

OBJETIVOS DE DESARROLLO SOSTENIBLE



BOLETÍN BIOENERGÍA Y BIOPRODUCTOS

Patentes sobre productos biofarmacéuticos a partir de algas

Las algas son una fuente natural conocida de principios activos con propiedades antitumorales, antiinflamatorias, antibacterianas y antivirales, entre otras. Hasta la fecha, se han registrado en el mundo más de trece mil familias de patentes relacionadas con su utilización en el desarrollo de productos biofarmacéuticos. En el último año (1 de Marzo 2020 - 1 de Marzo 2021), se han incorporado a las bases de datos de la Oficina Europea de Patentes (EPO) cerca de 450 nuevas solicitudes de patente correspondientes a, aproximadamente, 420 invenciones para las que no se había solicitado protección con anterioridad. Su distribución por ámbito de protección se muestra en la Figura 1. En ella se observa que el 55% se presentaron en China. Si a éstas se le suman las presentadas en Corea y Japón, su número asciende al 75%. El 12% de las solicitudes son solicitudes internacionales PCT. Tan sólo el 6 % cuenta con ámbito de protección en país europeo o es solicitud de patente europea, siendo Francia, Ucrania y Alemania los ámbitos de protección europeos más representativos.

Las instituciones líderes en solicitud de protección de nuevas invenciones son Pukyong National University Industry-University Cooperation Foundation (Corea, 7 familias), la Ocean University of China (China, 6 familias) y Jeju National University-Industry Academic Cooperation Foundation (Corea, 5 familias). Las instituciones europeas más destacadas son Amadeite (Francia), Fermentationexperts (Dinamarca), Nestle (Suiza), Fermentalg (Francia) y Seagreen Bio (Irlanda). Todas ellas solicitaron protección de dos nuevas invenciones el año en estudio. En la Tabla 1 se recogen los títulos de las principales solicitudes de patente de instituciones europeas. En los números de publicación aparece un vínculo al documento en espacenet.

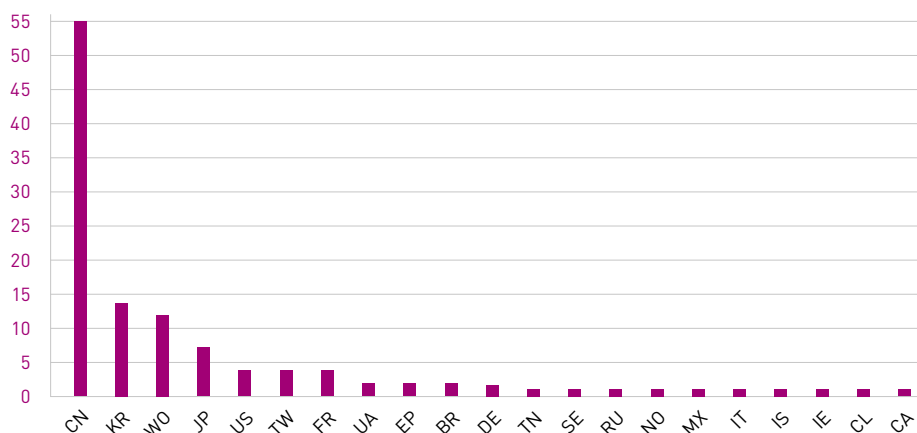


Figura 1. Distribución de solicitudes por ámbito de protección (%)

En la Figura 2 se muestra la distribución del número de nuevas familias de patente por sus códigos IPC (International Patent Classification). Su significado se recoge en la Tabla 2. Los códigos IPC asociados a los documentos de patente aportan información relevante sobre el campo de aplicación de la invención y permiten identificar las áreas de desarrollo más destacadas y aquéllas en las se está buscando protección. Así, del análisis de la Figura 2 puede inferirse que las últimas novedades sobre productos biofarmacéuticos terapéuticos obtenidos a partir de algas se dirigen principalmente al tratamiento de enfermedades dermatológicas (AG61P17, 15% de las familias), trastornos metabólicos (A61P3, 14% de las familias), desarrollo de medicamentos antibacterianos (A61P31, 12% de las familias), trastornos del aparato digestivo (A61P1, 11% de las familias) y desarrollo de agentes anticancerígenos (A61P35, 11% de las familias). Asimismo, se observa que las novedades sobre productos parafarmacéuticos obtenidos a partir de algas se dirigen al desarrollo de productos dietéticos/nutraceuticos (A23L23, 29% de las familias) y cosméticos (A61K8, 15% de las familias; A61Q19, 11% de las familias).

Tabla 1. Solicitudes de patente de instituciones europeas

Nº Publicación	Título	Solicitante	País del solicitante
EP3714890A1	Composition comprising a collagen hydrolysate and a fucoidan	Acten AG	Suiza
EP3650035A1	Red algae extract for use in the prevention or treatment of an intestinal disorder	Amadeite	Francia
WO2020083931A1	Algal extract for use in the treatment or prevention of post-traumatic immunosuppression	Amadeite	Francia
WO2020236023A1	Dietary supplement formulation for weight loss	BIO 8 LLC	Rusia
WO2021009781A1	Process for extraction of nutraceutical compounds from microalgae by using CO2 in supercritical conditions	Bio PSRL	Italia
UA38551A	Method for obtaining of pharmaceutical of spirulina platensis microalgae	Budzai Ivan Hnatovych et al.	Ucrania
FR3096688A1	Product comprising at least one marine chlorella or euryhaline	Calleja Pierre	Francia
WO2021013710A1	Encapsulation of lipophilic actives which are sensitive to acid degradation	DSM IP Assets BV	Países Bajos
WO2020136283A1	Extract of chlamydomonas acidophila, method for preparing same and cosmetic compositions and dermatological compositions comprising same	Expanscience Lab	Francia
WO2020109445A1	Low molecular weight sulphated fucans in the treatment of atopic dermatitis	Fabre Pierre Dermo Cosmetique	Francia
WO2021005169A1	Treatment of patients under antiplatelet medication experiencing bleeding	Faelker Knut	Suecia
WO2020049095A1	Method for enriching a biomass with proteins	Fermentalg	Francia
WO2020053375A1	Method for extracting an oil rich in polyunsaturated fatty acids (PUFA)	Fermentalg	Francia
WO2020207920A1	Anti-inflammatory composition	Fermentationexperts AS	Dinamarca
WO2020174019A1	Method for obtaining fucoxanthin and fatty acids from the biomass of algae	Fraunhofer Ges Forschung et al.	Alemania
WO2020178213A1	Cosmetic composition	Giuvaudan SA	Suiza
EP3659636A1	Bioinert body	Haas Andreas et al.	Alemania
WO2020180202A1	Composition based on cerium dioxide nanoparticles and brown algae polysaccharides for wound treatment	Khokhlov Nikolay Valeryevich	Rusia
FR3095761A1	Nutraceutical composition for inducing a loss of body weight and reducing the accumulation of abdominal fat	Lab Attitude	Francia

Nº Publicación	Título	Solicitante	País del solicitante
WO2020169936A1	Food supplement	Microphyt	Francia
WO2021004922A1	Compositions and methods using trigonelline to produce intracellular nicotinamide adenine dinucleotide (NAD+) for treating or preventing physiological disorders or states	Nestle SA	Suiza
WO2020052745A1	Composition, food supplement, composition acting as a food supplement for children, and production method	PM Int AG	Luxemburgo
UA36129A	Method for treating and preventing hypothyroidism	Riabukha Olha Illivna	Ucrania
WO2020069695A1	Nutrition-based support for the body's own wound healing processes	Sanafaktur GmbH	Alemania
WO2020239631A1	An oil extract comprising dihomolinolenic acid, and a method for producing the oil extract	Seagreen Bio Ltd	Irlanda
UA13945A	Method for producing chlorophyll-carotene paste possessing reparative and regenerative properties	Severo Vostok Ukrainian ASS	Ucrania
UA52223A	Tableted forms of two-component biologically active additives on the basis of blue-green algae spirulina	Zhyspyna Private Entpr	Ucrania



Figura 2. Códigos IPC más representativos (nº familias, %; >20 familias, 5%)

Tabla 2. Significado de los códigos IPC más representativos

Código ICP (Grupos)	Significado
A23K50	Feeding-stuffs specially adapted for particular animals
A23L33	Modifying nutritive qualities of foods; Dietetic products; Preparation or treatment thereof
A61K8	Cosmetics
A61K9	Medicinal preparations characterised by special physical form
A23K20	Accessory food factors for animal feeding-stuffs
A61K31	Medicinal preparations containing organic active ingredients
A61K33	Medicinal preparations containing inorganic active ingredients
A61K35	Medicinal preparations containing materials or reaction products thereof with undetermined constitution
A61K36	Medicinal preparations of undetermined constitution containing material from algae, lichens, fungi or plants, or derivatives thereof, e.g. traditional herbal medicines

Código ICP (Grupos)	Significado
A61K38	Medicinal preparations containing peptides
A61K47	Medicinal preparations characterised by the non-active ingredients used, e.g. carriers or inert additives; Targeting or modifying agents chemically bound to the active ingredient
A61P1	Drugs for disorders of the alimentary tract or the digestive system
A61P3	Drugs for disorders of the metabolism
A61P9	Drugs for disorders of the cardiovascular system
A61P11	Drugs for disorders of the respiratory system
A61P15	Drugs for genital or sexual disorders
A61P17	Drugs for dermatological disorders
A61P19	Drugs for skeletal disorders
A61P25	Drugs for disorders of the nervous system
A61P29	Non-central analgesic, antipyretic or antiinflammatory agents, e.g. antirheumatic agents; Non-steroidal antiinflammatory drugs (NSAIDs)
A61P31	Antiinfectives, i.e. antibiotics, antiseptics, chemotherapeutics
A61P35	Antineoplastic agents
A61P37	Drugs for immunological or allergic disorders
A61P39	General protective or antinoxious agents
A61Q19	Preparations for care of the skin

PATENTES BIOENERGÍA (Fuente: [Global Patent Index - EPO](#))

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2021024001	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 from agricultural waste such as grass, rice husk, yam, straw, corn cob or any combination thereof, 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 and a pre-treatment process for pre-treating one or more sources of biomass for use in the production of a solid biomass fuel.
WO2021014151	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 from rice husks either alone or in combination with other materials such as calliandra callothyrsus or wood, 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.
WO2021045320	Eco Energy One (KR)	Odor-reduced high-calorific wood-based solid fuel. The present invention relates to a wood-based solid fuel prepared by mixing an additive having high calorific characteristics and an odor reducing function into a wood chip fuel and, more specifically, to an odor-reduced high-calorific wood-based solid fuel formed by inputting an additive which comprises a vegetable oil by-product, graphite powder, ferric oxide, pine knot powder, animal oil, calcium hydroxide and magnesium hydroxide to enhance calorific characteristics, inputting an additive comprising a humic acid and an adsorbent coated with a positive charge material into a bottom ash and limestone mixture to mix an additive for reducing odor, and performing a torrefaction process.
WO2020260800	Europeenne de Biomasse (FR)	Method for producing solid fuels from end-of-life wood or waste wood. The present invention relates to the field of recycling end-of-life wood or waste wood. More specifically, it relates to a method for reusing a biomass consisting of end-of-life wood or waste wood by steam cracking with a view to manufacturing solid fuels. It enables processed wood intended for material recycling, landfill or incineration to be reused.
WO2020260799	Europeenne de Biomasse (FR)	Steam cracking process comprising a separation step and differential treatment of the obtained particles according to a threshold value. The invention relates to the field of solid biofuels obtained by steam cracking. More particularly, the invention relates to a process for the treatment of lignocellulosic biomass by steam cracking in which the obtained powder is treated in order to separate the particles into two categories according to a threshold value, and each category is treated differently.
WO2020260798	Europeenne de Biomasse (FR)	Method for producing a biofuel by steam cracking. The invention relates to a method for producing a biofuel by continuous or discontinuous steam cracking of lignocellulosic biomass, characterized in that: - recording a digital model of the optimal steam cracking parameters as a function of the nature and the content of the contaminants; - introducing a biomass containing at least part of the contaminated biomass into the steam cracking reactor; - measuring at least once during the treatment the nature and content of the contaminants; - controlling the adjustment of the steam cracking parameters as a function of the nature and the content of the measured contaminants and of said digital model.
WO2020260801	Europeenne de Biomasse (FR)	Method for producing a biofuel by steam cracking. The invention relates to a method for producing a biofuel by continuous or discontinuous steam cracking of lignocellulosic biomass, characterized in that: - recording a digital model of the optimal steam cracking parameters as a function of the typology of the plant constituents of the biomass; - supplying the steam cracking reactor with heterogeneous biomass; - measuring at least once during the treatment the typology of the plant constituents of the biomass; - controlling the adjustment of the steam cracking parameters as a function of the typology of the plant constituents of the measured biomass and of said digital model.
WO2020258630	Jiangsu Sany Environmental Tech Ltd (CN)	Pellet machine roller, pellet machine, biomass pellet production. A pellet machine roller, a pellet machine, a biomass pellet processing device, and a processing method. The biomass pellet processing device comprises a first conveyor, a slicing crusher, a second conveyor, a drying device, a third conveyor, the pellet machine, a cooling device, and a packing line. The pellet machine roller comprises a roller body and gear rings; a plurality of rows of gear rings are arranged on the outer wall of the roller body in the circumferential direction, and a groove is formed between any two adjacent rows of gear rings; a plurality of through holes are formed in each groove in the circumferential direction, and one end, facing the outer side of the roller body, of the plurality of through holes is a waist-shaped long hole.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021038585	Rana Sukhdeep Singh (IN)	Bio-fuel pellets with industrial dolochar and method thereof. The present invention provides for bio-fuel pellets and a method for the production of the same. The bio-fuel pellets include biomass and dolochar. The biomass material forms the majority of total mass of the fuel product. The proportion of biomass may vary from 75%-55% and Dolochar content of the total mass of the fuel pellet may vary from 25% to 45%. Biomass blends well with the dolochar and embodies carbon content. The present invention provides for a method to convert a highly ash positive and non-disposable dolochar into a proprietary bio-fuel pellet product without toxic emissions or further segregation. The present method provides a cost effective means of using dolochar in its original form because the carbon content of the waste dolochar is used to enhance the energy of the final product.
EP3789670	SL Technik GmbH (AT)	Biomass heating system and components of same. A method for commencing the operation of a biomass heating plant for the combustion of fuel in the form of pellets and/or chippings, wherein the biomass heating plant has a boiler with a combustion chamber, a blower, and a control device with a memory and a display, wherein the method has the following steps: ascertaining (S2) whether the biomass heating plant is being initialized for the first time, wherein, if the biomass heating plant is not being initialized for the first time, the method is ended, and if the biomass heating plant is being initialized for the first time, the method is continued with the following step: setting a multiplicity of heat generation parameters (S5) which include at least the following parameters: a boiler type parameter, by way of which at least one working range of the blower is set; a material parameter which defines the characteristics of the fuel/fuels to be combusted.

Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021032770	AGS Energy Ireland Ltd (IE)	A gasification apparatus and method. A gasification apparatus has a primary chamber with a floor comprising a hearth and feedstock augers, for gasification of feedstock. There is a mixing chamber for receiving through an opening synthetic gases (A) from the primary chamber and comprising an air inlet fan for adding oxygen for ignition. There is also a secondary chamber linked with the mixing chamber to deliver heat from combustion of gases from the mixing chamber to the hearth. An outlet valve delivers gases from the secondary chamber through a heat exchanger and to an induce draft fan. A controller dynamically controls flow of gases in the chambers according to sensed pressures and temperatures in said chambers.
WO2020256798	Aries Gasification LLC (US)	A universal feeder for a gasification reactor. 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.
WO2021035052	Baudhuin Thomas J (CN)	Supercritical water gasification process. The process described herein converts biomass directly into a combination of hydrogen, methane and carbon dioxide. A portion of the gases are collected at pressures above the thermodynamic critical pressure for water, which is 3200 psi (pounds per square inch). Typical operating pressure at the point where the first portion of gas collected can range from 3200 psi to 6000 psi. Upon cooling, most of the CO2 condenses to a liquid. At this density and pressure, the CO2 can be injected into a deep well aquifer to sequester the carbon dioxide. The overall process is superior to carbon neutral processes, can be carbon negative, and possesses the potential to reverse atmospheric CO2 trends if implemented on a global scale.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021004658	CMD Costr Motori Diesel (IT)	An improved reactor for the gasification of wood-cellulose residual materials. The present invention concerns an improved reactor for the gasification of wood-cellulose residual materials, comprising: a reaction chamber with a reduction cone, inserted in a containment body; - an apparatus for loading the wood-cellulose residual materials, associated to said reaction chamber; a first or a second apparatus for unloading the ashes deriving from the gasification of said residual materials in said reaction chamber; devices for management and control of above-mentioned elements. In said reactor, the apparatus for loading the materials and the apparatuses for unloading ashes cooperate with said reaction chamber so as to avoid the occurrence of phenomena of "slagging" and/or "bridging channelling" and the consequent bad working or complete stall of said reactor.
WO2020255320	Green Power Dev Corporation of Japan (JP)	Biomass fuel manufacturing method. In order to obtain a biomass fuel manufacturing method wherein a biomass resource can be reliably and efficiently heated without irregularity in a prescribed temperature range, and an oil/fat of the biomass resource can be made into a biomass fuel without waste, the present invention provides a biomass fuel manufacturing method for heat treating a biomass resource to obtain a biomass fuel, wherein heat treatment of a biomass resource 2 is performed by using a heating means 6 to heat the interior of a heat treatment tank 3 and using a superheated vapor supply means 4 to supply a superheated vapor into the heat treatment tank 3 that has been heated by the heating means 6 and is in an unsealed condition, and the supply of the superheated vapor into the heat treatment tank 3 begins at least before the temperature within the heat treatment tank 3 reaches the ignition temperature of the biomass resource 2, and is performed continuously at least until the completion of the heat treatment of the biomass resource.
WO2021023347	Univ Danmarks Tekniske (DK)	A system and method for producing synthesis gas. Disclosed is a method for producing synthesis gas. The method comprises the steps of: - feeding biomass with an ash content above 3% by mass to a pyrolyzer arranged to pyrolyze biomass with an ash content above 3%, wherein said ash content is determined according to ASTM E1755-01 "Standard method for 5 the determination of ash in biomass" of 2003 Annual Book of ASTM Standards, vol. 11.05, (Philadelphia, PA), - feeding pyrolysis gas from said pyrolyzer arranged to pyrolyze biomass with an ash content above 3% to a partial oxidation reactor to produce partially oxidized pyrolysis gas,10 - feeding biomass with an ash content below 2% by mass to a pyrolyzer arranged to pyrolyze biomass with an ash content below 2% by mass, and wherein pyrolysis gas from said pyrolyzer arranged to pyrolyze biomass with an ash content below 2% is also fed to said partial oxidation reactor to produce partially oxidized pyrolysis gas, wherein the ash content is determined 15 according to ASTM E1755-01 "Standard method for the determination of ash in biomass" of 2003 Annual Book of ASTM Standards, vol. 11.05, (Philadelphia, PA), - feeding coke produced from said biomass with an ash content below 2% by mass from said pyrolyzer arranged to pyrolyze biomass with an ash 20 content below 2% by mass to a gasifier arranged to gasify coke produced from biomass with an ash content less than 2% by mass, - feeding said partially oxidized pyrolysis gas through said coke being produced from biomass with an ash content below 2% in said gasifier arranged to gasify coke produced from biomass with an ash content less 25 than 2% by mass such that tar is removed from said partially oxidized gas and whereby synthesis gas is produced. Furthermore, a system for producing synthesis gas is disclosed.

Biogás

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020262136	AIST (JP)	Electrochemical biogas production system using methanogenic coenzyme. Provided is an electrochemical reactor system which is for producing a hydrocarbon gas by using an alkyl compound as a substrate, and comprises a sustainable reaction system which does not require a reducing agent. The electrochemical reactor system can produce a hydrocarbon gas by reducing an alkyl compound substrate by means of coenzyme F430 while electrochemically maintaining, through an electrode reaction, the active state of methanogenic coenzyme F430 in a solution, and can sustainably produce a biogas by only adding a substrate to coenzyme FD430.
WO2020263356	Brown and Caldwell (US)	Apparatus and related methods for biogas capture from wastewater. Methods for capture of biogas from a wastewater system are disclosed herein. The methods may include the step of collecting biogas within a collector chamber of a biogas collector formed at an elevated location in a wastewater system, the biogas being released from wastewater passing through the collector chamber. The methods may include the step of controlling the withdrawing of biogas from the collector chamber, and the step of capturing the biogas withdrawn from the collector chamber.

Nº Publicación	Solicitante (País)	Contenido técnico
EP3786119	Ima Polska (PL)	Method of obtaining biogas in anaerobic biological wastewater treatment plant, and a reactor for obtaining biogas and wastewater treatment. The invention concerns a method of biogas production in an anaerobic biological wastewater treatment plant, and a reactor for biogas production and wastewater treatment. The invention can be applied as a compact, medium-loaded treatment system, which combines biological degradation with a separation process, wherein the separation concerns fractions of heavy substrates taking part in the reaction. In particular, the substrate that is dosed in the reaction is the stillage leachate remaining after decantation. It is preferable for the invention to have a further possibility to generate energy from the biogas, mostly from methane, which is a main component of biogas produced with the invention, and the possibility to significantly utilize the harmful substances in the process according to the invention. The reactor for biogas production and wastewater treatment includes two tanks interconnected with transmission pipelines, the first of which is the buffer tank and the second is the main tank, where both tanks are provided with a temperature sensor, pH sensor and pressure sensor. The tanks are equipped with mixing modules that include a rotor. The biogas outlet is located at the top of each tank. The flow of agents through the tanks and transmission pipelines is controlled by a control system, based on the readouts of sensors. The mixing modules are located outside the tanks and are each time connected to the tanks with their own pipeline circuit system, which has a turbulent circulation pump, and the main tank is additionally connected to a membrane filter system through an external turbulent pipeline circuit forced by the second pump. The membrane filter system is connected by its outlet to the core running centrally through the main tank, generally at half height of the core, which core is opened on top to obtain overflow into the main tank, and at the bottom it is terminated with an outlet for concentrated sludge. The membrane filter system has its own outlet for filtrate in the form of treated leachate.
WO2021003564	logen Corp (CA)	Method and system for producing a fuel from biogas. A method for producing a fuel includes transporting one or more pressure vessels containing pressurized biogas from a first location to a second location, and removing biogas from the one or more pressure vessels at the second location. The fuel production process is improved by controlling the decanting flow rate to provide a total decant time greater than 30-40 minutes, by actively heating biogas contained within the one or more pressure vessels, or some combination thereof.
WO2020262779	Korea Inst Energy Res (KR)	Biogas purification system and method for producing clean fuel. The present invention relates to biogas purification and, more specifically, to an ultra-clean biogas purification system for highly separating hydrogen sulfide in biogas through an absorption and adsorption system. The system and method of the present invention maximizes the removal of hydrogen sulfide in biogas by using an absorbent and an adsorbent, thereby improving the efficiency of a process of converting biogas into fuel, and uses a comparatively small-scale facility, thereby ensuring economic feasibility.
WO2021040088	Postech Acad Ind Found (KR)	Method for pretreating sewage sludge using mixed enzyme, and method for treating sewage sludge using anaerobic digestion. An embodiment of the present invention provides a method for pretreating sewage sludge, the method comprising a step for adding a coenzyme mixture to sewage sludge and reacting the resultant mixture under aerobic conditions. Since the coenzyme mixture contains a culture supernatant of strains screened from sewage sludge and has high protease activity and lipase activity, sewage sludge pretreated by the method according to an embodiment of the present invention contains significantly reduced amounts of volatile suspended solids, and is thus highly suitable for biogas production using anaerobic digestion. Therefore, the method for pretreating sewage sludge according to an embodiment of the present invention has the advantage of being applicable to a full-scale facility for economically treating sewage sludge.
WO2021004787	Siemens Gamesa Renewable Energy AS (DK)	Energy generation and energy storage in a wind turbine structure. A wind turbine includes a hollow portion for storing a gas, wherein the hollow portion is comprised in a foundation structure or in a tower of the wind turbine. The wind turbine further includes a bioreactor inside the hollow portion for receiving a biomass and generating a biogas derived from the biomass.
WO2021016245	Univ Auburn (US)	Culture systems and methods of using same. Culture systems and methods of using same. The systems include a housing defining an inner space. The inner space includes a headspace and at least a portion of a reservoir. A surface for immobilizing cells is moveable between the headspace and the reservoir. The systems can be used for coculturing methanotrophs and phototrophs for processing biogas and wastewater, particularly from anaerobic digesters.

Bioalcoholes (bioetanol, biometanol, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
US2021002683	Cotton Inc (US)	Cotton textile waste fabric used as a biomass for the production of sugar. Cotton-containing textiles, such as “trash” feedstock in terms of end-of-life-cotton textiles, may be used to produce sugar without the same kinds of harsh pretreatments used for other biomasses, such as corn, grass sources, or wood. Disclosed is a process for production of sugar from a cotton-containing textile waste fabric comprising optionally mechanically pretreating the cotton-containing textile, pretreating the cotton-containing textile with an acid pretreatment to form a slurry, cooling the slurry, adding at least one base to the slurry, adding at least one additional acid to the slurry to form a buffer in situ, adding a hydrolysis enzyme, and optionally filtering the slurry.
WO2021022097	Danisco US Inc (US)	Over-expression of adh5p for increased ethanol production by yeast. Described are compositions and methods relating to modified yeast that over-expresses Adh5p and harbor a heterologous phosphoketolase pathway. The yeast demonstrates increased ethanol production from glucose compared to parental cells. Such yeast is particularly useful for large-scale ethanol production from starch substrates.
EP3766982	Delft Advanced Biofuels BV (NL)	Integrated system for biocatalytically producing and recovering an organic substance. The invention relates to a method for recovering a biocatalytically produced organic substance from a reaction mixture, comprising- providing a reaction mixture, wherein the organic substance is produced using a biocatalyst, which reaction mixture comprises a substrate for the biocatalyst in a continuous aqueous phase, and wherein further a product recovery phase is present into which the organic substance migrates or onto which the organic substance absorbs or adsorbs; and- separating the product recovery phase comprising the produced substance from the aqueous phase and the biocatalyst. The invention further relates to a bioreactor system for biocatalytically producing a substance, comprising an apparatus, said apparatus comprising a reaction compartment (11) situated in a lower part of the apparatus and a separator compartment (9).
PH12019050082	Elegado Francisco B (PH)	Method for producing bioethanol from lignocellulosic materials. Disclosed is a method for producing bioethanol from lignocellulosic biomass namely sugarcane bagasse, sweet sorghum bagasse, and pineapple husk. In brief, the processing steps are: pretreatment of the lignocellulosic biomass, enzymatic saccharification, detoxification, fermentation, and further purification to produce bioethanol. The resulting optimization for bench scale enzymatic saccharification of sweet sorghum bagasse (SSB), sugarcane bagasse (SB), and pineapple husk (PH) increased the reducing sugar concentration of the hydrolysates. Further optimization of the fermentation process resulted to high ethanol yield for the lignocellulosic biomasses tested.
US2021017548	Exxonmobile Res & Eng Co (US)	Feed control in conversion of biomass into hydrocarbon fuels and chemicals. The present disclosure relates to processes for producing hydrocarbon fuels from lignocellulosic biomass. A process may include introducing biomass to a pretreatment system, and a first separation system forming a pentose-rich stream and a pentose-lean stream. The pentose-lean stream may be introduced to a hydrolysis system forming a hydrolysate and the hydrolysate introduced to a second separation system forming a hexose-rich stream and a lignin stream. Additionally, at least one of the pentose-rich stream or the hexose-rich stream may be introduced to a bioreactor containing microorganisms configured to produce hydrocarbon fuels. Additionally, the present disclosure also relates to systems for the production of hydrocarbon fuels. A system may include a pretreatment system, a first separation system, a hydrolysis system, a second separation system, and one or more bioreactors. Alternatively a system may include a pretreatment system, a hydrolysis system, a sugar separation system, and one or more bioreactors.
WO2021021458	Novozymes AS (DK) et al.	Microorganisms with improved nitrogen transport for ethanol production. Described herein are fermentation organisms, such as yeasts, comprising a genetic modification that increases or decreases expression of a transporter or regulator thereof, such as yeasts that express an Amino Acid/Auxin Permease (AAAP). Also described are processes for producing a fermentation product, such as ethanol, from starch or cellulosic-containing material with the fermenting organisms.
WO2020261291	Praj Industries Ltd (IN)	Method for the production of ethanol from corn fibres. Method for the production of ethanol from corn fibres. Invention relates to a process for the preparation of ethanol from a corn fibre containing feedstock by using a set of process steps specifically identified for the treatment of the said feedstock. It particularly relates to the use of a soaking followed by mix acid and enzyme treatment that release fermentable C5 and C6 sugars from said feedstock. It further relates to using a recombinant yeast to convert both C5 and C6 sugars to ethanol.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020254121	Topsoe Aldor AS (DK)	Biogas upgrading to methanol. The invention relates to a method for upgrading biogas to methanol, comprising the steps of:- providing a reformer feed stream comprising biogas, - optionally, purifying the reformer feed stream in a gas purification unit, - optionally, prereforming the reformer feed stream together with a steam feedstock in a prereforming unit, - carrying out steam methane reforming in a reforming reactor heated by means of an electrical power source, providing the synthesis gas to a methanol synthesis unit to provide a product comprising methanol and an off-gas. Then invention also relates to a system for upgrading biogas to methanol.
WO2020256535	Univ Sidi Mohamed Ben Abdellah (MA)	Bioprocess for preparing a culture medium from cactus fruit of the genus opuntia for producing yeast biomass, biofuels, proteins, and renewable chemicals. The invention concerns a process for making a culture medium for yeasts and for fermenting using yeasts, based on the fruit of a cactus <i>Opuntia</i> sp; preferably <i>Opuntia ficus-indica</i> , commonly called "Barbary fig". The said medium is compatible with industrial production and exhibits applicative efficacy, meaning that it has satisfactory effectiveness in applications and utilities that are of interest to the yeast industry, such as the production of yeast biomass, biofuels, enzymes, lipids and renewable chemicals. The process as described in the present invention comprises the steps illustrated in Figure 2. The invention also pertains to the production, from the cactus fruit-based medium, of first and second generation biofuels, by fermentation at various temperatures, using conventional or non-conventional yeasts.
US2021024965	UT Battelle (US)	Engineered microbes for conversion of organic compounds to butanol and methods of use. This disclosure provides a genetically-modified bacterium from the genus <i>Megasphaera</i> that comprises an exogenous nucleic acid encoding a bifunctional aldehyde/alcohol dehydrogenase that produces butanol as the final product. The disclosure further provides methods for producing butanol using such genetically-modified bacterium.

Biodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
UA30417	Ekoma Association LLC (UA)	A process for preparation of methyl ethers of fatty acids of rapeseed oil. The invention relates to the technology of reprocessing vegetable oils, in particular to obtaining methyl ethers based on rapeseed oil and can be used in national economy for obtaining ecologically pure biological fuel for automobile transport, agricultural technique, diesel locomotives, stationary heat and energy units as alternative to conventional diesel fuel from petroleum. A process comprises preparation of catalyst solution in methanol, refining the rapeseed, reetherification of refined oil, removal of catalyst residues and drying methyl ethers.
US2021047604	Exxonmobile Res & Eng Co (US)	Solar steam explosion of algae. A system includes an algae bioreactor that contains an algae slurry, a heat exchanger in fluid communication with the algae bioreactor to receive the algae slurry from the algae bioreactor and heat and increase a pressure of the algae slurry, and one or more valves and a flash vessel in fluid communication with a discharge of the heat exchanger to flash the algae slurry and create steam and algae biomass. A separator receives the algae biomass from the flash vessel and separates oils from the algae biomass to generate a biofuel.
EP3792627	Hardlevel Energias Renovaveis SA (PT)	A method and device for the determination of the origin of an oil-based product. The present invention is enclosed in the area of vegetable or animal fat oil and biodiesel control. In particular, it is directed to identifying the origin of an oil-based product which comprises a mixture of oils and/or one or more processed products obtained from oils, such oils being vegetable or animal fat oils and the one or more processed products being, for example, biofuel. The purpose of the object of the present invention thus includes to identify the presence of used cooking oils (UCOs) and used animal fats from virgin vegetable oils and virgin animal fats, thereby distinguishing their origin (used or virgin), by means of an innovative method which resorts to obtaining and analysing a spectroscopy signal of the oil-based product.
RS20190713	Naucni Inst Za Prehrambene Tehnologije (RS)	The technological procedure of using the waste carbonation sludge from the sugar production process as a catalyst in biodiesel production. Carbotation sludge from a sugar press filter is used as a catalyst for the production of biodiesel from vegetable oils. The material is characterized by applying the methods: TGA/DSC, KSRD, FTIR, SEM, BET, basics and elemental analyzes. It turned out that the catalyst is predominantly CaO. Dried material (at 98°C duration 60 min) is scanned through a set of standard sieves. Fraction below 0.5 mm is calcined at 550°C for 2 h, cooled and stored in dark glass bottles in a desiccator containing CaCl ₂ and KOH until use. Biodiesel is produced from sunflower oil under the following reaction conditions: 60°C, molar ratio methanol/oil 9:1, and filling the catalyst from 1-10% based on the weight of the oil. The final product contains more than 96% fatty acid methyl esters (MEMK). Optimal filling of the catalyst is 5% (oil mass). The result of the technological process was produced biodiesel from high quality sunflower oil with carbotation sludge from sugar filter as a catalyst.

Nº Publicación	Solicitante (País)	Contenido técnico
US2021023539	Univ Hong Kong Chinese (CN)	Zwitterionic catalysts for (trans)esterification: Application in fluoroindole-derivatives and biodiesel synthesis. An amide/iminium zwitterion catalyst has a catalyst pocket size that promotes transesterification and dehydrative esterification. The amide/iminium zwitterions are easily prepared by reacting aziridines with aminopyridines. The reaction can be applied a wide variety of esterification processes including the large-scale synthesis of biodiesel. The amide/iminium zwitterions allow the avoidance of strongly basic or acidic condition and avoidance of metal contamination in the products. Reactions are carried out at ambient or only modestly elevated temperatures. The amide/iminium zwitterion catalyst is easily recycled and reactions proceed in high to quantitative yields.
CN112251471	(CN)	The invention provides an enzymatic process for preparing biodiesel from acidified oil, and relates to the technical field of preparing biodiesel. The enzymatic process for preparing biodiesel from acidified oil includes the following materials by weight: 400-600 parts by weight of raw oil, 40-60 parts of bioenzyme catalyst, and 40-60 parts of methanol. The enzymatic process for preparing biodiesel from acidified oil consists of It is composed of the following parts by weight: 500 parts of raw oil, 50 parts of biological enzyme composite catalyst, and 50 parts of methanol. In the present invention, the original process of liquid enzyme reaction followed by solid enzyme reaction followed by distillation is changed to a process of distilling first and then solid enzyme reaction, which improves the reaction speed of the product. The other processes in the acidified oil can be reduced by distilling first at the same time. Pigments, colloids, non-fatty acid acidic substances and mechanical impurities are all separated, which can effectively protect the activity of immobilized fatty acids and significantly increase the frequency of enzyme use.

Bio-jet fuels		
Nº Publicación	Solicitante (País)	Contenido técnico
EP3771738	Delmas Michelle (FR)	A method to convert a cellulosic fraction into fischer tropsch products, using a lignocellulosic raw material based process for production of synthetic gas. The invention proposes a method comprising (i) using a lignocellulosic raw material based process for production of synthetic gas; (ii) introducing the syngas to a Fischer-Tropsch (FT) catalytic synthesis (FTS) process and generating Fischer-Tropsch products, wherein the synthetic gas production process comprises the steps a) extracting lignins and hemicelluloses by putting solid lignocellulosic raw material in contact with a mixture composed of at least water and formic acid, at atmospheric pressure under temperature between 80°C and 110°C, b) fractionating the obtained primary solid fraction (PSF) and primary liquid fraction (PLF); c) recovering and obtaining an intermediate liquid fraction (ILF); d) separating the lignins; e) gasifying at least part of said primary solid fraction (PSF) for producing synthetic gas.
US2021017480	Exxonmobile Res & Eng Co (US)	Photobioreactor with annular chambers. A photobioreactor includes one or more annular chambers concentrically positioned about a central axis, and an algae slurry contained within the one or more annular chambers.
US2021024860	Exxonmobile Res & Eng Co (US)	Photo-bioreactor and filter unit integration for separation of algae biomass. A system for growing and harvesting algae biomass includes a photo-bioreactor suitable for algae growth in water and a filter unit in fluid communication with the photo-bioreactor. An algae slurry, when at least partially contained within the photo-bioreactor, generates hydrostatic fluid pressure that exclusively drives the algae slurry to the filter unit and discharges a permeate.
WO2020264207	Gevo Inc (US)	Bio-based olefin oligomerization via chabazite zeolite catalyst. This present disclosure relates to catalytic processes for oligomerizing bio-based olefinic mixtures to higher value renewable fuels via a doped Chabazite zeolite catalyst. A stream including a C2-C8 olefin and an oxygenate is fed to an oligomerization process utilizing a doped Chabazite zeolite catalyst resulting in high yields and selectivity of oligomers used to produce bio-based jet fuel and/or diesel fuels depending upon reaction temperatures and pressures. The process also produces iso-octane that is suitable for producing bio-based gasoline. The process tolerates relatively high levels of oxygenates in the olefinic feed and the catalyst is capable of air regeneration.

Nº Publicación	Solicitante (País)	Contenido técnico
KR20200144288	Korea Advanced Inst Sci & Tech (KR)	Multimetallic bifunctional hydrocracking catalyst and method of preparing biojet fuel from triglyceride-containing biomass using the same. The present invention relates to a metal-acid binary functional hydrocracking reaction catalyst containing a variety of metal components, and a method for producing bio aviation oil from biomass containing triglycerides using the hydrocracking catalyst, and more specifically, two types. When the metal-acid binary functional hydrocracking catalyst in which the above metal components are supported on a solid acid support is applied to the direct conversion reaction of biomass containing triglycerides, it can prevent overdecomposition and catalyst deactivation due to carbon monoxide poisoning. Can be effectively produced through a single catalytic reaction.
US2021047575	NextChem Srl (IT)	Process for the pre-treatment of feeds for the production of biofuels by hydrolysis of fats at high temperature and pressure. A hydrotreating and isomerization pre-treatment process in a biofuel production plant, which is characterized in that it occurs from a raw supply consisting of an organic feed comprising secondary materials such as frying oils, category 1 animal fats, residual oils or by-products consisting of monoglycerides, diglycerides, triglycerides and free fatty acids, which is added to a recycling stream consisting of a mixture of mono-, di- and triglycerides free of impurities and exiting an esterification unit, said process occurring by means of hydrolysis with excess water, under controlled pressure and temperature conditions, thus obtaining the partial or total conversion of the supply into glycerol and fatty acids, the excess water introduced into the hydrolysis process acting as a solvent for impurities of various nature present in ionic form, thus removing most of the heavy metals, as well as of the chlorides present in said supply.

Otros biocombustibles (hidrobiodiésel, biohidrógeno, biopropano, biocrudos, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
KR20210012227	Kim Kang Lyen (KR)	Hydrogen production method through anaerobic organic waste anaerobic digestion. The present invention relates to a method of producing hydrogen using anaerobic digestion of organic waste, and more particularly, in a method of producing hydrogen using organic waste, the step of heat-treating sewage sludge as a planting seed in the first process and supplying it to a reactor. Includes. In addition, it relates to a method of producing hydrogen capable of continuously generating hydrogen by injecting a mixture of food waste and sewage sludge as organic waste into a reactor, reacting, sedimenting, and outflowing supernatant. In the hydrogen production method using anaerobic digestion of an organic waste mixture, the hydrogen production method of the present invention comprises the steps of heat-treating sewage sludge containing hydrogen-producing bacteria during the initial process and supplying it to the reactor, and after mixing the organic waste And supplying and reacting to a reactor containing sludge to generate hydrogen, and returning a part of the effluent discharged to the outside of the reactor to the mixing process of organic waste.
KR20200141281	Korea Inst Mach & Materials (KR)	Bio fuel composition for diesel engine. The present invention relates to a biofuel composition for applying bio crude oil to a diesel engine, and in detail, coffee bio crude oil, a lower alcohol having 1 to 5 carbon atoms, diesel and a cetane number improver (cetane number improver) for a biofuel composition for a diesel engine.
FI20196063	Neste Oyj (FI)	Method for upgrading bio-based material and upgraded material. Provided is a method for upgrading a bio-based material, the method comprising the steps of pre-treating bio-renewable oil(s) and/or fat(s) to provide a biobased fresh feed material, hydrotreating the bio-based fresh feed material, followed by separation, to provide a bio-propane composition.
WO2021018895	Shell Int Research (NL) et al.	Fuel compositions with enhanced stability and methods of making same. Method to improve or maintain stability and/or compatibility of a residual hydrocarbon fuel comprising: (a) blending at least 5-95 % m/m of a residual hydrocarbon component with at least 5-80% m/ m of a fatty acids alkyl esters component or (b) blending at least 5-80 % m/m of a fatty acids alkyl esters component with a stable residual fuel composition comprising (i) at least 5-95 % m/m of a residual hydrocarbon component and (ii) up to 90 % m/m of a non- hydroprocessed hydrocarbon, a hydroprocessed hydrocarbon or any combination thereof; wherein the fatty acids alkyl esters component is blended with the stable residual fuel composition before at least one other fuel composition that decreases the asphaltenes solvency power of the residual fuel composition is added thereto.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021004878	Topsoe Haldor AS (DK)	Hydrotreatment of oxygenate feedstock with liquid recycle from low pressure separator. A hydrotreatment unit for an oxygenate feedstock is provided, said unit comprising: a hydrotreatment reactor; a first cooling unit; a high-pressure separator and a low pressure flash unit. The hydrotreatment unit is arranged to feed at least a part of the hydrogen-rich stream from the high-pressure separator to the hydrotreatment reactor; and the hydrotreatment unit is arranged to feed a part of the degassed hydrocarbon-rich stream from said low pressure flash unit as a hydrocarbon recycle stream to the hydrotreatment reactor. A method for hydrotreating an oxygenate feedstock using said hydrotreatment unit is also provided.
CN112175680	(CN)	The invention provides a methanol emulsification hydrogenation catalytic biodiesel and a preparation method thereof, belonging to the field of petrochemical technology; in the present invention, the hydrogenation catalytic biodiesel is emulsified with methanol, and n-octanol is used as a co-solvent to prepare it. Methanol emulsification hydrogenation catalytic biodiesel; the methanol emulsification hydrogenation catalytic biodiesel has a cetane number of 77.8~78.6, a low calorific value of 42.02 MJ/kg~43.06 MJ/kg, and its preparation cost is low, stable, and has relatively high High economic and practical value.

PATENTES BIOPRODUCTOS (Fuente: [Global Patent Index - EPO](#))

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2021048470	Aalto Univ Foundation Sr (FI)	Food packaging comprising composite of thermoplastics and microcrystalline cellulose. According to an example aspect of the present invention, there is provided A material for food packaging comprising one or more layers of a composite of one or more thermoplastics and microcrystalline cellulose, wherein the composite comprises 10 wt % or more of microcrystalline cellulose, by weight of the composite.
WO2021025775	Dow Silicones Corp (US)	Alkenyl-functional polydiorganosiloxane compositions and methods for use thereof in forming wood plastic composites. An alkenyl-functional polydiorganosiloxane is useful in a composition and a method for preparing a wood plastic composite article. The wood plastic composite article is useful as a building material. The polydiorganosiloxane may be added in liquid form to a composition, or may form part of a solid carrier component, used to make the wood plastic composite article.
WO2020257853	Castle Mountain Entpr Pty Ltd (AU)	Preparation and use of zeolite and biochar composite material. A method for preparing a composite material comprising the provision of a biomass material and a zeolite which are mixed together. Introducing the mixture of biomass material and the zeolite into a pyrolysis unit and pyrolyzing same, so that the mixture becomes char and zeolite. Allowing the resultant char and zeolite to be annealed to form the composite material. The zeolite that is initially provided having a hardness of greater than four on the Mohs hardness scale, and provided in a substantial amount so that the zeolite makes up no less than fifty percent by mass of said resultant composite material.
WO2021028816	Fondazione St Italiano Tecnologia et al.(IT)	A biodegradable biocomposite and a process for its preparation. The present invention relates to biodegradable composites based on blends of a thermoplastic polymer material with cellulosic materials, useful for several industrial and packaging applications, in particular for the manufacture of biodegradable films and articles of complex shape, having improved mechanical properties, oxygen barrier properties, biodegradation and heat resistance; and to a process for the manufacture of these biodegradable composites.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021001197	Deutsche Inst Fuer Textil und Faserforschung Denkendorf (DE)	Composite material with a matrix on the basis of organic plastics, and use thereof. A description is given of a composite material with a matrix on the basis of an organic plastic containing solid fillers. This composite material is distinguished by the fact that the filler is a dried fermentation residue from the fermentation of vegetable substrates. This composite material opens up beneficial uses, such as in the construction of furniture and exhibition stands and for decorative articles and products relating to gardening and landscaping. The invention therefore avoids the discarding of fermentation residues from the fermentation of vegetable substrates. Instead, they are advantageously used in composite materials. This is therefore a very useful way of making use of such materials, it having been found that the physical properties of the composite materials provided with a dried fermentation residue are sufficient for the respectively intended applications.
WO2021013591	Hawk Hochschule Fuer Angewandte Wss und Kunst Hildesheim/ Holzminden/ Goettingen (DE)	Composite wood material. The invention relates to a composite wood material that comprises layers of wood veneer and of natural fiber fabric.
WO2020254433	ICS Benelux NV (BE)	Method for producing insulation material containing a mixture with plant based material. A method for producing an insulation material containing a mixture with plant based material is described. During a first mixing step a dry intermediate mixture is formed by mixing the plant based material with burnt lime in powder form. Afterwards, during the second mixing step, the mixture is formed by supplying water to the dry intermediate mixture.
WO2021006854	LLC Rids (UA)	Method for producing disposable tableware. A method for producing disposable tableware consists in that the latter is manufactured from a biopolymer composite material comprising a polymer matrix reinforced with cellulose fibre. The method comprises steps in which preliminary moulding of a reinforcing cellulose structure is carried out, said structure is then compression moulded and dried using a hot press with interchangeable dies, the structure is infiltrated with a polymer matrix, followed by polymerization and air-conditioning of the finished disposable tableware to remove residual odours therefrom. The invention makes it possible to manufacture disposable tableware from a natural ecological raw material which completely decomposes in the environment, to reduce contamination of the environment over the course of the manufacturing process, to simplify and speed up the latter, and also to improve the functional properties and usability of disposable tableware.
WO2021017031	Luo Huimin (CN)	Nanoscale plant fiber modified biodegradable composite material, preparation method therefor, and application thereof. A preparation method for a nanoscale plant fiber modified biodegradable composite material and an application. The preparation method comprises the following steps: grinding a dried plant fiber to obtain a nanoscale plant fiber; adding the nanoscale plant fiber from step, polylactic acid, biodegradable copolyester, a compatibilizer, a plasticizer, and a tackifier into a blender in proportion for uniformly mixing to obtain a mixed material; and adding the mixed material that is uniformly mixed into a twin-screw extruder, and performing extrusion granulation to obtain the nanoscale plant fiber modified biodegradable composite material. By using the nanoscale plant fiber and collaborating with the synergetic effect of the biodegradable copolyester, the compatibilizer, the plasticizer, the tackifier, polylactic acid, and the like, a biodegradable plastic is modified and product costs are reduced, so that a plastic product is fully degraded after use, the plant fiber is recycled and product costs are reduced.
WO2020256090	Okura Industrial Co Ltd (JP)	Resin composition for heat-shrinkable film and heat-shrinkable film using same. [Problem] The present invention addresses the problem of providing a resin composition for a heat-shrinkable film which is biodegradable and has a wide temperature range in which a stretching treatment can be performed. [Solution] According to the present invention, provided is a resin composition for a heat-shrinkable film, the resin composition being characterized by containing, as main components, a polylactic acid, a polybutylene succinate, and a polybutylene succinate adipate, wherein the blending ratio of each resin is polylactic acid:polybutylene succinate:polybutylene succinate adipate=5-45% by weight:5-45% by weight:50-90% by weight.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021049057	Panasonic Ip Man Co Ltd (JP)	Woody laminate and method for manufacturing same, and consolidated veneer and method for manufacturing same. This method for manufacturing a woody laminate comprises a consolidation step and a bonding step. The consolidation step is to supply a polycarboxylic acid to a saccharide-containing veneer that is obtained from a plant containing a saccharide, and consolidate the saccharide-containing veneer, to obtain a consolidated veneer. The bonding step is to bond the consolidated veneer to both faces of or one face of a core material.
WO2021005266	Prefere Resins Finland Oy (FI)	Resin composition. The present invention concerns a resin composition comprising a resin containing a condensate of formaldehyde, lignin-comprising phenolic component and protein isolated from cereal grains and a process for the production of such composition, as well as end- uses of the resin composition. In particular, the present invention relates to a resin composition having especially low free formaldehyde concentration and to a process for the production of such composition.
WO2021023784	Siempelkamp Maschinen & Anlagenbau GmbH (DE)	Method for producing a material board. The invention relates to a method for producing a material board, in particular an engineered wood board, which has at least one core layer made of strands or chips, and outer layers made of chips, and produced is a multi-layer pressed material mat comprising at least one pressed material core layer made of strands or chips, and a lower and an upper pressed material outer layer made of chips, said multi-layer pressed material mat being pressed, thereby forming the engineered wood board comprising the core layer and the outer layers. The method is characterised in that the pressed material core layer is produced by dispersion from dispersible strands or chips, and that each pressed material outer layer is produced from a fluid chip-liquid mixture.
WO2021041661	US Agriculture (US)	Cellulosic fibers comprising embedded silver nanoparticles and uses thereof. The present invention relates to treated cellulosic fibers comprising embedded silver nanoparticles, where the cellulosic treated fiber is not a swollen cellulosic fiber. The invention includes methods for preparing such cellulosic fibers, articles comprising such cellulosic fibers, and uses for such articles. The invention further relates to methods for preparing treated swollen cellulosic fibers comprising embedded silver nanoparticles.
WO2021005260	UPM Kymmene Corp (FI)	Natural fiber plastic composite precursor material for compounding, method for preparing thereof and method for preparing natural fiber plastic composite product: The present disclosure relates to a natural fiber plastic composite precursor material comprising 80–95% (w/w) cellulosic fibers having an average fiber length less than 1 mm, 3–7% (w/w) coupling agent, 0–7% (w/w) thermoplastic polymer, and 0–1% (w/w) lubricant and/or wax, wherein the material is in form of pellets having a bulk density in the range of 300–700 g/L, and to a method for preparing thereof. The present disclosure also relates to a method for preparing a natural fiber plastic composite product.

Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020252582	Genecis Bioindustries Inc (CA)	Method for producing polyhydroxyalkanoates (PHA) from organic waste. According to one broad aspect of this disclosure, a method is provided for producing polyhydroxyalkanoates (PHA) from organic waste. The method comprises homogenizing organic waste to obtain a feedstock that has about 0.01% to about 99.99% (w/w) dry mass solids. The feedstock is inoculated with an inoculum of acidogenic fermentative bacteria in order to obtain an inoculated feedstock. The inoculated feedstock is incubated for at least 1 day to obtain a fermentation broth. The fermentation broth comprises volatile fatty acids (VFAs) and undigested organic waste. The fermentation broth is filtered with a filter with a pore size ranging from 0.2 µm to 500,000 NMWC to remove the acidogenic fermentative bacteria and undigested organic waste, to obtain a clarified broth comprising concentrated VFAs. The clarified broth and high-PHA producing bacteria are incubated to produce intracellular PHA granules in the high-PHA producing bacteria. PHA polymers are extracted from the intracellular PHA granules.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020255165	Inoviron Ind Trading Pvt Ltd (IN)	Biopolymer and method of preparing the same. The present invention relates to a method of making biopolymer including but not limited to bio plastic from animal by-products, more specifically from poultry feathers wherein the method of making a biopolymer comprises the steps: i) i) pre-treatment of native feathers; ii) extraction of keratin protein from pre-treated feathers in the presence of reducing agent; iii) polymerization by blending keratin protein with one or more plasticizer, one or more additive and one or more cross-linking agent, optionally in presence of at least one alkali hydroxide to obtain a polymer compound using one or more thermal processing techniques at a temperature in the range of 60°C to 150°C; and iv) applying pressure and subjecting the polymer compound to thermal processing at a temperature in the range of 100°C to 220°C in presence of at least one or more excipients.
WO2021049207	Kaneka Corp (JP)	Transformed microorganism, and method for producing polyhydroxyalkanoic acid using said microorganism. This transformed microorganism has polyhydroxyalkanoic acid synthase genes and inhibits the expression of A1386 genes and /or A2405 genes. Further, the transformed microorganism may have enhanced expression of minC genes and minD genes. This method for producing PHA includes a step for culturing the transformed microorganism in the presence of a carbon source.
WO2021049910	LG Chemical Ltd (KR)	Method for preparation of block copolymer. Provided is a method for preparation of a block copolymer comprising a step of ring-opening polymerizing lactide monomers in the presence of a biosynthesized poly(3-hydroxypropionate) initiator to prepare a polylactide-poly(3-hydroxypropionate) block copolymer.
WO2021019525	Mulyono Noryawati (ID)	Biodegradable and edible bioplastic from renewable plant based polymer for packaging and the manufacturing method thereof. This invention relates to the flexible packaging, either as sheet, roll, bag, sachet, or other forms, which is biodegradable and edible, and could be used as packaging for solid, semisolid, and liquid, which is featured by the composition of biopolymers, at least two of different natural and renewable biopolymers, and the manufacturing method thereof.
WO2021030201	Nant Holdings IP LLC (US)	Aragonite-based polymer materials. Compositions, methods, and uses of aragonite biobased polymer plastic compositions are presented having increased strength and stiffness as well as improved recyclability and/or biodegradability. The aragonite biobased plastic compositions include aragonite blended in a dispersion with a biobased polymer and optionally includes a petroleum-based polymer and/or a compatibilizer.
WO2020263201	Orta Dogu Teknik Ueniversitesi (TR)	High yield, eco-friendly recycling method of polylactic acid using supercritical or dense gas carbon dioxide. The invention is related to the recycling method of polylactic acid in a single step by using supercritical or dense gas carbon dioxide.
WO2021021033	PTT Public Company Ltd (TH)	Biomass-containing plastic composition and preparation process thereof. The present invention relates to a biomass-containing plastic composition comprising: (i) a plastic precursor which is selected from one or more of bioplastic or conventional plastic or plastic blend thereof; (ii) a biomass which is a biomass byproduct deriving from a coffee roasting process such as: coffee chaff; (iii) a friction reducing agent such as: fluoro polymer or fluoro polymer derivatives; and (iv) an inorganic compound in carbonate form of group 2 of the periodic table. Furthermore, this invention also relates to the preparation process of said biomass- containing plastic composition for molding into various bioplastic products for various applications.
WO2021050501	Smithers oasis co (US)	Biodegradable floral foams. An open-cell biodegradable foam material selected from cellulose and polylactic acid having a structure capable of supporting stems of cut flowers and process for its production.
ES2801025	Univ Navarra Publica (ES)	Method of obtaining keratins and bioplastics from keratine residues of animals. Method of obtaining keratins and bioplastics from keratinous residues of animals. A procedure for obtaining keratin is described, from keratinous agro-industrial waste. A keratin obtainable by means of said procedure is also described, characterized by being soluble in an alkaline medium and with average molecular weight fractions greater than 10 kDa. Finally, a method for obtaining bioplastics from keratin obtained from keratinous agro-industrial waste by the described obtaining procedure is also described.

Nº Publicación	Solicitante (País)	Contenido técnico
EP3771540	Vibra Maschf Schultheis GmbH & Co (DE)	Method and apparatus for crystallizing polylactide (PLA) granules. An apparatus for crystallizing PLA granules comprises a pre-crystallization stage (S2) for overcoming the tacky phase on the surface of the PLA granule particles in the form of one or a plurality of vibrating troughs (5) for moving PLA granule bulk material by means of vibration; a crystallization stage (S3) for further crystallization of the PLA granules, which are no longer tacky, from the pre-crystallization stage in the form of a crystallization silo (7) and/or one or a plurality of further vibrating troughs; and a cooling stage (S4) for cooling the PLA granules from the crystallization stage (S3) by means of contact cooling. Furthermore, a corresponding method that allows PLA granules to be crystallized without additional energy input is disclosed.

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

Biofertilizantes, bioadhesivos, etc.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021011726	Abecassis David (US)	Novel soil amendment with reduced metal content for reducing metal uptake by growing plants, and processes for making and using same. Streptobacillus is grown on purified chitin obtained by fermentation of micronized shrimp or crab shell material and purification using alkaline media. The chitin is biodegraded by the streptobacillus and produces plant growth hormones or auxins. From 25 to 50 % of the biomass is converted to the auxins. Since the soil amendment including the auxins has a low trace metal content, the soil amendment does not contribute to metal uptake by the treated growing plants. For example, Cannabis plants with a reduced trace metal content can be grown in soil media provided with the soil amendment with an 8 to 10 fold increase in root mass and root growth rates in order to comply with legal limits on the content of trace metals in the plants.
WO2021011998	Agriculture Victoria Serv Pty et al. (AU)	Novel erwinia strains and related methods. The present invention relates to an endophyte strain isolated from a plant of the Poaceae family, wherein said endophyte is a strain of Erwinia gerundensis which provides bioprotection and/or biofertilizer phenotypes to plants into which it is inoculated. The present invention also discloses plants infected with the endophyte and related methods.
WO2021009210	Agroils Tech Spa (IT)	Formaldehyde-free binders and methods for producing the same. The present invention concerns the field of binders suitable for wood panel manufacturing. In particular, the invention regards methods for producing bio-based formaldehyde-free binders. In a further aspect the present invention describes bio-based formaldehyde-free binders obtainable from the described methods and their uses. The invention further describes methods for gluing articles and formaldehyde-free products obtainable from the methods of the present invention.
ES2802904	Consejo Superior Investigacion (ES)	Use of an aqueous composition as an adhesive. Use of an aqueous composition as an adhesive. The present invention relates to the use of a composition comprising an aqueous solution of an unmodified biopolymer as an adhesive for inert surfaces, such as metal, plastic, glass, paper, wood or fabric. In particular, the biopolymer is a polysaccharide. The present invention also relates to the method of gluing the mentioned surfaces.
WO2021018321	CT Ingenieria Genetica Biotecnologia (CU)	Biopesticide and biofertiliser composition. A biopesticide and biofertiliser composition which comprises Pseudoxanthomonas indica, or metabolites of said bacterium, and excipients or diluents. Use of Pseudoxanthomonas indica, or metabolites of said bacterium, for manufacturing a biopesticide or biofertiliser composition. A method for controlling phytopathogens and zoonematodes which comprises the application of an effective amount of Pseudoxanthomonas indica, or its metabolites, to the plant or animal that needs it. A method for promoting plant growth which comprises the application of an effective amount of Pseudoxanthomonas indica, or metabolites of said bacterium, to the soil or substrate, plant or seed.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021029225	Denka Company Ltd (JP)	Adhesive sheet. [Problem] To provide an adhesive sheet which is minimally tacky but has high adhesive force between adhesive layers, the adhesive sheet tending not to degrade in high-temperature environments or high-humidity environments. [Solution] An adhesive sheet having a substrate including a vinyl chloride resin and a plasticizer, and an adhesive layer including natural rubber, wherein, in pulse solid-state 1H-NMR measurement of the adhesive layer, the 1H intensity ratio for a relaxation time of no greater than 0.10 millisecond is 5-30%, taking 100% as the integrated value of the 1H intensity in the whole relaxation time. The toluene-insoluble fraction of the adhesive layer is preferably 75% by mass or greater with respect to the total mass of the adhesive layer.
WO2021035464	Hunan Noah Agricultural Science And Tech Co Ltd (CN)	System and method for preparing carbon-based compound microbial fertiliser. A system and a method for preparing a carbon-based compound microbial fertiliser, the system comprising: a pre-treatment apparatus, having an agriculture and forestry biomass inlet and a biomass block outlet; a carbonisation furnace, having a biomass block inlet, a biochar outlet, and a high-temperature oil and gas outlet; an oil and gas separation apparatus, having a high-temperature oil and gas inlet, a pyrolysis gas outlet and an oil-water mixture outlet, an oil and water separation apparatus, having an oil-water mixture inlet, a biological oil outlet, and a wood vinegar stock solution outlet; a purification apparatus, having a wood vinegar stock solution inlet and a wood vinegar solution outlet; a cooling and crushing apparatus, having a biochar inlet and a cooled biochar powder outlet; a mixing apparatus; a pelletising apparatus; a drying apparatus; a cooling apparatus; a bacteria adding apparatus; and a packaging apparatus.
EP3760589	Hysytech Srl (IT)	Process for the valorization of biowaste and products obtained through the process. It is described an improved process for the recycling of biowastes, carried out at room temperature or higher temperature, in absence or presence of solar light and a photosensitizer, and/or air, oxygen, ozone and peroxides which allows producing water-soluble biopolymers, biosurfactants and oximes, that can be recycled in chemical productions, for instance bioplastics and fungicides.
WO2021000023	Incitec Pivot Ltd (AU)	Improved fertiliser. A dry and solid fertiliser in the form of discreet particles is provided. The particles of the dry and solid fertiliser comprise a homogenous mixture of organic and inorganic materials. The inorganic material comprises at least one of the NPKS nutrients. The organic material comprises a carbon-labile substantially sterile product of organic waste.
WO2021015556	Kim Doo Il (KR)	Eco-friendly biodegradable adhesive composition. The present invention pertains to an adhesive composition in which natural materials such as starch are added to a cellulose solution; and a method for producing same. Since the adhesive composition is water separable and biodegradable, even while having excellent adhesion, labels as well as the adhesive can be completely removed from adherends during the regeneration of PET bottles by bringing the labels into contact with pure water without performing an alkaline water (lye) treatment. Thus, the adhesive composition has the advantage of being able to provide highly pure, high-quality recycled PET, and can simplify the regeneration process of PET due to being easily removed from PET bottles. In addition, the use of caustic soda is eliminated, and thus water pollution caused by washing water can be prevented. Also, the adhesive composition is an eco-friendly invention which when released, poses no risk of secondary environmental pollution, and which improves the physical properties of soil and has a deodorizing effect.
WO2021024152	Latvijas Valsts Koksnes Ķīmijas Institūts (LV)	A method for obtaining thermoreactive binders for a production of wood composite materials from birch outer bark. The invention refers to a method for obtaining thermoreactive binders by isolating them from birch outer bark for use in the production of wood composite materials. The invention describes a process of obtaining a suberinic acid containing binders, which can be used for the production of particle boards and plywood, as well as a production method of the aforementioned particle boards and plywood by using the binders defined in the invention. The invention offers a zero waste method of birch outer bark processing, where the by-products of binder obtaining process may be used as mineral fertiliser, fuel or fuel filler.
WO2021018246	Themolysis Co Ltd (CN)	Method for rapidly manufacturing organic fertilizer. Disclosed is a method for rapidly manufacturing biological wastes such as livestock manures and/or biogas residues into an organic fertilizer.

Biocosméticos, Biofarmacéuticos		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2021013973	Alumier Europe Ltd (MT)	Cosmetic compositions comprising plant extracts and uses thereof. The invention features cosmetic compositions comprising Swertia chirata extract and hydrolyzed Ceratonia siliqua seed extract formulated for topical administration and their related uses, e.g., for reducing skin aging or wrinkles.
WO2021043927	Botalys SA (BE)	Ginseng composition and use thereof as a medicament. The invention pertains to a composition, a kit and preparation thereof. The invention also pertains to the composition for use as a medical or therapeutic substance. The composition comprises a rare ginsenoside, a ginsan and a gintonin. Preferably, the ratio of ginsan to gintonin is at least 500:1 and at most 1:100. Preferably, the ratio of rare ginsenosides to ginsan and gintonin is at least 250:1 and at most 1:40.
EP3766473	ETH Zuerich et al. (CH)	Cosmetic preparations comprising natural activators. The present invention relates to the use of a combination of plant extracts from the genera Salvia, Artemisia, Echinacea, and optionally further plant extracts, for the cosmetic treatment of the skin. The invention further relates to cosmetic preparations which comprise such combination of plant extracts. These plant extracts and cosmetic preparations are particularly useful for stimulation of the lymphatic system, including rejuvenation, anti-ageing, detoxification and increased firmness of the skin, for puffy-eye treatment and / or for anti-swelling effects.
WO2021044013	France Cosmephyl Lab (FR)	Use of a composition containing an extract of tulipa gesneriana. The invention relates to new compositions containing an extract of Tulipa Gesneriana, to the use thereof in cosmetics, and to the use thereof in pharmaceuticals, particularly in dermatology.
WO2021041046	Grant Ind Inc (US)	Bio-based and biodegradable elastomer for cosmetic and personal care. A polyurethane elastomeric rubber composition containing a bio-based polyol cross-linked with a bio-based isocyanate using a urethanation catalyst such as a bismuth catalyst in the presence of a cosmetic emollient is disclosed. The cross-linked polyurethane elastomer rubber is in further aspect of the invention included in a gel after being milled in the presence of a bio-based emollient or mixture of bio-based emollients. The polyurethane elastomeric gel has good compatibility with cosmetic and natural oils and can be used as a gelling agent for these oils among other desirable cosmetic formulary roles.
WO2021006507	Inventage Lab Inc (KR)	Method for preparing composition powder for feminine wash containing propolis and natural extract. The present invention relates to a method for preparing a composition powder for a feminine wash containing propolis and a natural extracts, wherein the composition powder for a feminine wash contributes to improvements in ease of use, convenience of storage, and shelf life of a composition product for a feminine wash.
WO2021000037	Natura Cosmetics SA (BR)	Method for obtaining bioactive ingredients, use of subcritical-water extraction process, bioactive ingredient, use of bioactive ingredient and cosmetic composition. The present invention relates to a method for obtaining single-use bioactive ingredients using a specific extraction process and new bioactive ingredients from renewable sources, in particular from the Amazon region, that can be used to prepare cosmetic compositions for treating skin, hair and/or scalp. Said bioactive ingredients are obtained by means of a subcritical-water extraction process parameterized to obtain bioactive compounds from different species and different plant components.
WO2021020994	Obshchestvo S Ogranichennoj Otvetstvennostyu Splat Global (RU)	Complex for the prophylaxis of oxidative stress in the oral cavity. The invention relates to a complex of active ingredients for use in agents for care of the teeth and/or oral cavity, based on a CO2 extract of dog rose blossom (Rosa Canina), a dry extract of magnolia bark (Magnolia Officinalis), and clementine essential oil (Citrus Clementina), the prophylactic use of which makes it possible to reduce oxidative stress in the oral cavity of an individual in need thereof.
WO2020260200	Oreal (FR)	Cosmetic composition comprising a bifidobacterium species lysate, an extract of yeast of the saccharomyces genus, and a monosaccharide and cosmetic uses thereof. The present invention relates to a cosmetic composition comprising, in a physiologically acceptable medium: - at least one microorganism of the Bifidobacterium species genus and/or a fraction thereof and/or a metabolite thereof, and - at least one extract of yeast of the Saccharomyces genus, and - at least one monosaccharide chosen from mannose, rhamnose and mixtures thereof, said microorganism being used in the form of a lysate. The present invention also relates to a cosmetic treatment process comprising the application of said composition to the skin; and also the cosmetic uses thereof.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020260201	Oreal (FR)	Cosmetic composition comprising a combination of at least one oligosaccharide and/or polysaccharide combined with a mannose monosaccharide, and use thereof in maintaining the balance of the bacterial skin flora. The present invention relates to a cosmetic composition for topical application, comprising, in a physiologically acceptable medium: -at least one oligosaccharide and/or polysaccharide, selected from the group consisting of inulins, fructooligosaccharides, glucooligosaccharides, soya- derived oligosaccharides, pyrodextrins, isomaltooligosaccharides, xylooligosaccharides, transgalactooligosaccharides and mixtures thereof, and -at least one mannose monosaccharide. The present invention also concerns a method of cosmetic treatment for caring for the skin and/or mucous membranes, which comprises the application to the skin and/or the mucous membranes, in particular having undergone external aggression, of said composition; and also concerns cosmetic uses thereof.
WO2021029425	Rohto Pharma (JP)	Topical composition. The present invention pertains to a topical composition containing (A) naturally derived nanofibers, (B) an oily component, and (C) one or more selected from the group consisting of glycosaminoglycans, glycosides, and acrylic-acid-based polymer compounds.
WO2021042778	Suzhou Innovative Biomaterials & Pharmaceuticals Co Ltd (CN)	Temperature-sensitive gel pharmaceutical composition for treatment of tumors. A temperature-sensitive gel pharmaceutical composition for treatment of tumors, characterized by comprising an active component and a gel forming adjuvant. The active component comprises a chemotherapeutic agent, or an immune adjuvant, or an immune checkpoint inhibitor that causes the immunogenic death of tumor cells. The gel forming adjuvant comprises a gel forming matrix. The gel forming matrix comprises natural biological materials: chitosan, dextran, cellulose, sodium alginate, and hyaluronic acid, and synthetic polymers: one or a plurality of poly-N-isopropylacrylamide copolymer, polyoxyethylene/polyoxypropylene, polyethylene glycol, polyvinyl alcohol, polylactic acid-glycolic acid copolymer, and polyethylene oxide sodium glycerophosphate. The preparation method of the temperature-sensitive gel pharmaceutical composition is simple, and the formation of the gel allows slow release of a drug.
WO2021001029	Symrise AG (DE)	Blend of beeswax and a lactylate ester. Suggested is a mixture for improving the sun protection of compositions comprising UV filters, the mixture consisting of (a) beeswax; and (b) at least one lactylate ester.
EP3760291	Univ Stellenbosch (ZA)	Method for separating polyphenolic compounds from biomass and resulting products. The invention provides a method for separating a polyphenolic compound such as resveratrol from biomass. The method comprises feeding the biomass into an aqueous two-phase system with a polymer phase and a salt phase and separating the polymer phase which includes the polyphenolic compound from the salt phase. The polymer may be a polyether. The salt may be a tartrate salt, a citrate salt, a carbonate salt, a phosphate salt or a sulphate salt. The biomass may be derived from grape vines, knotweeds, pine trees, peanut plants, cocoa bushes, Vaccinium shrubs; geraniums of the Pelargonium genus, or the herb Polygonum Cuspidatum, for example. The biomass may be derived from winery waste. The polymer phase may comprise 10% (w/w) polyethylene glycol with a molecular weight of 8000 g/mol. The salt phase may comprise 15% (w/w) tartrate salt. The invention extends to medicaments and dietary supplements which include the polyphenolic compound.
WO2021034095	Univ Yonsei IACF (KR)	Composition for preventing or treating metabolic disease comprising kaempferide as active ingredient. The present invention relates to a pharmaceutical composition and a functional food composition for preventing or treating a metabolic disease comprising kaempferide or a derivative thereof as an active ingredient. The composition of the present invention induces efficient lipid decomposition of cells by promoting autophagy influx, and, as a naturally derived compound, has few side effects even when administered for a long period of time, and thus can be utilized as an effective composition for treating a metabolic disease.

Bioaditivos alimentarios		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2021030286	Abbot Lab (US)	Plant-based nutritional compositions. Plant-based nutritional compositions comprise fava bean protein isolate and pea protein. The fava bean protein isolate comprises greater than about 10 wt% of the total protein in the composition, and the pea protein comprises less than about 50 wt% of the total protein in the composition. In certain embodiments, the nutritional compositions are high in protein, high in fiber, and low in calories. The compositions may be dairy-free and/or soy-free.
WO2020256908	Corn Products Dev Inc (US)	Pulse protein emulsifiers. This specification discloses plant-based emulsifiers comprising a pulse protein and having Brix of from about 5° to about 60°. Also disclosed are emulsifier compositions including plant-based emulsifiers and a starch. Also disclosed are edible composition comprising the plant-based emulsifiers. Also disclosed are edible compositions having a plant-based emulsifier and an emulsion of oil and water having high oil content.
WO2021021746	Evolve Biosystems Inc (US)	Nutritive compositions with secreted IgA, milk fat globule membrane components and/or bifidobacterium. This disclosure describes compositions of one or more components including milk fat globule membranes (MFGM) complexes, milk fat globules (MFG), commensal organisms, SlgA, recombinant SlgA (rSlgA), triglycerides or oils, and mammalian milk oligosaccharides (MMO) and the use of such compositions. The reconstituted MFGM component of the disclosed invention may come from an animal source, particularly from a mammalian source, including from the processing of buttermilk.
WO2020260593	Firmenich & CIE (CH)	Flavored food product. The present invention relates to a flavored food product comprising a coacervate core shell capsule comprising a flavor ingredient as well as methods and uses of the same.
WO2021013863	Frieslandcampina Nederland Bv (NL)	Dairy-based snack food product. The invention relates to a process for the preparation of a fermented dairy-based snack food product comprising the steps of (a) preparing a dough by mixing a fermented dairy component, a concentrated milk protein component, starch and optionally further components; (b) processing the dough into shaped precursor food products; (c) coating the shaped precursor food products, preferably with starch; and (d) drying the coated and shaped precursor food products in a vacuum microwave drying device to yield the fermented dairy-based snack food product. The invention also relates to a fermented dairy-based snack food product obtainable by this process.
WO2021008680	Gold&Green Foods Oy (FI)	A meat replacement product, a method and a twin-screw extruder for manufacturing the same. To improve the mouthfeel of a meat replacement production, improvements to meat replacement products and high moisture protein texturization extrusion have been invented. The inventors have discovered that selecting the extrusion parameters and starting materials containing mechanically processed starch-containing grains suitably, the formation of an emulsion between the starch and proteinaceous matrix forming protein melt can be prevented or reduced to such an extent that there exists a substantial amount of starch that is not bound in the protein matrix. The presence of starch not bound in the protein matrix has been observed to improve the mouthfeel and sustaining an acceptable mouthfeel for a prolonged period. The patent application contains a number of independent claims for meat replacement products and methods.
WO2021022562	Inst of Medicinal Plant Development Chinese Academy of Medical Science et al. (CN)	Pure natural compound essential oil having broad-spectrum bactericidal activity and preparation and application thereof. Preparation and application of a pure natural compound essential oil having broad-spectrum bactericidal activity. The compound essential oil is obtained by extracting volatile oils from dry roots and stems of <i>Atractylodes lancea</i> (Thunb.) DC. or <i>Atractylodes chinensis</i> (DC.) Koidz. which belong to <i>atractylodes</i> plants of the <i>Compositae</i> family as well as dry twigs or bark of <i>cinnamomum cassia</i> Presl. which belongs to <i>Lauraceae</i> plants, and then mixing and compounding the volatile oils, the volume content of the two volatile oils being: 40-70 parts <i>atractylode</i> volatile oil and 30-60 parts of <i>cassia</i> twig volatile oil. The compound essential oil may have a strong killing effect on <i>Staphylococcus aureus</i> , <i>Escherichia coli</i> and <i>Candida albicans</i> .

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021007050	Intercontinental Great Brands LLC (US)	Lipid-based food filling suitable for high-temperature, high-pressure cooking co-extrusion. Soft and creamy lipid-based food fillings suitable for high-temperature, high-pressure cooking co-extrusion are provided. In one approach, the filling includes about 30 to about 45 weight percent of an edible lipid having a melting point of about 45°C or lower, about 0.5 to about 5 weight percent of a high oil-binding capacity material having an oil-binding capacity of at least about 100%, about 10 to about 30 weight percent of amorphous materials, and less than 30 weight percent sugar, sugar alcohol, or combinations thereof. The fillings generally have a particle size distribution with D50 of about 25 microns or less. Preferably, the fillings have a low water activity of about 0.45 or less and are substantially free of polyhydric alcohols and polyhydric alcohol-based humectants. The fillings maintain their soft and creamy texture after high-temperature, high-pressure cooking co-extrusion, subsequent baking, and throughout storage.
WO2021002362	Pokka Sapporo Food & Beverage Ltd (JP)	Method for producing small-piece jelly composition, small-piece jelly composition, and method for shaping small-piece jelly composition into nonspherical shape. The present invention pertains to a method for producing a small-piece jelly composition, the method comprising a step for adding one solution of a first solution containing calcium and a second solution containing an alginic acid or a salt thereof to the other solution to form a small-piece jelly composition, wherein the other solution is fluidized, the calcium concentration of the first solution is 0.15 w/w% or less, and the shape of the small-piece jelly composition is nonspherical.
EP3794960	Roquette Freres (FR)	High acetylated pea starch for instant noodles. The invention is related to the of a wheat flour based instant noodle, containing acetylated pea starch, characterized in that the acetylated pea starch used for their preparation is high acetylated pea starch.
WO2021030434	Sillick Matthew et al. (US)	Whole grain syrups and flours. A low sugar, low viscosity syrup from whole grain seed or flour is disclosed. A readily soluble flour is also disclosed. The syrup comprises 90% to 100% of its solid components as water soluble solids and the wholegrain flour comprises 50% to 95% of its solid components as water soluble solids. By controlling the mashing and hydrolysis of a cooked whole grain seed or flour, a syrup can be obtained comprising a defined oligosaccharide content with a narrow molecular weight distribution (i.e. low in sugar and low DP 11+).
WO2021046642	Smart Base Ltd (CA)	Wax oleogels as fat substitutes. A novel oleogel is provided comprising an edible oil in an amount of at least 95 wt% combined with a binary wax blend in an amount of less than 5 wt% of the oleogel, wherein the oleogel exhibits less than 10% oiling off and a back-extrusion hardness of greater than 100 g-force. The edible oil may be a high oleic acid-containing oil, such as a vegetable oil having a total monounsaturated fatty acid content of at least about 25% by wt. The binary wax blend may comprise at least two waxes selected from rice bran wax, carnauba wax, candelilla wax, sunflower wax, jojoba oil wax, corn oil wax, sugarcane wax, ouricury wax, beeswax and retamo wax. The oleogel provides an edible fat substitute prepared from oil having a reduced saturated fatty acid and trans fatty acid content that may be incorporated in a variety of food products.
WO2021030167	Tate & Lyle Ingredients Americas Llc (US)	Waxy maize starches and methods of making and using them. The present disclosure relates to waxy maize starches having desirably high process stability, and to methods relating to them, including methods for making and using them.. One aspect of the disclosure is a waxy maize starch having an amylopectin content in the range of 90-100%; wherein the amylopectin fraction of the waxy maize starch has at least 28.0% DP3-12 branches; and no more than 53.0% DP 13-24 branches, no more than 16.0% DP 25-36 branches. Such waxy maize starches can be advantaged over conventional waxy maize starches in that they can have increased process stability, especially with respect to freeze-thaw stability. Methods of making the starch materials, using exo-hydrolyzing enzymes and methods of using the starch materials in food products are also described.
WO2021035290	Trisco Icap Pty Ltd (AU)	A modified gum. Described herein is a method of preparing a modified gum for use in preparing a liquid thickening composition that includes treating a gum-based source material with one or more of a proline protease, a serine protease, an exopeptidase, a metalloprotease, a carbohydrase and a cysteine protease. A stable liquid composition including said modified gum and methods of using same are also provided herein.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020254370	V Mane Fils (FR)	Colored hydrogel materials and method making same. Described herein is a method for making colored hydrogel-based materials, and products relating thereto. The method includes applying an aqueous colorant composition comprising water and a colorant material to an external surface of a plurality of hydrogel-based materials. The aqueous colorant composition comprises less than 25 % (v/v) of an aqueous miscible co-solvent. The hydrogel-based materials comprise a hydrogel matrix encapsulating an active ingredient composition, such as a flavor or fragrance composition. The aqueous colorant composition and the hydrogel-based materials are mixed for a sufficient duration of time to allow substantially all of the aqueous colorant composition to be absorbed into the hydrogel matrix. Optionally, the colored hydrogel-based materials may be dried to remove at least a portion of the water absorbed into the hydrogel matrix thereby leaving the colorant material therein. The resulting colored hydrogel based materials are suitable for use in foodstuffs, such as confectionaries.

Bioproductos alimenticios para animales

Nº Publicación	Solicitante (País)	Contenido técnico
WO2021038320	Basilianus Basuki Nugroho Edward (ID)	An animal and livestock feed supplement. The production of a powdered nutritional supplement for the addition to an animal feed may herein be described. The production may involve the steps of weighing one or more dry ingredients and wet ingredients, combining the dry ingredients separately, combining the wet ingredients separately, combining the wet ingredients with the dry ingredients, mixing the ingredients to form a fermentation substrate, then fermenting the fermentation substrate to form a fermented slurry, drying the fermented slurry to form a cake; and milling the cake to make the powdered nutritional supplement for the addition to an animal feeds.
WO2020261162	Centro de Ciencias do Mar do Algarve et al. (PT)	Teleost fish larval diets supplemented with natural extracts for promoting fish growth performance. The present invention relates to teleost fish larval diets supplemented with natural extracts of curcumin, green tea and grape seed and to a method for improving fish growth performance by providing these diets to fish during the larvae and post-larvae phases. Growth of fish is directly dependent on feed composition and quality. Inclusion of plants extracts in fish diets can promote multiple functional physiological changes that includes antioxidant, and anti-inflammatory responses, of curcumin (CC), green tea (GT) and grape seed (GS) as dietary supplements. The present invention is thus in the field of aquaculture, nutrition, and preparation of marine fish larval diets.
WO2020263720	Danisco US Inc (US)	Modified yeast and method for increasing lysine content in fermentation co-products. Described are strains and methods relating to genetically-engineered yeast cells that overproduce lysine in a tunable manner by altering feedback inhibition of the lysine synthetic pathway by way of the LYS20 and LYS21 homocitrate synthase polypeptides. The yeast can be used in a conventional bioethanol production facility to produce alcohol along with increased amounts of lysine, resulting in increased quality and commercial value of fermentation products and co-products, such as animal feed ingredients.
WO2021023839	Emgee Trading BVBA (BE)	Pet food comprising a protein composition and method of producing said food. The current invention relates to a pet food comprising a protein composition, wherein said protein composition comprises at least two different protein sources, wherein said protein sources are isolated from animal material from the same animal group, wherein said animal group is chosen from the groups of fowl, teleost, bovid, leporid, or deer, and wherein the total concentration of essential amino acids in said protein composition is between 5 and 15 % by weight in said food, and wherein said food has a digestibility of at least 75 %. The inventions also relates to a method for producing a pet food.
WO2020254391	Impextraco NV (BE)	Use of a composition for improving slaughtering and/or meat quality parameters. The present invention concerns use of a composition as an additive in a feed for improving slaughtering and/or meat quality parameters of meat obtained from an animal to be consumed, wherein said composition comprises at least one polyphenolic compound.
WO2021010385	KK Kakuno Seisakusho et al. (JP)	Method and device for producing chicken manure feed. Provided are a method and a device for producing a chicken manure feed that make it possible to treat and safely convert chicken manure into feed. Chicken manure is thermally decomposed and incinerated within a treatment furnace (2) without supplying oxygen. Thermal decomposition of the chicken manure proceeds and incineration occurs because a low oxygen state is maintained within the treatment furnace (2). Ash resulting from the thermal decomposition has a high calcium content, is in a sterile state, and can therefore be used as feed.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2020252638	Li Rufei (CN)	Feed capable of increasing melanin in cells of hybrid black-bone fowls. A feed capable of increasing melanin in cells of hybrid black-bone fowls, comprising the following components with corresponding ratios: corn 53-55%, soybean meal 20-24%, wheat bran 7-10%, fish meal 2-5%, peanut shell 2-5%, black mulberry 2-5%, black bean 2-5%, 1% premix 1%, stone powder 0. 1%, calcium hydrogen phosphate 1. 5%, choline 0. 1%, lysine 0. 1-0. 2% and baking soda 0. 1-0. 2%. The feed has a reasonable formula, which may not only improve the physique of hybrid black-bone fowls and reduce the feed-to-meat ratio, but also strengthens the bodies of the fowls to absorb ultraviolet rays. Therefore, the feed may safely and effectively increase the melanin in hybrid black-bone fowls, save on breeding costs for farmers, and improve breeding efficiency.
WO2021026201	Novozymes AS (DK) et al.	Enzyme blends and processes for producing a high protein feed ingredient from a whole stillage byproduct. The present invention relates to a process for producing a high protein feed ingredient from a whole stillage byproduct produced in a starch-containing grain dry milling process for producing a fermentation product, as well as enzyme blends used in the processes for partitioning a greater amount of protein from the whole stillage byproduct into the high protein fraction, rather than being retained in the wet cake, to produce a high protein feed ingredient.
WO2020257826	Nutriomix Inc (US)	Natural composite materials derived from seaweed and methods of making the same. Provided are natural seaweed composite materials comprising one or more insoluble fibers and carrageenan associated with the insoluble fiber. The natural seaweed composite materials are produced by methods comprising high pressure homogenization which maintains the natural complex structure of the insoluble fiber and the carrageenan as in natural unprocessed seaweeds.
WO2021030741	Spectrum Brand Inc (US)	Meat stuffed pet treat. The present disclosure provides a pet treat and methods of making the same. The pet treat may have a humanized shape and configuration such as a taquito. The pet treat has an inner portion and an outer layer circumferentially wrapped around and disposed onto the inner portion. The inner portion includes a meat-based composition. The outer layer may be an animal rawhide sheet or a sheet of plant-based material.
EP3763222	Verbio Ver Bioenergie AG (DE)	Method for obtaining a concentrated protein rich phase from residues of bioethanol production. 1) Process for the production of a concentrated protein-rich phase from residues of bioethanol production. 2.1) The separation of a protein-rich phase from stillage from bioethanol production has so far been carried out either by adding chemicals or through process steps that are expensive in terms of apparatus and / or energy. 2.2) Stillage from bioethanol production becomes a festival Liquid separation is supplied and the resulting liquid phase (thin vinasse) is partly fed back into the mashing process. This return increases the raw protein content in the process. Part of the thin stillage is diluted and fed to a simple separation process without the addition of chemicals and temperature treatment, whereby a protein-rich phase is obtained. 2.3) Obtaining a protein-rich phase from residues from bioethanol production.

NIPO: 116-19-007-8



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