adsorbing the carbon dioxide into the molecular sieve. An exhaust stream from the drying unit and the methane enrichment unit is directed to the methane recovery unit for extracting the maximum amount of methane. By re-circulating the exhaust gas into the methane recovery unit, the present invention significantly reduces methane loss to less than 1%.
WO2020225794	Bennamann Services Ltd (GB)	**Anaerobic digester and mobile biogas processing plant.** An anaerobic digester is provided. The anaerobic digester includes a biogas storage container comprising a semi-permeable membrane separating the biogas storage container into a first space and a second space, such that the first space is configured to be methane enriched and the second space is configured to be CO2 enriched. The anaerobic digester further includes a cover positioned over the biogas storage container for protecting the biogas storage container against the elements.
WO2020213701	Biofuel Tech Research Co Ltd et al. (JP)	**Methane fermentation method, methane fermentation system, waste material recycling method, and waste material recycling system.** A methane fermentation method whereby a methane-containing biogas can be produced from a raw material containing at least one of glycerin and a fatty acid glycerin ester, the method being characterized by comprising: a first separation step of mixing the raw material with an inorganic acid and separating the resultant mixture into a first oil component and a first glycerin-containing solution; a neutralization step of neutralizing the first glycerin-containing solution with an alkaline substance; a second separation step of separating a second oil component and a precipitated inorganic salt from the neutralized first glycerin-containing solution to produce a second glycerin-containing solution; and a fermentation step of carrying out methane fermentation using the second glycerin-containing solution. According to the present invention, it is possible to produce a methane-containing biogas from a waste material containing glycerin or a waste material containing a fatty acid glycerin ester with high efficiency. Furthermore, it is also possible to dramatically increase the rate of recovery of methane from a glycerin-containing waste material compared with the conventional methods.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020222038	Desotec NV (BE)	**Method for the desulfurization of methane-containing gases.** The invention relates to a method for the desulfurization of methane-containing gases by bamboo-based activated carbon. The method according to the invention is particularly suitable for the desulfurization of methane-containing gases such as biogas, landfill gas, mine gas, flue gas, marsh gas or natural gas with a view to further use of the gas or the sulfur extracted.
GR20190100145	Mesogeios AE (GR)	**Anaerobic digestion arrangement.** The invention relates to an arrangement of intermittently working anaerobic digestion reactors designed to treat the organic fraction of solid dry waste. The design of the system increases the durability of the construction and improves its functionality, in particular, the management of leachate and air discharge. Each reactor is a closed airtight tank having a fully airtight door on its only open side. The reactor has a ventilation network which is installed on the reactor's floor and consists of a piping network and an air supply air pump. The leachate is collected through nozzles and ventilation ducts. The leachate recirculation and maceration system consists of a network of pipes, the recirculation pump and the spraying nozzles. In addition, it has a suitable underfloor heating system consisting of a network of pipes encased in the concrete of the reactors' floor. The biogas produced by the anaerobic digestion process is conducted, through a duct, to the biogas transport and storage network.
WO2020212073	Niederbacher Michael (IT)	**Plug flow fermenter for a biogas plant.** The invention relates to a plug flow fermenter for a biogas plant, comprising a reactor container embodied as longitudinal straight tubes. A substrate that is to be fermented, preferably by dry fermentation, can be fermented in the form of a plug flow with production of biogas. inside the reactor container. The reactor container has at least one container inlet, via which the substrate to be fermented can be fed to the inside of the reactor, and at least one container outlet that is arranged at a distance from the container inlet in the direction of flow (x) of the plug flow, via which container outlet the fermented substrate can be discharged from the inside the reactor. A plurality of mixing devices that are can be exchanged separately, are arranged inside the reactor container when seen in the longitudinal direction of extension and thus in the direction of flow of the plug flow.
WO2020200144	Song Zhiyuan (CN)	**Efficient and water-saving resource recycling system.** An efficient and water-saving resource recycling system, comprising a collection system, a foaming system, a sewage receiving system, a blending system, a fermentation tank, a biogas slurry production system, and a biogas production system. The foaming system is connected to an inlet pipe of the collection system. The inlet of the sewage receiving system is connected to a sewage outlet of the collection system. The inlet of the blending system is connected to an outlet pipe of the sewage receiving system. The inlet of the fermentation tank is connected to an outlet pipe of the blending system. The biogas slurry production system is connected to a biogas slurry outlet pipe of the fermentation tank. The biogas production system is connected to a biogas outlet of the fermentation tank. Flushing a toilet by means of vacuum suction reduces the waste of water resources and reduces the use of chemical fertilizers. During the process of flushing, foam blocking and a muffler chamber are used in conjunction to reduce the noise generated by the flushing.
WO2020239878	Tekniska Verken I Linkoeping AB Publ (SE)	**Method for the production of biogas.** A method for producing biogas in an anaerobic digestion chamber from an un-treated organic substrate, wherein said un-treated organic substrate has a dry matter of content of in the range of 20 to 90 % of total solids, wherein the method comprises the steps of, pre-treatment of the un-treated organic substrate, to form a slurry having a dry matter content of in the range of 8 to 19.9 % of total solids, feeding said slurry to a digestion chamber; digesting said slurry in the digestion chamber to produce biogas and a digestate, wherein in said pre-treatment step a mixture of a dilution fluid and a liquid digestate from said digestion chamber is used to dilute the un-treated organic substrate.
US2020347344	Trillium Transp Fuels Llc (US)	**Biogas buffer storage system.** Processes, systems, and associated control methodologies are disclosed that control the flow of biogas during the biogas cleanup process to create a more consistent flow of biogas through the digester, while also optimizing the output and efficiency of the overall renewable natural gas facility. In representative embodiments, a biogas buffer storage system may be used during the cleanup process to control the pressure and flow rate of biogas. The biogas buffer storage system may monitor and control the biogas flow rate to either bring down or increase the digester pressure, thereby maintaining a normalized biogas flow rate.

Bioalcoholes (bioetanol, biometanol, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
EP3578648	Abengoa Bioenergía Nuevas Tecnologías SA (ES)	**Polypeptides with polysaccharide monooxygenase activity and use thereof for the production of fermentable sugars.** The invention refers to polypeptides with polysaccharide monooxygenase activity, to a host cell that expresses them, preferably a Myceliophthora thermophila cell that recombinantly expresses at least one of these polypeptides, to an enzymatic composition comprising at least one of these polypeptides, preferably together with other cellulolytic enzymes, the use of this host cell, of at least one of the polypeptides with polysaccharide monooxygenase activity or of the enzymatic composition for the degradation of cellulosic biomass and to a process for the production of bioproducts, preferably bioethanol, including the use of this host cell, of at least one of the polypeptides of the invention or of the enzymatic composition of the invention.
EP3728297	CIC Nanogune Asociacion Centro de Investig Cooperativa en Nanociencias et al. (ES)	**Ancestral cellulases and uses thereof.** The invention relates to a polypeptide comprising an exoglucanase catalytic domain comprising a sequence selected from the group consisting of SEQ ID NO: 1, SEQ ID NO: 2 and SEQ ID NO: 3, and to a polypeptide having beta-glucosidase activity comprising a sequence selected from the group consisting of SEQ ID NO: 6, SEQ ID NO: 7 and SEQ ID NO: 8, and to functionally equivalent variants thereof that maintain or improve their catalytic activity. Additionally, the invention relates to an enzyme cocktail comprising said polypeptide(s) and an endoglucanase. Further, the invention also relates to methods for hydrolysing cellulose to cellobiose and/or cellotetraose, cellobiose and/or cellotetraose to glucose and cellulose to glucose, and to produce bioethanol, using the polypeptides or enzyme cocktails of the invention, and to the uses of the polypeptides and enzyme cocktails of the invention for hydrolysing cellulose to cellobiose and/or cellotetraose, cellobiose and/or cellotetraose to glucose and cellulose to glucose, and to produce bioethanol.
US2020377559	Danisco US Inc (US)	**Reduction of acetate and glycerol in modified yeast having an exogenous ethanol-producing pathway.** Described are compositions and methods relating to the over-expression of sugar transporter-like polypeptides to reduce the amount of glycerol and acetate produced by modified yeast having an exogenous pathway that cause it to produce more ethanol and acetate than its parental yeast.
US2020332318	Ecolab USA Inc (US)	**Methods for reducing and/or eliminating microbial populations in a fermentation process.** 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.
EP3730622	Kawasaki Heavy Ind Ltd (JP)	**Method for enzymatically producing bioethanol using cellulosic biomass as starting material.** An object of the present invention is to provide a bioethanol production method using lignocellulosic biomass as a raw material, the method being adapted to increase the ethanol concentration of a fermentation liquid obtained in a fermentation step and reduce the distillation load without having to use specialized equipment in solubilizing the biomass by enzymatic hydrolysis of cellulose contained in the biomass. When a solid residue of the cellulosic biomass, from which hemicellulose has been removed, is mixed with an aqueous solution containing a cellulose-hydrolyzing enzyme in a reaction vessel, ethanol is added in an amount of 3 to 6% by mass. Bacterial proliferation is suppressed during hydrolysis of cellulose, and the ethanol concentration achieved in ethanol fermentation of a saccharified solution is increased, so that the distillation load is reduced. The ethanol added at the time of hydrolysis can be collected during distillation of the alcoholic fermentation liquid and reused.
US2020340018	King Faisal Univ (SA)	**Method for producing bioethanol from dates.** The method for producing bioethanol from dates includes manufacturing a suitable substrate for bioethanol from dates and fermenting the date substrate to produce bioethanol. The date substrate may be produced by de-pitting date fruits, heating the flesh with water to produce a mixture, filter pressing the mixture to produce a juice, and concentrated by vacuum drying to produce a date substrate. The date substrate may then be fermented in either a batch or a fed-batch culture. The fermentation may be performed with a thermophilic yeast, such K. marxianus. In an alternative embodiment the date substrate may be a date fruit extract.
CA3043401	Liquor Labs Incorporated (CA)	**Method of producing ethanol from milk permeate and compositions thereof.** Provided herein is a method for producing ethanol. The method comprises fermenting milk permeate with yeast to produce a fermented broth comprising the ethanol. The fermented broth is then subjected to distillation to obtain a concentrated ethanol-enriched vapour having at least 50% v/v ethanol. From the ethanol-enriched vapour resulting from the distillation, an ethanol product is produced that is a biofuel or a potable spirit. The disclosure also provides a unique potable spirit composition produced from such process.

Nº Publicación	Solicitante (País)	Contenido técnico
EP3746545	Microbiogen Pty Ltd (AU) et al.	**Microorganisms with improved nitrogen utilization for ethanol production.** Described herein are fermention organisms, such as yeasts, comprising a genetic modification that increases or decreases expression of a transporter or regulator thereof, such as yeasts that express the FOT2 and FOTX transporters of SEQ ID NOs: 163 and 164. Also described are processes for producing a fermentation product, such as ethanol, from starch or cellulosic-containing material with the fermenting organisms.
EP3724340	Praj Industries Ltd (IN)	**Industrially useful strains of yeast.** The invention relates to a method for the preparation of industrially useful strains of yeast Saccharomyces cerevisiae and the strain prepared by said method. In particular the invention relates to the creation of double mutant strains of said yeast that shows high ethanol conversion efficiency and substantially reduced acetic acid and glycerol production during fermentative production of ethanol from a sugar-based feedstock.
WO2020174360	Saipem Spa (IT)	**Oxidation and gasification method and system producing bioethanol.** The present invention relates to a method and a system for producing bioethanol, which combines the processes of oxidation and gasification of lignocellulosic material.

Biodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020205220	Exxonmobil Res & Eng Co (US)	**Algal biofuel production as an air separation unit for syngas, hydrogen, or power production**. This invention relates to methods and apparatus for harvesting by-product oxygen from algae ponds or bioreactors (collectively, "algal biofuel production") for use in an oxygen-requiring process that requires oxygen as a reactant such as syngas, hydrogen, or power production processes, which optionally can be integrated with the algal biofuel production. In some embodiments, the invention provides methods that include a method comprising: collecting oxygen from an algal biofuel production process; and using the collected oxygen in an oxygen- requiring process that requires oxygen as a reactant. In some embodiments, the invention provides systems that include an integrated system comprising: an algal bioreactor that produces biodiesel and oxygen, a pipeline for transporting oxygen to an oxygen-requiring process unit so that the oxygen can be used as reactant in the oxygen-requiring process unit, and the oxygen-requiring process unit.
EP3728520	Exxonmobil Res & Eng Co (US)	**Dewaxed diesel fuel composition.** Diesel fuel compositions are provided that have unexpectedly beneficial cold flow properties. Methods for forming such diesel fuel compositions are also provided. The improved cold flow properties are achieved in part based on dewaxing of a distillate fraction of the composition. The improved cold flow properties are achieved further in part based on inclusion of a cold flow additive and fatty acid alkyl ester in the composition, such as fatty acid methyl ester.
RU2735081	Federalnoe Gosudarstvennoe Byudzhetnoe Uchrezhdenie Nauki Institut Problem Khim Fiziki Rossijskoj Ak (RU)	**Method for production of biodiesel fuel based on rapeseed oil for diesel motor and tractor engines.** FIELD: technological processes. SUBSTANCE: invention relates to production of biodiesel fuel for use in motor and tractor engines. Invention relates to a method for production of biodiesel fuel on the basis of rapeseed oil for motor-and-tractor diesel engines, which includes separation of the fallen sediment in rapeseed oil, mixing of purified rapeseed oil with diesel fuel. For separation of rape oil from sediment, clarification is used, then fine cleaning of rapeseed oil is carried out by filtration, diesel fuel is added to it at ratio of 2:1 and cavitation dispersion is performed for 30–40 minutes at 70 °C, Further, the quality of mixing is controlled; if the mixing is homogenous, the biodiesel fuel is delivered for storage, if non-homogenous, then it is additionally mixed. EFFECT: technical result is reduction of rapeseed oil coking rate, biofuel production cost and environmental hazard.1 cl, 1 dwg
WO2020208299	Neste Oyj (FI)	**Diesel fuel composition.** A diesel fuel composition comprising a fossil diesel component, a fatty acid methyl esters component, and a hydrotreated renewable paraffinic diesel component. A method for producing said diesel composition and use thereof. Use of the hydrotreated renewable paraffinic diesel component as an oxidation stability improver is further disclosed.

Nº Publicación	Solicitante (País)	Contenido técnico
US10815507	Technion Res & Dev Foundation (IL)	**Method for combined preparation of biodiesel.** The present invention provides, inter alia, a method for combined preparation of saccharides, alcohols (biofuel) and biodiesel using a composition comprising interior hydrophobic or hydrophilic medium encapsulated by a layer comprising cellulose, cellulose derivative material, and/or starch surrounded by a hydrophilic or hydrophobic medium, respectively.
AU2020102722	Univ Inner Mongolia Agri (CN)	**Preparation method of La-nano PO43-/ZrO2 solid acid catalyst for producing biodiesel.** The invention discloses a preparation method of biodiesel catalyst, which comprises the following steps: ZrCl4 powder and Lanthanum nitrate La(N03)3-6H20 dissolved in 100ml distilled water, stirred quickly for 30min, ammonia water added as precipitant, ph is kept as alkaline, Zr(OH)4 precipitation generated, aged for 24h, filtered and washed, and dried at 102°C; H3PO4 solution with a mass fraction of 85% is used as the macerating agent, which impregnated for 2h, then filtrated and removed, dried and injected with nitrogen, and calcined for 2h at a temperature of 400-800°C to obtain the catalyst of rare earth lanthanum (La) doped nano PO43-/ZrO2. In the present invention, the nano PO4 3-/ZrO2 catalyst is modified by using rare earth elements, and the functional components are uniformly dispersed into the zirconia grid structure to prepare the rare earth solid superacid catalyst with high catalytic performance and high stability, which increases the number of effective acidic sites of the catalyst, increases the number of active centers, improves the activity and selectivity of the catalyst, and solves the problems of the common solid acid catalyst's active components are easy to lose in the reaction, easy to deactivate under higher temperature and have low catalytic efficiency. -1/2 ZrCl4 powder and Lanthanum nitrate La(N03)3-6H 20 dissolved in distilled water, stirred quickly for 30min, ammonia water added as precipitant, ph is kept as alkaline, Zr(OH)4 precipitation generated, aged for 24h, filtered and washed, and dried at 102°C - - ~-SI02 H 3PO4 solution with a mass fraction of 85% is used as the macerating agent, which impregnated for 2h, then filtrated and removed, dried and injected with nitrogen, and calcined for 2h at a temperature of 400-800°C to obtain the catalyst ofrare earth lanthanum (La) doped nano PO42-/ZrO 2, packaged by a self-sealing bag, and stored into a dryer Figure 1 -S201 Adding methanol and catalyst of rare earth lanthanum (La) doped nano P 42-/ZrO 2 into xanthoceras sorbifolia seed oil, heating to 75°C in a water bath and reacting for 5h After the reaction, the catalyst of rare earth lanthanum (La) doped nano P 42-/ZrO2 is obtained by filtration, which is dried and preserved for later use Putting the filtrate into a separatory funnel for precipitation and stratification, recovering the glycerol in lower-layer, and after the crude product in upper-layer washed with distilled water, removing water by anhydrous sodium sulfate to obtain the pale yellow and clear Xanthoceras sorbifolia biodiesel biodiesel Figure 2
US2020377820	Univ King Fahd Pet & Minerals (SA)	**Efficient biomass carbon-based solid acid esterification catalyst for producing biodiesel.** A method for producing biodiesel using a sulfonated, carbonaceous catalyst produced from rice husk, Moringa seeds, or algae biomass, a method for producing the catalyst, and the catalyst itself.
US10829697	UOP LLC (US)	**Processes for producing a fuel from a renewable feedstock.** An apparatus and a process for providing a green diesel with improved flow properties. A renewable feed comprising an oil is deoxygenated to provide an effluent. The effluent may be isomerized to improve the qualities of the effluent for use as a diesel fuel. Additionally, the effluent may be filtered to increase the fuel flow properties. As filtration zone can be used, which includes a filter and which may be flushed with a portion of the feed stream to the filtration zone or a portion of filtration zone effluent. The wash stream may be heated.
WO2020232542	Valorbec Sec (CA)	**Carbon dots, methods of manufacture thereof, and uses thereof in the production of biofuel.** The present disclosure relates to carbon dots, uses thereof and methods of manufacture thereof. For example, such carbon dots can be used in the production of biofuels such as biodiesel. For example, these carbon dots can be used as catalysts in transesterification reactions. For example, these carbon dots can be glycine-citric acid carbon dots, amine-passivated carbon dots, or combinations thereof.

Bio-jet fuels

Nº Publicación	Solicitante (País)	Contenido técnico
AU2015340298	Battelle Memorial Institute (US)	**Systems and processes for conversion of ethylene feedstocks to hydrocarbon fuels.** Systems, processes, and catalysts are disclosed for obtaining fuel and fuel blends containing selected ratios of open-chain and closed-chain fuel-range hydrocarbons suitable for production of alternate fuels including gasolines, jet fuels, and diesel fuels. Fuel-range hydrocarbons may be derived from ethylene-containing feedstocks and ethanol-containing feedstocks.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020204993	Emerging Fuels Tech Inc (US)	**Stacked zone vertical tubular reactor.** A stacked zone vertical tubular reactor for conducting an exothermic reaction. The reactor may comprise two or more stacked catalyst zones in each reactor tube. Each reactor tube may contain internal feed and discharge tubes, transition zones comprising a catalyst support plate and a zone separator plate, and a heat transfer element located in each catalyst zone.
WO2020211973	Fehrenbach Sebastian (DE)	**System for producing jet fuel, diesel, and fertilizer from hydrocarbon-containing waste material.** The invention relates to a system for producing fertilizer from hydrocarbon-containing waste material, comprising a mixing device for receiving and mixing the hydrocarbon-containing waste material and comprising a circuit catalyst oil, said mixing device being connected to an evaporation device arranged downstream in order to evaporate a product mixture discharged from the mixing device and separate jet fuel or diesel oil. The invention is characterized in that a grinding device is connected to an outlet at the lower end of the evaporation device, wherein a non-evaporatable remainder, which is accumulated at the lower end, is ground out of the hydrocarbon-containing waste material and the circuit catalyst oil in said grinding device, and a separation container, in which the ground product is separated into the catalyst and the fertilizer, is connected to the evaporation device.
WO2020120843	Neste Oyj (FI)	**Blending of renewable fuels.** An aviation fuel composition is disclosed, comprising 50-95 vol-% of petroleum-derived jet fuel component, and 5-50 vol-% of renewable middle distillate component. The fuel composition has a viscosity of 12 mm2/s or below at -40°C, 10 mm2/s or below at -30°C, and 8 mm2/s or below at -20°C, as measured in accordance with an EN ISO 3104 (1996) standard. A method for producing the aviation fuel composition is also disclosed. The method comprises mixing the petroleum derived jet fuel component and the renewable middle distillate component to obtain the aviation fuel composition, such that the petroleum-derived jet fuel component and the renewable middle distillate component are mixed together in an amount comprising 5-50 vol-% of renewable middle distillate component and about 50-95 vol-% of petroleum-derived jet fuel component.
EP3342843	Neste Oyj (FI)	**Upgrading ketoacid.** The present invention relates to a method using a specific catalyst for upgrading ketoacid to intermediates for fuel and chemical industry, intermediates obtained by the method and to their use.
EP3301142	Neste Oyj (FI)	**Upgrading 5-nonanone**. Provided are fuel components, a method for producing fuel components, use of the fuel components and fuel containing the fuel components based on 5-nonanone.
RU2733388	Shell Int Research (NL)	**Methods for providing higher quality of kerosene-based liquid fuels for engines.** FIELD: fuel industry.SUBSTANCE: invention discloses a method of producing liquid propellant fuels suitable as rocket propellants of RP-1 or RP-2 grades, involving: providing the presence of a hydrocarbon kerosene component with a boiling point in range of 145 °C to 300 °C at atmospheric pressure, a flash point of at least 60 °C or higher, measured in accordance with ASTM D56, and density at 15 °C, of not more than 815 kg/m; providing a certain amount of a mixing component, which is a synthetic cycloparaffin kerosene fuel, containing at least 99.5 wt % carbon and hydrogen and at least 50 wt % cycloparaffins, wherein said mixing component, which is a cycloparaffin kerosene fuel, has a boiling point of not more than 300 °C at atmospheric pressure, a flash point, at least 38 °C, preferably at least 45 °C, preferably at least 50 °C, more preferably at least 55 °C, more preferably at least 60 °C, density at 15 °C, of at least 799 kg/m, and the freezing point component of –60 °C or below, and said synthetic cycloparaffin kerosene fuel produced from biomass; and mixing a certain amount of mixing component, which is a synthetic cycloparaffin kerosene fuel, and a hydrocarbon kerosene component in amount, of at least 1 vol %, providing a flash point of at least 60 °C and a boiling point of 274 °C or lower to obtain mixed liquid propellant.EFFECT: obtaining fuel of higher quality for reduction of harmful emissions into atmosphere.10 cl, 20 tbl, 6 ex, 5 dwg.

Nº Publicación	Solicitante (País)	Contenido técnico
EP3746527	Steeper Energy APS (DK)	**Process for upgrading oxygen containing renewable oil.** The invention relates to a process for producing an upgraded renewable oil from renewable carbonaceous material(-s) comprising providing an oxygen containing renewable crude oil having an oxygen content in the range of 3.0 to 20 % by weight, a water content of less than 1.5 wt. %, a total acid number in the range from 5 to 80 mg KOH/g, a fraction of the oil having a boiling point below than 350 °C of less than 70 % by weight, and a residue fraction having a boiling point of more than 450 °C of at least 10 %by weight, pressurisingthe oxygen containing renewable crude oil to an operational pressure in the range 60 to 200 bar; adding and mixing hydrogen to the pressurized oxygen containing renewable crude oil,contacting the pressurized mixture with at least one heterogeneous catalyst contained in a first reaction zone at a temperature of 260 to 350 °C having a weight based hourly space velocity (WHSV) in the range 0.1 to 1 h-1 so as to produce a partially hydrogenated and deoxygenated oil,separating water, gas and optionally a low boiling fraction from the partially hydrogenated and deoxygenatedoil from the first reaction zone, heating the partially hydrogenated and deoxygenated oil from the first reaction zone to a temperature in the range 350 to 400 °C,contacting the partially hydrogenated and deoxygenated oil with at least one heterogeneous catalysts in a second reaction zone at a temperature of 350 to 400 °C at weight based hourly space velocity (WHSV) in the range 0.1 to 1.5 h-1, separating the product from the second reaction zone into a at least a gas fraction, a water fraction, a low boiling point renewable liquid hydrocarbon fraction and a high boiling point renewable liquid hydrocarbon fraction, contacting the low boiling point fraction from the second reaction zone with hydrogen and one or more heterogeneous catalysts at a temperature in the range 350 to 390 °C in a third reaction zone having a weight based space velocity in the range 0.1 to 1 h-1, thereby producing a first product stream and contacting the high boiling point oil fraction with hydrogen and one or more heterogeneous catalysts at a temperature in the range 360-420 °C in a fourth reaction zone having a weight based space velocity in the range 0.1 to 1 h-1, thereby producing a second product stream.
EP3152186	W R Grace & Co – Conn (US)	**Method for catalytic deoxygenation of natural oils and greases.** A method for deoxygenating renewable oils comprised of natural oils or greases or derivatives thereof containing triglycerides or free fatty acids includes the steps of: providing a catalyst comprising a support predominantly comprised of alumina with metal compounds provided on the support based on Mo and at least one selected from the group consisting of Ni and Co, and at least one selected from the group consisting of Cu and Cr, and contacting the renewable oils with the catalyst under conditions sufficient to deoxygenate the renewable oils.

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

Nº Publicación	Solicitante (País)	Contenido técnico
EP3310879	ENI Spa (IT)	**Process for the production of bio-oil from biomass.** Process for the production of bio-oil from biomass comprising the following steps: (a) feeding a biomass to a liquefaction reactor, said biomass having a protein content higher than or equal to 1% by weight, preferably ranging from 5% by weight to 50% by weight, with respect to the weight (dry weight) of said biomass, a lipid content higher than or equal to 1% by weight, preferably ranging from 5% by weight to 60% by weight, with respect to the weight (dry weight) of said biomass, a pH higher than or equal to 4, preferably ranging from 4.5 to 10; (b) subjecting said biomass to liquefaction operating at a temperature ranging from 220°C to 350°C, preferably ranging from 230°C to 310°C, even more preferably ranging from 240°C to 300°C, at a pressure higher than the vapour pressure of water at the temperature in which said liquefaction is carried out, for a time ranging from 30 minutes to 300 minutes, preferably ranging from 50 minutes to 270 minutes, obtaining a mixture comprising an oily phase consisting of bio-oil, a solid phase, a gaseous phase and an aqueous phase. The bio-oil (or bio-crude) thus obtained can be advantageously used as such, or, after optional upgrading treatments, in the production of biofuels or biocombustibles that can, in turn, be used as such or in a mixture with other fuels, for motor vehicles. Or, said bio-oil (or bio-crude) can be used in a mixture with fossil fuels (fuel oil, coal, etc.) for the generation of electric energy or heat.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020234978	Eureka Eng Inc (JP)	**System for co-production of co2-free power and hydrogen from biomass.** A system for co-production of CO2-free power and hydrogen from biomass. The system has a power generation device and a hydrogen generation device. The power generation device comprises: a direct-heating gasification device that causes biomass that has been supplied from a biomass supply device to undergo a thermal decomposition/gasification reaction and thereby generates a directly gasified gas; and a heat and power co-supply device that generates heat and power using the directly gasified gas. The hydrogen generation device comprises: an indirect-heating gasification device that uses the combustion of a heating gas to indirectly heat steam and biomass-derived carbides that include an unreacted char-containing gasification residue from the thermal decomposition/gasification reaction and steam reforms the biomass-derived carbides to generate a hydrogen-rich gasified gas; a gas cooler that exchanges heat between the hydrogen-rich gasified gas and water to cool the hydrogen-rich gasified gas and to evaporate the water and supply steam to the indirect-heating gasification device; and a hydrogen separation device that separates hydrogen from the cooled hydrogen-rich gasified gas.
RU2733605	Federalnoe Gosudarstvennoe Byudzhetnoe Uchrezhdenie Nauki Institut Problem Khim Fiziki Rossijskoj Ak (RU)	**Method of producing synthetic gas or hydrogen by partial oxidation of fuel in cyclic multi-retort reactor and reactor for implementation thereof.** FIELD: chemistry. SUBSTANCE: invention relates to production of hydrogen or synthesis gas during processing of various fuels. Method of producing synthesis gas or hydrogen by partial oxidation of fuel, including: methane, propane, butane, liquid hydrocarbons, hydrogen sulphide, solid fuels, including biomass, solid hydrocarbons, coal, as well as their mixtures in a multi-reactor cyclic reactor includes: heating to high temperature of at least part of reactor chamber filled with solid porous material; feeding into the reactor two reagents - fuel and oxygen-containing gas - in insufficient amount of combustible for complete oxidation; reaction of fuel and oxygen-containing gas; installation of gas flow in reactor by supply of gaseous reagent in one part of reactor and discharge of gaseous reaction products in form of synthesis gas from other part of reactor; temperature measurement in reactor; gas flow switching in reactor, at which synthesis gas extraction in the part of reactor, in which solid porous material has been cooled by supply of gaseous reagent, is started, wherein reagents are fed into reactor separately: one of reagents, gaseous reagent - A - is supplied to one part of reactor, flow of reagent A is fed through layer of heated solid porous material, and second reagent - B - is fed into reactor downstream of gas flow and mixing reagent B and heated with heat exchange with solid porous material reagent A, and the reaction products stream in the form of synthesis gas is directed through a layer of solid porous material, wherein the process is carried out in a cyclic multi-reactor reactor, made in form of at least two cyclically connected retort volumes 1–4, mainly filled with solid porous material, equipped with locking devices 9, 9, 9, 9, covering and opening gas flow between retorts, where each retort 1–4 is equipped with devices for input of reagents and synthesis gas outlet; extraction of synthesis gas is carried out from a retort, gas flow from which is closed in the following by cycle retort, and during heating of solid porous material in retort, from which synthesis gas is extracted, flow switching is performed: opening the stream from the retort, from which the synthesis gas was extracted, into the next retort, shutting off the gas flow from the next retort into the next retort after it, synthesis gas is withdrawn from the next retort and reagents A and B are switched to one retort by cycle.EFFECT: process ensures high energy efficiency with minimum raw material consumption at continuous conversion of combustible raw material into synthesis gas and/or hydrogen.10 cl, 3 dwg.
WO2020191442	Hydrobe Pty Ltd (AU)	**Process and system for generating hydrogen.** Disclosed is a process and system for generating hydrogen from carbon dioxide. The process and system for generating a hydrogen gas stream from a carbon dioxide gas stream comprises converting a first waste carbon dioxide gas stream to an organic feedstock using an algal source in a photosynthesis step. The organic feedstock is then converted using an organism to the hydrogen gas stream and gaseous by-products in a biodecomposition step. The generated hydrogen gas may then be collected.
RO134504	Institutul Nat de Cercetare Dezvoltare Pentru Tehnologii Criogenice Si Izotopice Icsi Ramnicu Valcea (RO)	**Process for catalytic pyrolisis of biomass for preparing fuels.** The invention relates to a process for preparing a bio-fuel-type liquid product. According to the invention, the process consists of the two-stage catalytic pyrolysis of the residual biomass consisting of groats of minced rape with the particle size of 0.1...25 mm and a moisture of 5...10%, and of the vapours of pyrolysis products, in the presence of ZnO-Cr2O3 catalyst, in a Zn:Cr ratio of 10:1, deposited on aluminium oxide, at the temperature of 450...550°C, in a biomass : catalyst ratio of 1...3:1, at a pressure of up to 25 bar in the reactor, the solid/vapour separation of the pyrolysis product flow, wherefrom the solid fraction and the separated vapours are processed and used in the process and the liquid fraction is separated, to result in an aqueous fraction and a liquid product of catalytic bio-oil type having a content of 48.36 % carbon, 6.68% hydrogen, 9.18% oxygen, which is subjected to further refining so as to be converted into bio-fuel.

Nº Publicación	Solicitante (País)	Contenido técnico
RU2737155	LLC Bioenergy (RU)	**Apparatus for processing hydrocarbon biomass to obtain hydrogen-containing gases with high energy potential.** FIELD: gas industry. SUBSTANCE: invention relates to production of hydrogen-containing gases with high energy potential from solid hydrocarbon biomass and can be used in power engineering. Plant for producing hydrogen-containing gases from hydrocarbon biomass comprises a fluidized bed reactor 1 for converting carbon with a hydrogen supply pipeline 6 to consumers, fluidized bed reactor 2 for decomposition of calcium carbonate CaCO3with carbon dioxide supply pipeline 7 to consumers, cyclone 12 with hot air supply pipeline 8 with oxygen shortage to consumers and reactor 3 for oxidation of iron oxide FeO. Fluid bed reactor 1 for carbon conversion has superheated steam supply pipe 4, CaO calcium loading supplement channel 25, channel 11 for removal of waste calcium oxide CaO and ash. Reactor of boiling layer 2 is connected by top 37 and bottom 38 overflows with reactor of boiling layer 1 and has channel 9 of additional loading of calcium carbonate CaCO3and hematite Fe2O3and channel 10 for removal of spent calcium carbonate CaCO3and hematite Fe2O3. Reactor 3 for oxidation of iron oxide FeO has compressed hot air supply pipeline 5 and is connected by bottom linear overflow 39 with fluidized bed reactor 2 for decomposition of calcium carbonate CaCO3, and upper linear overflow 40 with cyclone 12, which is connected to reactor of boiling layer 2. Pyrolysis furnace 14 is additionally installed in the plant, which contains furnace 16 with combustion products combustion products outlet channel 18, inclined prechamber 36, retort 13 for pyrolysis of hydrocarbon biomass with pyrolysis gas discharge channel to consumers 19. Retort for pyrolysis of hydrocarbon biomass has superheater 26 with pipeline of wet steam supply to overheating and internal burner for pyrolysis gas combustion in furnace, wherein superheater is connected to superheated steam supply pipe to fluidized bed reactor for carbon conversion and boiling bed reactor for decomposition of calcium carbonate CaCO3, as well as external burner 21 with blowing fan 22 and air heater of compressed air 28, connected to compressed air pump 23, which is connected to atmospheric air suction channel 24, note here that compressed air heater is communicated via compressed air feed pipeline with FeO oxidation furnace. EFFECT: reduced costs when producing hydrogen-containing gases.1 cl, 1 dwg
AU2019268408	Renergi Pty Ltd (AU)	**Method of and system for reactive distillation of bio-crudes.** The present disclosure provides a method of and a system for the reactive distillation of bio-crude formed through the heat treatment of carbonaceous feedstock comprising biomass. The bio-crude is firstly heated up under elevated pressures. The partial pressures of the species derived from the chemical reactions of the bio-crude are then reduced to cause the distillation of the bio-crude to form different fractions. The reactive distillation can be integrated with the further upgrading and utilisation of the bio-crude. Two examples are given for the integration of the reactive distillation of bio-crude with the hydrotreatment or reforming of the bio-crude.
WO2020226559	Suncarbon AB (SE)	**A method for producing a low ash content biofuel mixture comprising tall oil pitch and lignin and use of the biofuel mixture in a petroleum refinery.** A method for producing a low ash content biofuel mixture comprising tall oil pitch (TOP) and lignin for use as a renewable feedstock in a petroleum refinery. The method comprises the following steps: - providing a stream of purified TOP with an ash content below 0.1 %; - providing a stream of organosolv lignin, hydrolytic lignin, or purified kraft lignin, said lignin having an ash content below about 0.1 %, wherein the lignin has been purified by at least one of acid refining with an acid, solvent extraction, or solvent dissolution to remove ash from the lignin to a level below 0.1 %; - dissolving the purified lignin in an organic solvent; - mixing the lignin, having an ash content below about 0.1 % and being dissolved in an organic solvent, a surfactant, and the purified TOP in a reactor followed by evaporation of the organic solvent upon heating; and - discharging a pumpable and substantially homogeneous low ash biofuel mixture comprising TOP and lignin from the reactor.
US2020308500	Univ Western Ontario (CA)	**Hydrothermal liquefaction of lignocellulosic biomass to bio-oils with controlled molecular weights.** The disclosed invention is a process for liquefaction of hydrolysis residue of lignocellulosic biomass, original lignocellulosic biomass or municipal solid waste in alcohol-water media at alkaline conditions, for the production of low-Mw bio-oils. The disclosed process is characterized in that it works for the direct liquefaction of the biomass, and operates under mild conditions (<300° C. and <10 MPa) employing alkali compounds as catalysts (NaOH, KOH, CaO, Na2CO3, K2CO3, Ca(OH)2 or Ba(OH)2). The process is further characterized in that it employs mixed solvents (glycerol-water, ethylene-glycol, water, glycerol-alcohol-water or ethylene-glycol-alcohol water), where all solvents are recyclable and reusable. The low-Mw bio-oils from hydrolysis residue of lignocellulosic biomass, original lignocellulosic biomass or municipal solid waste can be utilized as a liquid bio-fuel or bio-based chemicals for the production of various bio-based materials.

Nº Publicación	Solicitante (País)	Contenido técnico
EP3307853	Vertimass LLC (US)	**Systems and methods for reducing resource consumption in production of alcohol fuel by conversion to hydrocarbon fuels.** Systems and methods are presented that reduce energy and water consumption in processes for producing fuel from renewable alcohol-containing feedstreams. Alcohol content is converted directly to hydrocarbon transport fuels in a catalytic process, with heat transferred between intermediate process streams to reduce heat energy consumption. Overall water consumption is reduced by recovery of water from the catalytic process and reduction of water temperature to reduce evaporative losses.

PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)

Biocomposites y biofibras

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020195909	Daio Seishi KK (JP)	**Fibrous cellulose composite resin, method for producing same, and resin-reinforcing material.** To provide a fibrous cellulose composite resin having exceptional strength, a method for producing the same, and a resin-reinforcing material having an exceptional resin-reinforcing effect even if dried. [Solution] This fibrous cellulose composite resin includes a resin and a mixture of fibrous cellulose and a dispersant. Some or all of the fibrous cellulose includes fine fibers. The dispersant is a carboxylic acid and/or a glycerin. The average particle size of the mixture is 500 μm or less. To obtain the composite resin: the dispersant is mixed with a slurry of fibrous cellulose to form a mixture; the mixture is dried and crushed to form a powder, which is then kneaded with the resin; fine fibers are used as some or all of the fibrous cellulose; a carboxylic acid and/or a glycerin is used as the dispersant; and the powder is crushed to an average particle size of 500 μm or less.
US2020362378	Dvorak Stephen W 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.
WO2020196800	Furukawa Electric Co Ltd (JP)	**Organic-fiber-reinforced resin molding and method for manufacturing same.** The present invention provides: an organic-fiber-reinforced resin molding containing a resin and cellulose fibers, wherein the density of the resin molding is 0.65 g/cm3 or less; and a method for manufacturing the organic-fiber-reinforced resin molding.
AU2018428229	Jiangsu Goldsun Textile Science and Technology Co Ltd (CN)	**Method for preparing regenerated cellulose fiber dyeable with natural dye.** Disclosed is a method for preparing a regenerated cellulose fiber which is dyeable with a natural dye, comprising firstly adding a chitosan solution to a viscose spinning solution to prepare a viscose spinning solution-chitosan mixed solution, then adding a tannic acid solution, mixing and then fully reacting same, and finally subjecting the resulting tannic acid viscose spinning solution to wet spinning so as to prepare the regenerated cellulose fiber which is dyeable with a natural dye. After dyeing the prepared regenerated cellulose fiber with a natural dye, yarns or fabrics prepared with the fiber have better various color fastnesses, and can satisfy production and apparel use requirements.
WO2020230631	Kubota KK (JP)	**Silica-carbon composite material and method for producing same.** Provided are: a silica-carbon composite material capable of improving compatibility between silica and a rubber material without the use of a silane coupling agent while sufficiently exhibiting the properties of carbon and silica; and a method for producing the same. The silica carbon composite material includes a silicicolous plant-derived biomass as a starting material and contains a composite of an amorphous silica and a carbon porous body.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020218280	Mitsubishi Gas Chemical Co (JP)	**Composition, and method for producing cellulose fibers.** Provided is a cellulose solution (composition) configured such that cellulose decomposition tends not to progress even when subjected to heating. Also provided is a method for producing cellulose fibers having excellent mechanical strength. The composition contains cellulose and a compound represented by formula, and also contains 1-methylimidazolium chloride at a concentration of 300 ppm or less in terms of mass, in relation to the compound represented by formula. In formula R is a C2-6 alkyl group and Me is a methyl group.
WO2020241680	Oji Holdings Corp (JP)	**Fibrous cellulose, fibrous cellulose dispersion liquid, and fibrous cellulose production method.** The present invention addresses the problem of providing a microfibrous cellulose capable of exhibiting excellent coating suitability when added to a paint. The present invention pertains to a fibrous cellulose having a fiber width of at most 1,000 nm, wherein when the fibrous cellulose is dispersed in a dispersion solvent containing water and isopropanol to obtain a dispersion liquid having a mass ratio of water to isopropanol of 7:3 and a viscosity at 23°C of 2,500 mPa·s, and the dispersion liquid is stirred under predetermined stirring conditions, a viscosity change rate calculated by the following expression is within ±50%. Viscosity change rate (%)=(viscosity after stirring-viscosity before stirring)/viscosity before stirring×100.
EP3718725	Son Keunsoo (KR)	**Method for preparing natural fiber composite material for injection molding by using convergent nozzle heating jig.** The present invention relates to a manufacturing method of a natural fiber composite material for injection molding using a reduced nozzle heating jig, and particularly, to a manufacturing method of a natural fiber composite material for injection molding using a reduced nozzle heating jig, which is configured to include: combining natural fibers and synthetic fibers (S1); heat-pressing the combined ply yarn while passing through a reduced nozzle heating jig 100 and melting and pressing the synthetic fibers and fusing the synthetic fibers to the natural fibers (S2); and palletizing the mixed ply yarn (S3).
EP3741247	Swatch Group Res & Dev Ltd (CH)	**Piece of jewellery made from natural elastomer material.** A piece of jewellery made of a natural elastomer composite material, wherein the natural elastomer composite material includes a natural elastomer matrix wherein between 0% and 6% cellulose fibres, between 0 and 5% anti-odour agents, and between 0 and 30% silica are dispersed.
AU2020102256	Zhejiang Academy Forestry (CN)	**Method for preparing cultivation-specific foamed substrate material and cultivation method.** The present invention relates to the field of plant cultivation. The present invention provides the following technical solution: a method for preparing a cultivation-specific foamed substrate material, including the following steps: 1) preparation of a resin produced from biomass liquefaction: A. preparation of the following raw materials, in parts by weight: 100 parts of raw biomass material, 30 to 90 parts of composite liquefacient, 15 to 25 parts of liquefaction catalyst, 20 to 40 parts of alkaline catalyst, and 40 to 80 parts of formaldehyde; B. heating a reactor to 60°C, adding the composite liquefacient, raw biomass material and liquefaction catalyst, and stirring at a constant speed; heating to 120°C to 130°C and conducting reaction at this temperature for 10 min to 30 min; stopping the reaction and cooling to 60°C; adding the alkaline catalyst to adjust the PH to alkaline; adding formaldehyde, heating to 85°C to 95°C, and conducting reaction at this temperature for 20 min to 30 min; and stopping the reaction, and cooling to 60°C to obtain a resin produced from biomass liquefaction; and 2) preparation of a cultivation-specific foamed substrate material. The substrate material obtained by this method is environmentally friendly.

Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
EP3728394	Bio Valore World Spa Soc Benefit (IT)	**Method to prepare branched polymers of lactic acid.** A method to prepare a polylactic acid-based polymer; the method comprises : - a mixing step, during which lactide monomers, at least one polymerization catalyst and natural origin reactants are mixed together; - a polymerization step, during which the mixture obtained from the previous mixing step is heated at a temperature ranging from 120 to 220°C in inert atmosphere; and - a cooling step, during which a polymer mass obtained from said polymerization step is cooled down. The natural origin reactants are: (i) a first compound with general formula (I) wherein n ranges from 1 to 20 (ii) a second compound chosen among citric acid, malic acid and derivatives thereof with the carboxylic groups partially or completely in the form of ester or anhydride and with the hydroxyl groups partially or completely in the form of ester.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020206067	Consejo Nacional de Investigaciones Cientificas y Tecn et al. (AR)	**Bioabsorbable membrane for tissue regeneration and process for preparing the same.** A bioabsorbable membrane for tissue regeneration comprising: poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV), polyvinylpyrrolidone-vinyl acetate (PVP) and poly(lactide-co-glycolide (PLGA). The membrane comprises from 65 to 80 wt% of poly(3-hydroxybutyrate-co-3-hydroxyvalerate) (PHBV), from 4 to 15 wt% of polyvinylpyrrolidone-vinyl acetate (PVP) copolymer and from 0.5 to 10 wt% of poly(lactide-co-glycolide (PLGA) and from 4 to 10 wt% of a surfactant.
WO2020198656	Corumat Inc (US)	**Multilayer microcellular compostable bioplastics and their method of manufacture.** The present invention provides a continuous process for solid-state expansion of a biopolymer, e.g., polylactic acid, which can be used to manufacture reduced-density thermoplastic materials with improved physical and thermal properties. By incorporating multiple stages of heating into the process as a means to regulate heat flux, unprecedented control of microstructure and crystallinity can be achieved. Thermoplastic sheets with the distinct cellular characteristics imparted by the process disclosed herein were found to be thicker and stronger than materials prepared by conventional processes. Thermoforming sheets with such characteristics enabled the production of light-weight, thermally-stable, compostable products that resist warping, and are thus suitable for a range of industrial applications.
EP3741840	Kaneka Corp (JP)	**Transformed microorganism for producing pha copolymer comprising 3HH monomer unit at high composition rate and method for producing PHA using same.** The present application provides: a transformed microorganism for producing a PHA copolymer containing 3HH monomer unit at a higher composition ratio, specifically, a transformed microorganism comprising a PHA synthase gene capable of synthesizing a PHA copolymer containing 3HH monomer unit and a gene encoding a protein having (R)-specific enoyl-CoA hydratase activity, characterized in that, in the transformed microorganism, the expression of a gene encoding at least one ß-ketothiolase enzyme having thiolysis activity for ß-keto-(C6) acyl-CoA (i.e., ß-ketohexanoyl-CoA) is inhibited, thereby losing or reducing the enzyme activity; and a method for producing a PHA copolymer containing 3HH monomer unit, comprising a step of culturing the transformed microorganism.
WO2020238269	Nanjing Quankai Res Institute of Biomaterials Co Ltd et al. (CN)	**Processing method for catalyzing lactide ring-opening polymerization.** Disclosed in the present patent is a processing method for catalyzing lactide ring-opening polymerization. The present processing method uses zinc trifluoroacetate (TFAA) as the catalyst, uses an alcohol substance as an initiator or does not use an initiator, and uses a lactide as a monomer for bulk polymerization under a temperature from 110°C to 220°C, thereby preparing and obtaining a high-quality polylactic acid (PLA). The present invention uses a green zinc-type catalyst, has high activity, and requires a small amount. The synthesized PLA has a good color and an average molecular weight, Mw, of 1.29x104 to 7.34x105. The use of bulk polymerization allows for high practicality.
WO2020217917	Ricoh Co Ltd et al. (JP)	**Polylactic acid composition, method for producing the same, and produced product.** To provide a polylactic acid composition including: polylactic acid; and a filler, wherein an amount of the filler in the polylactic acid composition is 50% by mass or less, and the polylactic acid in the polylactic acid composition has a weight average molecular weight (Mw) of 150,000 or more and a molecular weight distribution (Mn/Mw) of 1.5 or more but 2.0 or less.
GB2583487	Tipa Corp Ltd (IL)	**Biodegradable sheets.** The sheet comprises outer layers of polybutylene succinate (PBS) or polybutylene succinate adipate (PBSA), and at least one inner layer. The inner layer comprises 70-80 wt.% polylactic acid (PLA) and 20-30 wt.% poly-ε-caprolactone (PCL). The outer layers are preferably both either 100% PBS or 100% PBSA. The sheet is preferably produced by cast extrusion, blown extrusion or coextrusion. The sheet is used in environmentally friendly packaging.
WO2020223282	Xyleco Inc (US)	**Polymeric compositions comprising polylactic acid (pla) and copolymers thereof.** In various embodiments, the present invention provides polymeric compositions that combine polylactic acid (PLA) (or heteropolymers of lactic acid) with additives (organic or inorganic), such as elastomeric additives and/or co-polymer additives. Such polymeric blends may exhibit improved mechanical properties and/or degradation rates compared to PLA homo-polymer (or a lactic acid heteropolymer).
WO2020223335	Xyleco Inc (US)	**Bio-based ethylene for the production of bio-based polymers, copolymers, and other bio-based chemical compounds.** Bio-based ethanol, such as ethanol produced from lignocellulosic materials, for example, is processed to produce bio-based ethylene, which can then be processed further to produce other bio-based materials including bio-based polymers and copolymers, including bio-based polyethylene, bio-based α-olefins, bio-based 1,2-diols, as well as other compounds.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020226590	Yildiz Teknik Univ (TR)	**Method of producing bioplastic granules from olive pit waste (PRINA).** More specifically, the invention relates to a method for producing bioplastic granules comprising the steps of subjecting olive pit waste from olive oil factories to two different chemical shredding processes, extracting the necessary material for bioplastic production from the shredded olive pit waste and adding natural polymerizer form holders into it.

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

Biofertilizantes, bioadhesivos y biocosméticos

Nº Publicación	Solicitante (País)	Contenido técnico
EP3737513	Agri Tech Organic Solutions Ltd (GB)	**A soil remediant and its method of production.** There is disclosed a method of producing a soil remediant from liquid organic waste material in which the liquid organic waste material is concurrently pasteurised and digested by thermophilic aerobic digestion in the liquid phase in a single digester vessel. The organic waste material in the digester is maintained continuously at a temperature of at least 70°C for at least an hour and the -liquid organic waste material comprises at least 70% water and can be pumped. After a period of at least an hour a small amount of pasteurised organic waste material is removed and a corresponding amount of fresh organic waste material is added to the single digester vessel such that the temperature is maintained in a comfort zone of the thermophilic bacteria. In a preferred embodiment the thermophilic aerobic digestion is facilitated by micro-organisms including crenarchaeota. The liquid organic waste material can be combined with a microporous adsorbent. Also disclosed is a soil remediant comprising a microporous adsorbent and liquid organic waste material from the novel method. The microporous adsorbent may be a volcaniclastic sedimentary rock or diatomite or of vegetable origin such as biochar. The microporous adsorbent may be a powder or a granular material and may have particle sizes up to 2000 microns.
RO134505	ICPE (RO)	**Eco-friendly emulsion for machining by chip removal and process for preparing the same.** The invention relates to an eco-friendly emulsion for lubrication and cooling of metal surfaces machined by chip removal, which is made exclusively of natural renewable materials, and to a process for preparing the same. According to the invention, the emulsion consists of a mixture comprising the following components: aqueous extract of soya seeds 8...15 mass units, wild chestnut tree seeds 2...4 mass units, soapwort radix with stems and leaves 12...15 mass units, all of them with a moisture content of less than 20%, ivy leaves 8...15 mass units, with a moisture content of less than 15% and beech wood ash 8...10 mass unit, with a viscosity of less than 2 mPa.s, at temperatures ranging between 10...90°C and a surface pressure of more than 30 mN/m. The process, as claimed by the invention, comprises the following stages: progressive heating of a mixture of 62...41 parts by mass of water and vegetal fractions minced with a chopper up to fractions of 1.5...2.5 mm, in a reactor with enameled internal surface, with 0.5...1.1°C/min, up to a temperature of 97... 105°C which is maintained for 3...5 h, while stirring at 10...15 rpm, the mixture consisting of 8...15 mass units of soya seeds, 2...4 mass units of wild chestnut tree seeds, 12...15 mass units of soapwort radix with stems and leaves, all of them with a moisture content of less than 20%, harvested in the second or third vegetation year, during the month of September - October, 8...15 mass units of ivy leaves, with a moisture content of less than 15% and 8...10 mass units of beech wood ash, and, after the cooling of the reactor to a temperature of less than 35°C, the extract suspension is filtered through a filtering press or a bag filter, at pressures ranging between 5...15 bar, the liquid phase resulting therefrom as a finished product being packaged in polyethylene vessels, while the solid phase may be used in agriculture as natural fertilizer.
WO2020237330	Innovar Automatizacao Imp e Exportacao Ltda (BR)	**Machine and process of fermentation for the growth of microorganisms intended for manufacturing biological products.** The present invention defines a machine along with a process for the fermentation and multiplication of microorganisms using conditions, management and a process that ensure biosafety. Said machine and respective process allow for the controlled fermentation of fungi, bacteria and yeasts for manufacturing biofertilizers, biopesticides and agricultural biological products. The equipment and production process are suitable and specific for manufacturing biofertilizers and biopesticides as sustainable agricultural products. Using the machine and inherent process, it is possible to produce the aforementioned products directly on farms, ensuring the right to cultivate and multiply biological products, whether singly or not, very close to or at the actual application site, with proven and traceable agricultural references, significantly reducing the costs of management and of pest and pathogen control.

Nº Publicación	Solicitante (País)	Contenido técnico
US2020323219	JH Biotech Inc (US)	**Biological fungicide composed by plant extracts.** The invention describes a natural fungicide which comprises gallnut and myrobalan extracts which exhibit a synergistic effect against Alternaria brassicicola, and can be used to control crop fungal diseases. The formulation is a pollution-free microbicide that is degradable and friendly to farm worker, creatures and environment.
WO2020209823	Kovalenkov Sergiy (UA)	**A construction compound with a natural binder.** A construction compound comprising inorganic binders or a reaction products of an inorganic and organic binder, such as bentonite and / or metakaolin, aiming to obtain environmentally friendly construction materials.
WO2020234794	Machhar Arvind (IN)	**Topical hair composition.** The present invention relates to synergistic balanced herbal composition for hair care, hair loss treatment or revitalization comprising Pisum Sativum, Azadirachta indica, Ziziphus mauritiana, Allium cepa, Elettaria cardamomum, Centella asiatica, Allium Sativum, Convolvulus pluricaulis, Eclipta prostrata, Citrous raticulata optionally along with one or more pharmaceutically acceptable naturally derived carriers or additives. The present invention is highly beneficial by preventing hair fall and greying of hair. The present invention also improves the quantity and texture of hair by making them smooth and silky.
WO2020195864	Nitto Denko Corp (JP)	**Pressure-sensitive adhesive sheet.** Provided is a pressure-sensitive adhesive sheet having good workability, the pressure-sensitive adhesive sheet as a whole having reduced dependency on fossil resources. This pressure-sensitive adhesive sheet is provided with a substrate layer containing a polyester resin and a pressure-sensitive adhesive layer disposed on at least one surface of the substrate layer. At least 50% of the total carbon contained in the pressure-sensitive adhesive layer is biomass-derived carbon. Moreover, the polyester resin contains biomass-derived carbon.
WO2020216978	Probelte SAU (ES)	**Liquid biofertiliser which comprises azospirillum brasilense and pantoea dispersa strains and method for obtaining same.** A liquid biofertiliser which comprises Azospirillum brasilense CECT 5802 and Pantoea dispersa CECT 5801 strains. A method for stimulating plant growth, which comprises applying said liquid biofertiliser to said plant. A method for obtaining a liquid biofertiliser, which comprises culturing said strains in first liquid culture mediums and adding the culture broths obtained to a second liquid culture medium.
WO2020195469	Sakata Inx Corp (JP)	**Active energy ray-curable ink composition, method for producing same, and method for producing printed matter in which same is used.** To provide an active energy ray-curable ink composition which has an increased content of a biomass-derived raw material and contains a material, such as a rosin-modified phenolic resin, having high pigment dispersibility. [Solution] This active energy ray-curable ink composition contains a compound having an ethylenically unsaturated bond, a specific resin, and a specific liquid component. The specific resin is at least one selected from the group consisting of rosin-modified phenolic resins, rosin-modified maleic acid resins, rosin-modified alkyd resins, gilsonite resins, and asphalt resins. The specific liquid component is an animal- or plant-derived fat/oil or a modified product thereof which has no ethylenically unsaturated bond and has a solubility parameter sp value (hereinafter referred to as sp value) of 9.0 (cal/cm3)1/2 or more and less than 11.0 (cal/cm3)1/2 as determined by the cloud-point titration method.
WO2020230034	Stora Enso Oyj (FI)	**Use of bonding resin.** The present invention relates to the use of a bonding resin prepared by providing an aqueous solution comprising at least one biobased product selected from tannin, starch, soy protein, glycerol, chitin, pectin, dextrose or other carbohydrates, or a mixture thereof and mixing the aqueous solution with one or more of certain crosslinkers such as ethers, and optionally one or more additives. The bonding resin is used in the manufacture of laminates, mineral wool insulation or wood products, such as engineered wood products, such as plywood, oriented strandboard (OSB), laminated veneer lumber (LVL), medium density fiberboards (MDF), high density fiberboards (HDF) or particle boards. Preferably, the bonding resin does not comprise lignin.

Biofarmaceúticos		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2020227816	Anomera Inc (CA)	**Porous cellulose microparticles and methods of manufacture thereof.** Porous cellulose microparticles and their use in, inter alias, cosmetic and pharmaceutic preparations are provided. These microparticles comprise cellulose I nanocrystals aggregated together, thus forming the microparticles, and arranged around cavities in the microparticles, thus defining pores in the microparticles. A method of for producing these microparticles is also provided. It involves mixing a suspension of cellulose I nanocrystals with an emulsion of a porogen to produce a mixture comprising a continuous liquid phase in which droplets of the porogen are dispersed and in which the nanocrystals of cellulose I are suspended; spray-drying the mixture to produce microparticles; and if the porogen has not sufficiently evaporated during spray-drying to form pores in the microparticles, evaporating the porogen or leaching the porogen out of the microparticles to form pores in the microparticles.
EP3738435	Atina Ind e Comercio de Ativos Naturais Ltda (BR)	**Process for extracting gluco-oligosaccharide from the babassu mesocarp flour from orbignya phalerata, gluco-oligosaccharide extracted by said process and use of the gluco-oligosaccharide.** The present invention refers to a process for extracting a white and highly crystalline gluco-oligosaccharide from the crude flour of the mesocarp of the fruits of palm trees of the genus Orbignya spp. Further, the present invention relates to a white gluco-oligosaccharide with high crystallinity and high Amylopectin content extracted by said process for use in the cosmetic, pharmaceutical, dermocosmetic and nutraceutical areas, and the extracted gluco-oligosaccharide of the present invention comprises a high oil adsorption capacity and, by promoting a matte effect, in addition to its white color, it does not influence the final color of the product being applied.
WO2020230011	Buonamici Guglielmo (IT)	**Human nutraceutical supplement.** A nutraceutical supplement is provided comprising extracts of Muira puama, Turnera aphrodisiaca, Epimedium, Bury coma longifolia, Glycine max, Triticum turgidum, Butea frondosa, Vaccinium myrtillus, Polygonum cuspidatum, and Vitis vinifera.
WO2020229977	Comet Biorefining Inc (CA)	**Materials and methods for producing arabinoxylan compositions.** This document provides compositions containing arabinoxylan, methods for making compositions containing arabinoxylan, and methods for using compositions containing arabinoxylan as, for example, a food ingredient, dietary supplement ingredient, or pharmaceutical ingredient. In particular, the document discloses the use of lignocellulosic biomass with water at temperatures and pressures to provide the disclosed products.
US2020316016	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.
EP3728439	Fine Organic Ind Ltd (IN)	**Applications of an ester additive from bioderived raw materials.** An ester additive prepared from diol and dicarboxylic acid or fatty acid wherein the diol and dicarboxylic acid or fatty acid are bioderived and the ester is used as a slip and/or antiblocking agent and/or lubricant in moulded synthetic articles from polyvinylchloride, styrenics, thermoplastic elastomers, polyolefins and engineering plastics; in cosmetic compositions; in nutraceutical compositions and as food emulsifiers.
EP3744312	Hopitaux Paris Assist Publique et al. (FR)	**Green tea catechins eutectic system.** The present invention concerns a stable liquid eutectic system of an active ingredient chosen from catechins, anthocyanins, and procyanidins, and pharmaceutical, dermo-cosmetic or nutraceutical compositions comprising said eutectic system.
EP3741354	Nature Costech Co Ltd (KR)	**Sunscreen agent comprising cellulose nanofibers.** The present invention relates to a sunscreen agent comprising cellulose nanofibers, and discloses a use of cellulose nanofibers having a UV blocking effect as a sunscreen agent. The cellulose nanofibers according to the present invention is an organic sunscreen agent derived from natural plants, and has a UV scattering mechanism, which is a sunscreen mechanism of an inorganic sunscreen agent, and thus has characteristics that are harmless to the human body or skin. Therefore, it may be applied as a sunscreen cosmetic, and is preferably used as a biomaterial for an additive in a synthetic resin composition such as a pharmaceutical composition for skin, a film and the like.
US2020375880	Plant Advanced Tech Pat (FR)	**Plant extracts from the tagetes genus and uses of same.** An extract of plants from the Tagetes genus enriched with leontopodic acid B, a method for preparing the extract, a cosmetic composition, a nutraceutical composition, and a pharmaceutical composition, where the compositions includes, as the active agent, at least one extract of plants from the Tagetes genus. A method of using the extract as a drug for preventing and/or treating a neurodegenerative disease, including Alzheimer's disease. A cosmetic composition including the extract.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020212961	Probiotical Spa (IT)	**Method for preparing a biomass of stable freeze-dried bacterial cells and determining the stability thereof by means of a cytofluorometry method.** A method for preparing a biomass of freeze-dried bacterial cells, comprising the following steps: (i) fermenting a previously prepared biomass of bacterial cells (bacterial biomass) comprising at least one strain of bacterial cells to obtain a biomass of fermented bacterial cells (fermented biomass); (ii) concentrating the fermented biomass obtained from step (i) up to obtaining a biomass of concentrated bacterial cells (concentrated biomass) having a bacterial cell concentration comprised from 1x106 cells/ml of liquid biomass to 1x1012 cells/ml of liquid biomass; (iii) mixing the concentrated biomass obtained from step (ii) with a solution comprising or, alternatively, consisting of: (a) at least one phosphorous salt selected from among the group comprising or, alternatively, consisting of a phosphate ion salt or phosphoric acid, a phosphite ion salt or phosphorous acid, a monohydrogen phosphate ion salt, a dihydrogen phosphate ion salt, a pyrophosphate ion salt or pyrophosphoric acid, and the mixtures thereof, and (b) at least one polyhydroxy substance selected from among the group comprising or, alternatively, consisting of sucrose, fructose, lactose, lactitol, trehalose or mannitol, and the mixtures thereof, to obtain a cryoprotected biomass of bacterial cells (cryoprotected biomass); (iv) freeze-drying the cryoprotected biomass obtained from step (iii) to obtain a biomass of freeze-dried bacterial cells (freeze-dried biomass). The invention further regards a freeze-dried biomass obtained by means of the previous method, and a pharmaceutical composition, or medical device composition, or a cosmetic use composition, or food supplement composition or composition for a food product or food for special medical purposes (FSMP) composition comprising the aforementioned freeze-dried biomass.

Bioaditivos alimentarios		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2020208548	Agronomique Inst Nat Rech (FR) et al.	**Texturized food products containing insoluble particles and methods for making such food products.** A meat analogue may include a set protein emulsion, the protein emulsion having a protein and at least one insoluble particle. In some embodiments, at least a portion of the particle can include at least one mineral material selected from the group consisting of silicium, and calcium, such as one or more of rhombohedral calcite, scalenohedral calcite, silicon dioxide, and magnesium oxide; at least one organic material selected from the group consisting of a bone meal, a cartilage meal, a ground crustacean shell, a ground sea fish shell, and a ground egg shell; and/or a gelled vegetable gum, a gelled hydrocolloid, a polymerized vegetable gum, a polymerized hydrocolloid, or a mixture thereof. The meat analogue can be made by extruding the protein emulsion and cooling the extruded emulsion. The meat analogue can be cut into chunks and/or added to another comestible composition such as a gravy or broth.
WO2020203765	Daiwa Can Co Ltd (JP)	**Method for producing soft food and food composition.** The present invention enables production of soft food having a complicated appearance, taste, aroma, or texture. The present invention provides a food composition for producing three-dimensional additively manufactured or extrusion molded soft food. The food composition contains first food that is reversibly liquefied by heating and second food that is mixed with the first food and is irreversibly solidified by heating. After heating to a temperature at which the second food is irreversibly solidified, the food composition has flowability at a first temperature and is solidified by cooling from the first temperature to a second temperature that is lower than the first temperature.
WO2020196322	Dupont Nutrition Biosci APS (DK) et al.	**Thickening composition.** The present invention provides a composition for providing thickness to foods and drinks and improving swallowability for foods and drinks. More specifically, the present invention is a composition comprising a first thickener and a second thickener for providing thickness to foods and drinks and improving swallowability for foods and drinks, wherein the first thickener shows pseudoplasticity at the shear rate from 1 to 100S-1, the second thickener shows Newtonian viscosity at the shear rate from 1 to 100S-1, and the thickeneing effect when the first and the second thickeners are used in combination in an equal amount is equal to or less than an additive level of the thickening effect when each were used alone.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020221273	Guangdong Wenbang Biotechnology Co Ltd et al. (CN)	**Modified soybean fibre and high-performance composite gel prepared using synergy of same with gellan gum.** A modified soybean fibre and a high-performance composite gel prepared using synergy of same with gellan gum, relating to the technical field of food processing. Crushing dried bean dregs, sieving, and mixing with water, boiling the obtained mixed system at a pH of 10-12 and a temperature of 105-120 , then stirring at a pH of 10-12 and a temperature of 40-60 , centrifuging the obtained dispersion to collect the precipitate, re-dissolving the precipitate in water, adjusting the pH to neutral, centrifuging, and spray drying the obtained precipitate to obtain modified soybean fibre. Adding modified soybean fiber and gellan gum to water, shearing and stirring to mix uniformly, and thereby obtaining high-performance composite gel. The modified soybean fibre and gellan gum form the high-performance composite gel by means of the action of synergy, the gel strength, hardness, elasticity, and water retention of the composite gel being significantly improved.
WO2020220164	Joincare Pharmaceutical Group Ind Co Ltd et al. (CN)	**Food compound and preparation method therefor and use thereof, and nutritional food.** Disclosed is a food compound, which is prepared from the following raw materials in parts by weight: 0.9 to 21.8 parts of pectin, 0.001 to 10.9 parts of protective agent and 0.001 to 5.7 parts of regulator, wherein the degree of esterification of the pectin is less than 35 percent; the protective agent is selected from at least one of acacia, sodium carboxymethyl cellulose, sodium alginate, guar gum, tara gum, potassium alginate, tamarind polysaccharide gum and flaxseed gum; and the regulator is selected from at least one of sodium hydroxide, hydrogen chloride, potassium hydroxide, ammonia chloride, sodium chloride and potassium chloride.
US10849940	Lundberg Brock M (US)	**Prebiotics of highly refined cellulose.** The present technology may include a stabilized mass of highly refined cellulose fiber as a prebiotic composition alone or with a probiotic composition. The prebiotic composition may comprise both the prebiotic material blended with and stabilized by highly refined cellulose fiber material. The prebiotic components may be combined with at least 1% by weight of combined probiotic as highly refined cellulose in a blend with the probiotic. The mass may flow as a liquid, may be in a frozen state or may be in a dried powder state or dried solid mass.
WO2020198286	Mantrose Haeuser Co Inc (US)	**Egg-free albumen replacement.** An egg-free albumen replacement includes a starch, an edible gum and a hydrolyzed pea protein. The egg-free albumen replacement can include the hydrolyzed pea protein in an amount of 3 to 75 wt.%, based on the combined weights of the starch, edible gum and hydrolyzed pea protein in the replacement composition. At least some of the hydrolyzed pea protein in the egg- free albumen replacement can include partially hydrolyzed pea protein.
WO2020208242	Roquette Freres (FR)	**Instant cream for use in pastries, containing atomised pea starch.** The invention relates to the use of native pea starch precooked by atomisation for the production of creams for pastries.
WO2020193238	Samain Daniel (FR)	**Method for preparing a food solid, food solid comprising konjac glucommannan and use thereof.** The invention relates to a method for preparing a food solid wherein the following mixture is produced: - a quantity of a flour comprising at least one polysaccharide, called the heteromannan, chosen from the group formed of glucomannans and galactomannans, and - a quantity of an aqueous liquid composition, wherein the heteromannan is in such a quantity that the ratio of the mass of the heteromannan in the mixture to the mass of the aqueous liquid composition in the mixture is between 5% and 35%, and in that the mixture is prepared by vigorous stirring, whereby a substantially homogenous dispersion, called the pourable dispersion, of the flour in the aqueous liquid composition is formed having a dynamic viscosity of less than 100 Pa.s, the pourable dispersion varying spontaneously to form an aqueous cohesive solid substantially devoid of a free aqueous liquid composition and having a dynamic viscosity greater than the dynamic viscosity of the pourable dispersion; and subsequently a step of maturing the aqueous cohesive solid and hardening the aqueous cohesive solid is carried out so as to form the food solid, the food solid formed being non-adhesive and non-coalescent; and wherein, since the heteromannan comprises at least one glucomannan, the heteromannan is not subjected to any treatment with an alkaline agent, in particular any treatment with calcium hydroxide (Ca(OH)2) or sodium carbonate.
WO2020197378	Stichting Total Food Found (NL)	**Method for gelatinizing starch and for adding specific ingredients to this starch which ingredients are hydrolized partially, and human food products obtained by this method.** This invention relates to a method for full or partial gelatinization of starch and the addition of specific ingredients to the fully or partially gelatinized starch, resulting in a product comprising special characteristics for human food products. The ingredients may comprise valorisates and/or xenogredients, which terms are defined in the descriptive section. The full or partial gelatinization of starch by means of the method according to the invention is achieved by one or a combination of two or more of the processing techniques comprising extrusion technology, baking, roasting, toasting and/or boiling.

Bioproductos alimenticios para animales		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2020229357	Agrifirm Group BV (NL)	**Feed composition, method for the preparation thereof and use of a binder in a feed composition.** The invention relates to a use of a binder in a feed composition for the reduction of feed sorting in livestock, wherein the binder is a starch-based binder, a protein-based binder, a pectin-based binder, or a combination of two or more thereof, preferably the starch-based binder is a pre-gelatinized starch-based binder. The invention also relates to a feed composition comprising one or more base feed materials and a binder, wherein the feed composition is preferably a total mixed ration or a partial mixed ration, wherein the composition further comprises water and wherein the binder is a starch-based binder, a protein-based binder, a pectin-based binder, or a combination of two or more thereof. The invention further relates to a method for the preparation of the feed composition, comprising mixing one or more base feed materials, preferably comprising one or more components selected from the group consisting of roughages, mash, dry and moist by-products of food production processes, minerals, trace elements, vitamins, and additives; with a binder being a starch-based binder, a protein-based binder, a pectin-based binder, or a combination of two or more thereof, and optionally water to obtain a feed composition.
WO2020219756	Coffey Robert T et al. (US)	**Amino acid chelates for reducing oxidative stress.** Provided herein are formulations and methods useful in the treatment of diseases and disorders in livestock due to oxidative stress. The formulations include metal amino acid chelates.
WO2020232519	De Leao Rosenmann Bernardo (BR)	**Nutritional compound formed by bacterial fermentation content for use as a supplement or additive for animal feed.** The present invention describes the composition of an animal feed additive containing a nutrient-rich fermented broth obtained by means of a fermentation process using a genetically modified microorganism. The non-pathogenic bacterium Corynebacterium glutamicum, which is of great commercial interest, has been modified to produce aminolevulinic acid (5-ALA) more efficiently. The nutritional medium obtained is rich in biomolecules, such as sugars, organic acids, amino acids including 5-ALA, vitamins, and nucleotides, inter alia. In addition, the inactivated bacterial biomass can be added together with the fermented broth, acting as a source of nutrients without harming the animals. When added to animal feed, this broth promotes a series of benefits such as improved growth and immunity, reduces the use of antibiotics and supports the metabolism. Animals, such as pigs, poultry, cattle and fish, have a commercial value and any gain generates a financial return.
WO2020225237	Green Innovation GmbH (AT)	**A vegetal association as a functional ingredient for aquaculture feed.** The use of a vegetal association as a functional ingredient for aquaculture feed, and particularly as an antibacterial ingredient against aquaculture pathogens, as well as aquaculture feed and aquaculture feed supplements comprising the same, are disclosed. The vegetal association of the invention surprisingly and unexpectedly showed a synergistic effect that can be used in aquaculture feed against aquaculture pathogens, thus achieving great results in terms of effectiveness even at very low concentrations, while avoiding the use of antibiotics, and at the same time preserving the human and animal health.
WO2020236000	IN OVO BV (NL)	**Composition comprising eggs and use of such composition.** The present invention relates to a process for growing a feed organism from a composition comprising solid homogenized eggs, comprising collecting eggs that have been exposed to an incubation process; homogenizing the eggs; and subjecting the homogenized eggs to a denaturation process to obtain the solid homogenized eggs; and feeding the solid homogenized eggs to the feed organism. The present invention relates furthermore to the composition, and to its uses.
WO2020234169	Nestle SA (CH)	**Fermented cereal.** The present invention relates to a cereal product comprising a fermented slurry of rice flour made from koji rice (fermented rice). The fermented rice flour provides a natural and mild sweetness and glue for binding but is not too sticky during coating. The use of the slurry allows for a reduction/removal of added (refined) sugar in the final product because the fermented cereal slurry brings natural sweetness.
WO2020212600	Nuseed Global Innovation Ltd (GB)	**Meal fraction of brassica carinata oilseed. A meal fraction of Brassica carinata oilseed is provided.** The meal fraction has a higher protein and lower fibre content than meal fractions isolated from oilseed of other Brassica species and related oilseeds such as camelina. The meal fraction of Brassica carinata oilseed contains from about 0 to about 45 micromoles per gram of glucosinolate, of which 70% or more is sinigrin (2- propenyl glucosinolate). Also provided is a feed ration comprising the meal fraction of Brassica carinata oilseed. Such feed ration is suitable for feeding ruminant livestock, monogastric livestock, poultry livestock, camelid livestock, or farmed fish.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020194037	Phina Biosoluciones SAS (CO)	**Process of separating a fraction of fibre usable as a dietary supplement from press cake generated in palm oil extraction.** The present invention relates to a process for obtaining a fraction of fibre usable as a dietary supplement for animals generated during the palm oil extraction process, which involves an initial separation of said fraction from a solid material obtained from pressing the fruit obtained from palm oil bunches, and a drying step wherein said fraction is obtained with a moisture content of less than 15%, to be subsequently used as a dietary supplement for animals.
WO2020230032	Rich Tech Solutions Limited (NZ)	**Method for preparation and use of a supplement for monogastric animals.** A method for preparing a composition for improving the productivity and health of monogastric animals, said method including the following steps: a) selecting as a starting material an acidic fermentation product which includes one or more of the following: • between 5% and 90% selected organic acids, of which no more than 10% is acetic acid; • between 5% and 90% of C3 - C6 sugars and polymers of those sugars; • between 5% and 50% protein with a high protein efficiency ratio as herein defined; between 5% and 50% non-starch polysaccharides; b) reacting said starting material with a multi-valent cation material in sufficient quantity to chelate a majority of the acidic products present in the starting material; c) drying the reaction product.
WO2020210907	Virentia Innovation Inc (CA)	**Compositions comprising fabaceae family plant components, processes of preparation and uses thereof.** The present disclosure relates to processes for recovering valuable products from Fabaceae family plant fractions, in particular from Medicago sativa ssp. The processes disclosed herein include processes for obtaining macrofibers, microfibers, a saponin precursor, chloroplast liquid and dry compositions and a Rubisco precursor. There is also disclosed herein processes for extracting from Fabaceae family plants valuable compounds such as proteins, enzymes, peptides, amino acids, fatty acids, fatty alcohols, terpenes, phenols and pigments. The processes may comprise at least one of separating plant fibers while attenuating shear forces, maintaining the temperature at or below 45°C, maintaining the pH above 4 and adding antioxidant and/or antimicrobial agents. Compositions comprising these recovered Fabaceae family plant products and uses thereof are also disclosed.

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