

OBJETIVOS DE DESARROLLO SOSTENIBLE



BOLETÍN BIOENERGÍA Y BIOPRODUCTOS

Puntos cuánticos de carbono a partir de biomasa

Los puntos cuánticos de carbono (CQDs) son nanomateriales emergentes que han captado la atención de la comunidad científica debido a sus propiedades únicas y versátiles. Estos nanocristales de tamaño inferior a 10 nanómetros destacan por su alta fluorescencia, excelente biocompatibilidad, baja toxicidad y notable estabilidad química y fotoluminiscente. Estas características hacen que los CQDs sean candidatos prometedores para una amplia variedad de aplicaciones.

En biomedicina, los CQDs se utilizan como agentes de bioimagen, portadores de fármacos y sensores, gracias a su baja toxicidad y alta biocompatibilidad. En optoelectrónica, su capacidad para emitir luz brillante y estable los posiciona como materiales ideales para el desarrollo de dispositivos de iluminación y pantallas. Además, en el ámbito ambiental, se investigan por sus propiedades fotocatalíticas y adsorbentes, lo que los hace útiles en la detección y eliminación de contaminantes.

El interés por los CQDs ha crecido exponencialmente en la última década, impulsado por la necesidad de desarrollar materiales más sostenibles y respetuosos con el medioambiente. A diferencia de los puntos cuánticos tradicionales basados en semiconductores, los CQDs pueden sintetizarse a partir de fuentes de carbono abundantes y económicas, como la biomasa. Esto no sólo reduce los costes de producción, sino que también minimiza el impacto ambiental asociado a la fabricación de nanomateriales.



Figura 1. Propiedades y aplicaciones de CQDs
Fuente: The Chemical Record, Vol.: 24, N°: 6, 2024

En los últimos años, la investigación sobre los CQDs derivados de biomasa ha experimentado un crecimiento significativo, con un número creciente de publicaciones que destacan tanto sus propiedades como sus aplicaciones. A través de la base de datos Web of Science, se han identificado más de 1.500 publicaciones científicas sobre este tema, siendo las primeras de 2013. De éstas, el 58% se publicaron entre enero de 2022 y septiembre de 2024, lo que evidencia el creciente interés en este campo.

A pesar de los importantes avances logrados en la síntesis y aplicación de estos materiales, aún persisten importantes desafíos. Uno de los principales es la escalabilidad de la producción sin comprometer la consistencia en las propiedades de los CQDs. Además, el desarrollo de CQDs con propiedades funcionales específicas para aplicaciones concretas sigue siendo un área de investigación activa. También es crucial explorar nuevas fuentes de biomasa para producir CQDs con propiedades novedosas, lo que podría abrir nuevas vías de investigación y aplicación.

En la Tabla 1 se recogen los títulos de algunos artículos publicados entre enero y septiembre de 2024 en los que participan entidades españolas y europeas. Además, se incluyen otros datos relevantes como los autores, las revistas en las que se publicaron y las instituciones europeas involucradas en estos estudios.

Tabla 1. Artículos publicados entre enero y septiembre de 2024 en los que participan entidades europeas

<p>A sustainable approach for the valorization of lignocellulosic biomass in active photo- and electrocatalyst carbon dots Autor/es: Jorge, HB et al. Revista: Waste and Biomass Revalorization Institución/es europeas:</p> <ul style="list-style-type: none"> • Univ Publ Navarra, Inst Adv Mat & Math INAMAT2, España • Univ Malaga, Dept Inorgan Chem, España
<p>Biomass derived biofluorescent carbon dots for energy applications: Current progress and prospects Autor/es: Naziba, TA et al. Revista: Chemical Record Vol.: 24 Issue: 6 Institución/es europeas:</p> <ul style="list-style-type: none"> • Teesside Univ, Sch Comp Engr & Digital Technol, Inglaterra
<p>Biomass-derived carbon dots and their coated surface as a potential antimicrobial agent Autor/es: Pricilla, RB et al. Revista: Biomass Conversion and Biorefinery Vol.:14 Issue: 15 Pag.: 18151-18164 Institución/es europeas:</p> <ul style="list-style-type: none"> • Tomas Bata Univ Zlin, Ctr Polymer Syst, República Checa • Univ Coll Cork, Sch Chem, Irlanda
<p>Carbon nanodots from orange peel waste as fluorescent probes for detecting nitrobenzene Autor/es: Michenzi, C et al. Revista: RSC Sustainability Vol.:2 Issue: 4 Institución/es europeas:</p> <ul style="list-style-type: none"> • Sapienza Univ Rome, Dept Basic & Appl Sci Engr SBAI, Italia • Univ Messina, Dept Engr, Italia • Sapienza Univ Rome, Dept Chem, Italia • Sapienza Univ Rome, Inst Biol Syst Italian Natl Res Council ISB CNR, Italia
<p>Coconut Husk Waste-Derived Nitrogen-Doped Mesoporous Carbon Nanomaterial as an Efficient and Sustainable Supercapacitor Autor/es: Sharma, R et al. Revista: Energy Technology Vol.: 12 Issue7 Institución/es europeas:</p> <ul style="list-style-type: none"> • Silesian Tech Univ, Dept Organ Chem Bioorgan Chem & Biotechnol, Polonia
<p>Design of Cellulose Acetate Electrospun Membranes Loaded with N-doped Carbon Quantum Dots for Water Remediation Autor/es: Viscusi, G et al. Revista: Frontiers in Membrane Technology, IWA-RMTC 2024 Vol.: 525 Pag.: 133-137 Institución/es europeas:</p> <ul style="list-style-type: none"> • Univ Salerno, Dept Ind Engr, Italia • Univ Salerno, Res Ctr Biomat BIONAM, Italia
<p>Detection and formation of fluorescent carbon nanodots in coffee brews and its relationship with other compositions Autor/es: Nguyen, DHH et al. Revista: Journal of Food Composition and Analysis Vol.: 132 Institución/es europeas:</p> <ul style="list-style-type: none"> • Univ Debrecen, Fac Agr & Food Sci & Environm Management, Hungría
<p>Elucidating the Synergistic Promotional Mechanism of Water and Oxygen in the Aerobic C-C Homocoupling Reaction Catalyzed by Visible-Light-Derived Core-Shell Pd@A-CQDs Nanostructures Autor/es: Saini, S et al. Revista: ACS Applied Materials & Interfaces Vol.: 16 Issue: 35 Pag.: 46200-46215 Institución/es europeas:</p> <ul style="list-style-type: none"> • Friedrich Schiller Univ Jena, Inst Inorgan & Analyt Chem, Alemania
<p>Feasibility study of coffee husk char-derived carbon dots to enhance solar photovoltaic-thermal applications Autor/es: Suraj, P et al. Revista: Journal of Analytical and Applied Pyrolysis Vol.: 179 Institución/es europeas:</p> <ul style="list-style-type: none"> • Ulster Univ, Ctr Sustainable Technol CST, Irlanda del Norte

From waste to fuel: Metal-free carbon nanodots for selective CO₂ photoreduction into methanol

Autor/es: Bressi, V et al.

Revista: Chemical Engineering Journal Vol.: 485

Institución/es europeas:

- Univ Messina, Dept Engr, Italia
- Univ Cordoba, Dept Quim Organ, España
- ER Aisbl, Italia
- INSTM CASPE, Lab Catalysis Sustainable Prod & Energy, Italia
- Natl Univ Sci & Technol Polytehn Bucharest, Fac Chem Engr & Biotechnol, Rumania

Green synthesis of lactic acid and carbon dots using food waste and seashell waste

Autor/es: Mou, JH et al.

Revista: Green Chemistry Vol.: 26 Issue: 14 Pag.: 8282-8297

Institución/es europeas:

- Univ Huddersfield, Sch Appl Sci, Inglaterra

Large-scale fabrication of green carbon quantum dots and its nanocomposite with TiO₂ for enhanced photocatalytic oxidation of organic pollutants

Autor/es: Ahmed, GHG

Revista: Biomass Conversion and Biorefinery

Institución/es europeas:

- Univ Salamanca, Fac Ciencias Quim, Dept Quim Fis, España
- Univ Oviedo, Dept Quim Fis & Analit, España

One-pot synthesis of carbon dots from neem resin and the selective detection of Fe (II) ions and photocatalytic degradation of toxic dyes

Autor/es: Eswaran, SG et al.

Revista: RSC Sustainability Vol.: 2 Issue: 3 Pag.: 635-645

Institución/es europeas:

- Wroclaw Univ Sci & Technol, Fac Chem, Dept Adv Mat Technol, Polonia

Shewanella oneidensis MR-1 coupled with biomass-derived carbon dots for promoted bioelectrochemical CO₂ reduction: Mechanism elucidation of intensified energy metabolism

Autor/es: Li, YX et al.

Revista: Chemical Engineering Science Vol, 297

Institución/es europeas:

- Univ Oxford, Dept Engr Sci, Inglaterra

Starch-derived carbon dots with enhanced photoluminescence and tunable emission for multilevel anticounterfeiting

Autor/es: Liu, CX et al.

Revista: ACS Sustainable Chemistry & Engineering Vol.: 12 Issue: 33 Pag.:12354-12364

Institución/es europeas:

- Ecole Polytech Fed Lausanne EPFL, Inst Chem Sci & Engr ISIC, Suiza

Sustainability assessment of highly fluorescent carbon dots derived from eucalyptus leaves

Autor/es: Johny, A et al.

Revista: Environments Vol.: 11 Issue: 1

Institución/es europeas:

- Univ Porto, Inst Mol Sci IMS, Fac Sci, Portugal

Testing of black-carrots-derived fluorescence imaging and anti-metastatic potential

Autor/es: Algarra, M et al.

Revista: Journal of Molecular Structure Vol.: 1300

Institución/es europeas:

- Univ Publ Navarra, Dept Sci, INAMAT, España
- Univ Burgos, Fac Ciencias, Area Nutr & Bromatol, España
- Univ Belgrade, Vinca Inst Nucl Sci, Natl Inst Republ Serbia, Serbia
- Univ Málaga, Fac Sci, España

Type I photoinitiator based on sustainable carbon dots

Autor/es: Li, RP et al.

Revista: Angewandte Chemie-International Edition Vol.: 63 Issue: 29

Institución/es europeas:

- Niederrhein Univ Appl Sci, Inst Coatings & Surface Chem, Dept Chem, Alemania

Unlocking the potential of different types of biomass-derived carbon dots as fluorescence lifetime imaging probes

Autor/es: Rosell, M et al.

Revista: Chemphotochem

Institución/es europeas:

- Univ Castilla La Mancha, Dept Phys Chem, Fac Pharm, España
- Univ Alicante, Dept Quim Inorgan, Lab Nanotecnol Mol, España

Waste-derived carbon nanodots for fluorimetric and simultaneous electrochemical detection of heavy metals in water

Autor/es: Bressi, V et al.

Revista: Environmental Science-Nano Vol.:11 Issue: 3 Pag.:1245-1258

Institución/es europeas:

- Univ Messina, Dept Engn, Italia
- Univ Cordoba, Dept Organ Chem, España
- Peoples Friendship Univ Russia, Sci Ctr Mol Design & Synth Innovat Cpds Med Ind, Rusia

PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2024151156A1	Bioenergy Machinery Sdn Bhd (MY)	A pre-treatment system and method for reducing alkali metals from palm fruit by-products generated in the palm oil production prior to a production as biomass fuel. The present invention relates to a pre-treatment system and method for reducing alkali metals from palm fruit by-products generated in the palm oil production prior to a production as biomass fuel. More particularly, the present invention relates to remove alkali metals and moisture content of the palm fruit by-products which can be used to make high quality pellet as alternative solid fuel for energy resources in power plant. One of the advantages of the apparatus of the present invention reduces high alkali metals content and moisture content of the palm by-products significantly in a continuous system. The apparatus of the present invention provides drying and removing minerals to achieve a specified quality for biomass prior to a production as biomass fuel.
EP4421152A1	CFS Europe Spa (IT)	Plant for recycling liquid production residues with conversion thereof to thermal energy. A plant (1) for recycling liquid production residues (A) with conversion thereof to thermal energy, which comprises: a storage unit (2) configured to contain a biomass (B) of plant origin shredded into small fragments; a tank (3) configured to contain a processing residue in the liquid state (A); a first dryer (4) configured for the removal of water (W) from preset amounts of biomass fragments (B) of plant origin, the first dryer (4) being excludable if the biomass (B) has a moisture content lower than a preset threshold value; a mixer (5) configured to impregnate dried biomass fragments of plant origin (B1) with the processing residue in the liquid state (A) according to a preset mutual dosage; a second dryer (6) configured to remove volatile substances (E) from biomass fragments impregnated with the processing residue in the liquid state (D); an apparatus (7), of a type chosen from a gasifier and a pyrolysis unit, configured for the conversion of dried biomass fragments impregnated with the processing residue in the liquid state (D1) into fuels of a type chosen from gaseous (G), liquid and solid; a combustor (8) configured for complete thermal degradation of previously obtained gaseous fuels (G) and for the generation of thermal energy (H).
WO2024168366A1	Effectus Energy GmbH (AT) et al.	Method for producing piece goods from maize husks and piece goods produced with said method. The invention relates to a method for producing piece goods from starch-containing cereal residues, in particular from maize residues such as maize husks. According to the invention, the method comprises the following steps: a) providing the cereal residues; b) gelatinising the cereal residues with a gelatinising substance to form a gelatinised mixture; c) forming piece goods with the gelatinised mixture; and d) optionally drying the piece goods. The invention further relates to pressed, in particular dimensionally-stable, piece goods produced by said method.
WO2024177911A2	Franco Riki et al. (US)	Sawdust charcoal. A method to create a natural charcoal briquette is described herein. A wood material is collected and impurities are removed from the wood material. The wood material is dried at a temperature in a range of approximately 150° C. to approximately 200° C. to reach a moisture level in a range of approximately 3.7% to approximately 5.0%. The dried wood material is compressed in a shaped mold at approximately 300° C. and under 40 tons of pressure to form a charcoal briquette. The charcoal briquette is carbonized at a temperature in a range of approximately 700° C. to approximately 800° C. in a range of approximately 14 days to approximately 17 days. The charcoal briquette is then cooled for approximately 2 days prior to use or packaging.
WO2024161788A1	JFE Steel Corp (JP)	Method for producing agglomerates mainly composed of carbon. Provided is a method for producing agglomerates mainly composed of carbon derived from a biomass. The method for producing agglomerates mainly composed of carbon comprises: a pulverization step of pulverizing a biomass having a volatile matter content of 1% by mass or more and less than 20% by mass on an anhydrous basis to produce a biomass powder having the largest particle diameter of 300 µm or less; and a hot-press step of press-molding the biomass powder under an oxygen-blocked environment at a temperature included within the temperature range of 600°C to 1250°C inclusive to produce an agglomerate.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024142517A1	Shimose Microbes Laboratory Corp (JP)	Boiler device and organic waste treatment device provided with same. Provided are a boiler device and an organic waste treatment device provided with the same, the boiler device being capable of adjusting steam output in accordance with a steam usage amount of a device that uses steam from the boiler device, and also being capable of implementing energy saving. A boiler device 7 comprises: a combustion furnace 100 that has a combustion chamber 100F therein; a heat exchanger 140 that transfers, to water, thermal energy obtained by combusting a solid fuel in the combustion chamber 100F; a belt conveyor 120 that has a moving placement part 120a, is disposed in a lower section of the combustion chamber 100F, and moves the solid fuel, which is placed on the moving placement part 120a, in the combustion chamber 100F; and a fuel supply device 130 connected to a fuel supply port 111a that communicates the inside and outside of the combustion furnace 100. The starting end portion of the belt conveyor 120 is disposed at a position below the fuel supply port 111a. The fuel supply device 130 has a thickness adjustment unit 131 that adjusts the thickness of the solid fuel placed on the moving placement part 120a of the belt conveyor 120.
WO2024195862A1	Tokuyama Corp (JP)	Method for producing semi-carbonized biomass solid fuel. Provided is a method for producing a semi-carbonized biomass solid fuel, the method comprising subjecting plant biomass to a torrefaction process to produce semi-carbonized plant biomass and then solidifying the semi-carbonized plant biomass by press-molding. The method includes a heating treatment for heating the solidified semi-carbonized plant biomass, which is obtained after the press-molding, at 100-250°C.
WO2024166373A1	Yamamoto Bio Charcoal Mfg Co Ltd (JP)	Method for producing carbonized material from oil palm. The present invention addresses the problem of efficiently producing carbonized material by means of an open kiln-type production kiln having a top surface open and an exhaust flow path formed at the bottom thereof, by using, as a carbonization target material, oil palm branches and leaves or empty fruit bunches obtained after extracting fruits from oil palm fruit bunches. To produce carbonized material by supplying undried empty fruit bunches or branches and leaves of oil palm as a carbonization target material, the solution involves: as an initial step, a step for subjecting dry or semi-dry carbonization target material to glowing ember initial combustion and glowing ember increased combustion to thereby create glowing embers; and as an end step for extinguishing a fire for a predetermined amount of produced carbonized material, a step for stirring the contents in the production kiln when the glowing embers are observed on a part of a surface of the last supplied carbonization target material, and then sprinkling water onto the surface and blocking the exhaust flow path to thereby extinguish the fire.

Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
EP4435076A1	Air Liquide (FR)	Method for producing a crude synthesis gas with reduced ethylene content. The invention relates to a process for producing a raw synthesis gas containing hydrogen and carbon oxides by non-catalytic partial oxidation of a carbon-containing feed stream comprising biomass and/or organic waste and/or plastic waste, wherein the raw synthesis gas produced has a significant ethylene content. According to the invention, the gasification of the carbon-containing feed stream is carried out in a first step under conditions of non-catalytic low-temperature partial oxidation at temperatures between 600 and 1100 °C, followed by a second step under conditions of non-catalytic high-temperature partial oxidation at temperatures above 1100 °C, which serves to convert ethylene and other hydrocarbons to synthesis gas products.
WO2024141583A1	Borealis AG (AT)	Process and integrated reactor system for gasifying a carbonaceous feedstock. A process for producing a mixture of hydrocarbons from a carbonaceous feedstock, the process comprising the steps of a) providing a gaseous stream comprising a mixture of hydrogen, oxygen and steam via at least one gas inlet to a bottom section of a fluidized bed reactor; b) allowing at least part of the oxygen and hydrogen comprised in said gaseous stream to react at the bottom section of said fluidized bed reactor to produce a superheated stream of steam; c) contacting said superheated stream of steam with a solid bed material thereby transferring heat from said superheated stream of steam to said bed material such that a gaseous stream comprising steam and a heated bed material are obtained; d) feeding a carbonaceous feedstock into said fluidized bed reactor; e) contacting said carbonaceous feedstock with said gaseous stream comprising steam thereby forming a mixture of gaseous hydrocarbons and a mixture of condensed hydrocarbons, and f) withdrawing a gaseous product mixture comprising said mixture of gaseous hydrocarbons from said fluidized bed reactor; and an integrated reactor system for gasifying a carbonaceous feedstock, comprising an electrolyser and at least one fluidized bed reactor, wherein said electrolyser comprises at least a first gas outlet and wherein said first gas outlet of said electrolyser is fluidly connected to at least one gas inlet of said at least one fluidized bed reactor.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024191344A1	Green Energy Invest Holding Pte Ltd (SG)	Method and system for generating syngas. Disclosed herein is a method for generating syngas comprising heating cellulosic material in a vessel comprising a pathway and a heat generator in thermal communication with the pathway to thermally degenerate the cellulosic material by pyrolysis, the cellulosic material forming biochar and releasing syngas when undergoing pyrolysis, displacing the generated syngas along the pathway to thereby filter the syngas through at least one of the cellulosic material and the biochar undergoing pyrolysis, reacting at least a portion of the generated syngas with catalytic material presented along the pathway for reforming the at least a portion of the generated syngas being displaced along the pathway, and discharging the filtered syngas from the vessel. The cellulosic material comprising at least one of woodchips, wood pellets, biomass and biowaste.
WO2024177979A1	GTI Energy (US)	Syngas yield enhancement in converting carbonaceous feeds by gasification and other oxidative methods. Processes are disclosed that utilize beneficial reactions downstream of carbonaceous feed (e.g., biomass) oxidative conversion technologies, and advantageously under conditions (e.g., high temperatures) and/or with the syngas effluent quality (e.g., having particulates and/or other impurities) characteristic of raw syngas exiting such technologies (e.g., prior to, or upstream of, certain syngas purification operations). Such conversion technologies utilize an oxygen-containing feed or, more broadly, an oxidant-containing feed. The beneficial reactions may be carried out by the introduction of hydrogen for performing the reverse water-gas shift (RWGS) reaction and/or by the introduction of one or more hydrocarbons (e.g., methane, ethane, and/or propane) for performing the dry reforming reaction. These and other reactions can advantageously adjust the composition of the syngas obtained (e.g., as the raw syngas from an oxidative conversion technology) in a manner benefitting its subsequent use in providing value-added products such as liquid hydrocarbons.
WO2024196340A1	JBK Extractions LLC (US)	Systems and methods for making syngas. Systems and methods for making syngas using a carbonaceous material, including organic material and/or polymeric material such as ground tire, wood, coal, and the like. The systems and methods may heat the carbonaceous material before syngas formation and be configured to use less oxygen than conventional syngas synthesis systems. Systems and methods including maintaining the mixture of gases at an elevated temperature while flowing gases along a tortuous reaction zone having a nonlinear path downstream of a reaction area.
WO2024139935A1	Longi Green Energy Technology Co Ltd (CN)	Biomass gasification method and system. A biomass gasification method and system, the method comprising: enabling biomass materials, oxygen, and water vapor to enter a first gasification furnace (1) and perform a cracking gasification reaction to obtain a first product; enabling a full oxygen carrier to enter into a photo-thermal furnace (5), and heating the full oxygen carrier using solar energy to obtain a heat and oxygen carrier; enabling the first product and the heat and oxygen carrier to enter into a second gasification furnace (2), and the first product coming into contact with the heat and oxygen carrier to carry out thermal conduction and an oxidation-reduction reaction to obtain a second product and an oxygen-depleted oxygen carrier, the second product comprising CO and H ₂ ; enabling the oxygen-depleted oxygen carrier and an oxygen-containing gas to enter an oxidation passage (3) and carry out an oxidation reaction to obtain the full oxygen carrier and an oxygen-depleted gas; and enabling the full oxygen carrier to return to the photo-thermal furnace (5) and be re-used. The present method utilizes solar energy to heat the oxygen carrier, enabling solar energy to indirectly participate in gasification by means of the heat and oxygen carrier, heat transfer is completed, and tar cracking and reforming is promoted.
WO2024161283A1	PFG Hybrid SRL (IT)	Syngas production plant. The syngas production plant (1) comprises: one base frame (2) for resting on the ground; one pyrolysis reactor (3) associated with the base frame (2) and comprising one pyrolysis chamber (4) comprising: one inlet mouth (5) adapted to introduce the material to be treated; one outlet mouth (6) adapted to make the material to be gasified and the syngas; one gasification reactor (7) associated with the base frame (2) and comprising at least one gasification chamber (8) comprising: one inlet opening (9) adapted to introduce the material to be, the inlet opening (9) and the outlet mouth (6) being substantially coincident; one outlet opening (10) adapted to make the syngas escape.

Nº Publicación	Solicitante (País)	Contenido técnico
EP4428093A1	SK Innovation Co Ltd (KR)	Manufacturing method and manufacturing apparatus of syngas, and manufacturing method of liquid hydrocarbon using the same. The invention relates to a method of making a syngas, the method including: (S1) heat-treating organic waste in a first reactor to produce a first mixed gas; (S2) introducing the first mixed gas to a second reactor and subjecting it to methane reforming in the presence of a catalyst to produce a second mixed gas; (S3) separating the catalyst and carbon dioxide from the second mixed gas and recovering a third mixed gas from which the catalyst and the carbon dioxide have been removed; (S4) converting the carbon dioxide separated in (S3) into carbon monoxide through a reverse Boudouard reaction in a third reactor; and (S5) mixing the third mixed gas recovered in (S3) and the carbon monoxide converted in (S4) to produce syngas. The invention further relates to an apparatus for making a syngas.
WO2024148213A2	Sungas Renewables Inc (US)	Integrated scrubbing operations for processing of syngas from gasification. Processes are disclosed for the gasification of carbonaceous feeds and preferably biomass, which can implement one or more strategies for removing contaminants, particularly chlorides and ammonia, with reduced negative impacts on overall processing objectives. These objectives can include obtaining a syngas product, with sufficient purity and hydrogen content or H ₂ :CO molar ratio, that favor downstream conversion and/or separation operations as needed to generate value-added products (e.g., hydrocarbons, alcohols such as methanol, RNG, or renewable, purified hydrogen). According to certain aspects, heat and/or material integration of (i) contaminant removal with (ii) other operations of the gasification process can lead to further efficiencies. Metallurgical requirements over conventional processes may be reduced.
WO2024173217A2	Sungas Renewables Inc (US)	Heat integration utilizing intermediary fluid in gasification. Gasification processes utilizing carbonaceous feeds and preferably biomass are disclosed, which can effectively integrate heat between at least two unit operations, through the use of an intermediary fluid. This advantageously improves operating flexibility, in terms of meeting an array of potentially mis-matched boundary conditions associated with the unit operations to/from which heat is transferred, including flows, temperatures, and pressures. Divergent interfacing requirements are thereby addressed, and the use of a non-toxic intermediary fluid for heat exchange ensures environmental safety in the event that such fluid is leaked. In representative embodiments, configurations whereby heat may be added to, or rejected from, the intermediary fluid, such as in the case of its circulation in an open or closed loop, can further support interface requirements between any two operations, or among several operations.

Biogás

WO2024165416A1	Airco Process Tech A/S (DK)	Small scale expansion cycle methane liquefaction process. The present invention relates to expansion cycle methane liquefaction processes for feed gases containing methane and nitrogen, which processes are especially suitable for small-scale plants, such as biogas liquefaction plants. The processes use a portion of the pressurized fluid to cool the fluid to be expanded prior to expansion and recycles the entirety of the spent cooling portion and vapour generated in the expansion.
EP4434614A1	Airrane Co Ltd (KR)	Apparatus and process for capturing carbon dioxide in conjunction with bio-gas upgrading. The present disclosure relates to a carbon dioxide capture apparatus and process combined with biogas upgrading, and there is provided the carbon dioxide capture apparatus combined with biogas upgrading for simultaneously obtaining high purity methane and carbon dioxide, and improving separation efficiency without an additional process by making use of gas streams after a liquefaction process, and recovering cold heat in the process.
EP4403273A1	Boulder Corp (US)	Anaerobic digestion of aggregate cellulose pulp. A process for transforming a stream of MSW material into feedstock for an anaerobic digester and the resulting generation of biogas and other useful products includes the removal of one or more selected chlorine containing components and the retaining of substantially all paper components. At least 70% by mass of the incoming stream of MSW material is hydrolyzed and subsequently directed to the anaerobic digester.
EP4431591A2	Duda Ludomir (PL)	Flow-through biogas reactor. The subject of the invention is a flow-through biogas reactor applicable to composting and biomass gasification processes. The flow-through biogas reactor, consisting of a set of parallel tubes, is characterized by the fact that it is equipped with a vertically connected chamber, parallel tubes placed one above the other are inclined from the horizontal by an angle α not less than 1 degree and closed unilaterally with clamps.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024171328A1	JTEKT Corp (JP)	Biogas production system. A biogas production system (1) is configured so as to be capable of producing a biogas (G) using, as raw material, waste water-soluble coolants (C) recovered from a machining device which performs cutting or grinding. The biogas production system (1) comprises: a plurality of storage tanks (2) configured so as to be capable of respectively storing the waste water-soluble coolants (C) recovered from the machining device by sorting the coolants by type; concentration measuring units (21) configured so as to be capable of respectively measuring the concentration of the waste water-soluble coolants (C) in the storage tanks (2); a mixing device (3) configured so as to be capable of preparing a coolant mixture (M) containing the plurality of waste water-soluble coolants (C) by mixing the waste water-soluble coolants (C) in the storage tanks (2) at ratios calculated on the basis of the concentration thereof; and a fermentation device (4) configured so as to be capable of producing the biogas (G) by using microorganisms to ferment the coolant mixture (M) supplied from the mixing device (3).
WO2024189412A1	Kuwait Institute for Scient Research (KW)	Hybrid solar still and anaerobic membrane bioreactor for wastewater treatment. The hybrid solar still and anaerobic membrane bioreactor for wastewater treatment (10) produces both purified water (PW) and biogas by combining a solar still (11) with an anaerobic membrane bioreactor. The solar still (11) receives feed wastewater (WW) and produces condensed water (CW) and concentrated wastewater (CWW) therefrom through solar distillation. An anaerobic process tank (12) receives the concentrated wastewater (CWW) from the solar still (11) and produces digested waste sludge and a process liquid (PL) therefrom through anaerobic digestion. A membrane tank (20) receives the process liquid (PL) from the anaerobic process tank (12), and also receives the condensed water (CW) from the solar still (11). Through membrane filtration, the membrane tank (20) produces purified water (PW) and retained wastewater (RWW). The retained wastewater (RWW) is recirculated back to the anaerobic process tank (12).
WO2024149533A1	MTM Anlagenbau GmbH (DE)	System for pretreating solid feed materials for generating biogas, biogas system and method for generating biogas. The invention relates to a system for pretreating solid substrates in biogas systems, and a control unit which is designed to control an amount of liquid to be supplied from the comparison of a present current consumption of the agitator with a predefined current consumption of the agitator, to control the temperature in the turbo-mash; and to control the amount of air to be supplied and the duration of the aerated intervals and non-aerated intervals from the evaluation of the gas concentrations in the exhaust air, in particular of oxygen and carbon dioxide, and from the fermentation acid spectrum in the mash liquid. The invention also relates to a biogas system and to a method for obtaining biogas.
WO2024194363A1	Novobiom (BE)	Process for the production of biogas from a fibrous substrate. Disclosed is a process for producing biogas from a fibrous substrate, involving biologically pretreating a woven, non-woven or agglomerated, and shredded fibrous substrate, by solid fermentation using one or more filamentous fungal strains, more particularly one or more saprophytic filamentous strains, producing biogas from the pretreated fibrous substrate with formation of a digestate, and collecting the digestate.
EP4424649A1	SDG SRL (IT)	Method and plant for treating biogas. Method for treating biogas, comprising a step of providing biogas (Vg), comprising a methane fraction (VCH4) and at least one contaminant compound (C), and waste water (Vr) to be treated, comprising at least one organic pollutant compound (I). In addition the method comprises a step of adding an alkaline reagent (Ra) in the waste water (Vr) in order to obtain alkaline waste water (Va) in which the organic pollutant compound (I) is transformed into modified molecules (M) due to the action of the alkaline reagent (Ra). In addition, the method comprises a step of coagulating the modified molecules (M) in the alkaline waste water (Va) in order to obtain mature waste water (Vm) containing at least one flocculation (F) of the modified molecules (M). In addition, the method comprises a step of purifying the biogas (Vg), in which the biogas (Vg) is placed in contact with at least one fraction of the mature waste water (Vmx) or one derivative thereof in order to release the contaminant compound (C) into the fraction of mature waste water (Vmx) or derivative.
WO2024145328A1	UOP LLC (US)	Treatment of biogas by pressure swing adsorption. A process is provided for purification of biogas to produce biomethane. The biogas is treated in a pressure swing adsorption unit to remove carbon dioxide and water. Other impurities including oxygen, hydrogen and carbon monoxide may be removed by an additional adsorption bed. The adsorption beds may be single stage or two-stage VPSA or PSA adsorption beds.

Bioalcoholes (bioetanol, biometanol, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
UA156581U	Agrotechnology LLC (UA)	Method of producing bioethanol from matured mash. The method of bioethanol production from matured mash consists in ethanol separation from matured mash by distillation, rectification and sorption dehydration with molecular sieves, in which the mash enters the mash column through a mash heater, mash preheater and CO2 separator. The volatile components of the mash distillate are removed from the top of the mash column in the form of steam, which is condensed in the mash heater in the main distillate condenser and in the additional distillate condenser. The distillate liquid is collected in the distillate collector and fed to the concentration column by the mash distillate pump. In the concentration column, the majority of water is removed from the mash distillate, and the resulting concentrated alcohol vapor heats the mash column through the mash column evaporator due to the reduced pressure in the mash column and increased pressure in the concentration column. The condensate of the concentrated alcohol vapor after the evaporator of the mash column is collected in the phlegm collector, then it is sent by the phlegm pump in the form of phlegm to irrigate the concentration column, and the ethanol is removed from the concentration column by removing the alcohol vapor from the top of the concentration column and carrying out the dehydration and condensation stage.
CN118389612A	Chongqing Daowei Low Carbon Tech Co Ltd (CN)	Biomass comprehensive utilization process. The invention discloses a biomass comprehensive utilization process, and relates to the technical field of biomass recycling. The method specifically comprises the following steps: taking biomass rich in starch and sugar as a fermentation raw material, preparing ethanol through fermentation, and obtaining lignin residues; the method further comprises the step of gasifying lignin residues and lignocellulose biomass to obtain synthesis gas containing H ₂ , CO and CO ₂ . The synthesis gas can be used for preparing methanol and ethanol, and the synthesis gas and the prepared methanol and ethanol can also be used for preparing industrial products with higher value. According to the method, biomass rich in starch and sugar and lignocellulose biomass are combined for use, lignin residues obtained through fermentation of the biomass rich in starch and sugar and the lignocellulose biomass are gasified together, and the lignin residues are adopted for supplementing a carbon source for synthesis gas obtained through gasification. The lignin residues are recycled, and the cost of the synthesis gas carbon source is reduced.
CN118430685A	East China Univ of Science And Technology et al. (CN)	Intelligent feedback feeding control method for saccharomyces cerevisiae ethanol fermentation process. The invention discloses an intelligent feedback feeding control method for a saccharomyces cerevisiae ethanol fermentation process, which comprises the following steps: sampling a spectrum to obtain a sampling spectrum; inputting the sampling spectrum into a two-dimensional convolutional neural network based on spectrum amplification; and adopting a mean square error as a loss function, updating the network weight by using an Adam optimizer when training the Raman concentration prediction model to obtain an optimal solution, and updating the Raman concentration prediction model. According to the method, the classification accuracy can be learned, adjusted and improved through the Raman concentration prediction model, and the glucose concentration, the glycerol concentration and the ethanol concentration in the saccharomyces cerevisiae ethanol fermentation process in the bioreactor can be predicted online in real time. Compared with a conventional detection method, the method has the advantages that the detection is rapid, the fermentation process is hardly influenced, the contamination risk is reduced, the concentration of volatile substances such as ethanol can be monitored on line, the concentration of non-volatile substances such as glucose and glycerol can be monitored on line, and the defects of the detection principle are overcome.
WO2024143503A1	Eneos Corp (JP)	Method for producing ethanol from lignocellulose-based raw material. The present invention provides a method which is for producing ethanol and in which the permeation flow rate when performing membrane separation is improved. In more detail, provided is a method for producing ethanol, the method comprising: a first step for generating ethanol through saccharification and fermentation in a reaction system containing a lignocellulose-based raw material, a saccharifying enzyme, yeast, and water; and a second step for processing, by using a separation membrane, a first mixture containing ethanol, water, yeast, the saccharifying enzyme, and a lignocellulose-based raw material reaction residue obtained in the first step to acquire a mixture containing ethanol and water, and a second mixture containing yeast, the saccharifying enzyme, water, and the lignocellulose-based raw material reaction residue. The solid content concentration of the first mixture is 4-9.5 mass%.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024195972A1	Industry Foundation of Chonnam National Univ (KR)	Method for producing fiber waste-derived glucose solution and method for producing bioethanol, sorbitol, and lactic acid by using solution produced thereby. The present invention relates to a technique for producing various kinds of biochemical materials as well as bioethanol by saccharification of fiber wastes and, more specifically, to a method for producing a fiber waste-derived glucose solution and a method for producing bioethanol, sorbitol, and lactic acid by using the solution produced thereby, wherein fiber wastes are sorted into undyed natural fibers, dyed natural fibers, and blended fibers of natural fibers and synthetic resin, and each type of fibers are subjected to efficient pretreatment appropriate for characteristics thereof, thereby improving enzymatic hydrolysis efficiency, followed by efficient fermentation techniques to produce various biochemical materials including lactic acid, sorbitol, terephthalic acid (TPA), and ethylene glycol (EG) as well as bioethanol.
CN118374551A	Inst of Applied Ecology, Chinese Academy of Sciences (CN)	Method for promoting fermentation of brown algae to produce ethanol by using zero-valent iron. The invention belongs to the field of clean production and renewable biofuel, and discloses a method for promoting fermentation of brown algae to produce ethanol by using zero-valent iron. The method comprises the following steps: 1) grinding kelp, sieving with a 100-mesh sieve, and carrying out hot acid pretreatment; (2) carrying out a fermentation experiment by adopting <i>Etherligenens harbinase YUAN-3</i> , taking an <i>Etherligenens harbinase</i> culture medium as a culture medium, and adjusting the pH (Potential of Hydrogen) to be 6.8 to 7.0; and (3) inoculating YUAN-3 seeds cultured to a logarithmic phase into a bottle by taking the pretreated brown algae hydrolysate as a culture medium carbon source, adding different doses of zero-valent iron, and fermenting in an anaerobic environment to produce ethanol. According to the method, the brown algae hydrolysate is taken as a substrate, the fermentation ethanol production efficiency is improved by utilizing zero-valent iron, and the potential of producing ethanol by marine biomass as a renewable biofuel is explored.
WO2024142113A1	Int Centre For Genetic Engineering And Biotechnology (IN)	Novel process for xylobiose and ethanol co-production. The present invention provides a process for the simultaneous production of Xylobiose and ethanol using a fungal strain and a yeast strain. The present invention provides a consolidated biorefinery process for simultaneous production of xylobiose and ethanol from a carbon source, preferably sugarcane bagasse. The systematic approach of this process enhances the viability of a commercially successful biorefinery.
KR20240138192A	Kookmin Univ Industry Academy Cooperation Foundation (KR)	Method for producing cellulase with improved enzymatic activity composition for cellulose saccharification comprising the cellulase and method for preparing bioethanol using same. According to the present invention, cellulase having excellent enzyme activity and cellulose decomposition ability can be produced, and can also exhibit excellent effects when applied to a fermentor. Therefore, by using the present invention, highly active cellulase can be produced in a simple manner to efficiently saccharify biomass and produce high-yield bioethanol.
US2024294960A1	Sixring Inc (CA)	Cellulose for bioethanol production. A process to obtain glucose from a pretreated lignocellulosic biomass comprises providing a lignocellulosic biomass and contacting said lignocellulosic biomass to a modified Caro's acid composition for a period of time necessary to remove more than 98.5% of the lignin present in the lignocellulosic biomass and thus obtaining a solid stream and a liquid stream. The solid stream is exposed to an enzyme blend to produce a hydrolysate comprising sugars obtained from the hydrolysis of cellulose and hemicellulose. Optionally, the hydrolysate may be fermented to produce value-added products.
CN221453807U	Xiangcheng Wangbingzhong Biotechnology Co Ltd (CN)	Fuel ethanol raw material pretreatment device. The utility model discloses a fuel ethanol raw material pretreatment device which comprises a crushing box, a crushing roller I and a crushing roller II which are oppositely arranged in the crushing box, a cutting box communicated with the top of the crushing box, a motor II fixedly mounted at the top of the cutting box, and a turntable fixedly mounted on an output shaft of the motor II, an eccentric sliding column is fixedly connected to the right side of the rotating disc, a cutter holder is slidably connected to the sliding column, a cutter is fixedly installed on the lower side of the cutter holder, the cutter penetrates through the top of the crushing box and is slidably connected with the crushing box, a feeding hopper is arranged on the right side of the cutting-off box in a communicating mode, and a filtering assembly is arranged on the left side of the crushing box. According to the straw cutting device, the first motor drives the cutter to reciprocate in the vertical direction, then straw entering the cutting box is cut off, the problem that straw is easily wound around a cutter shaft through a rotary cutter is solved, and the cutting length of the straw can be controlled by the cutter within a certain range by controlling the rotating speed of the second motor.

Biodiésel/ hidrobiodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
CN118421403A	China Petroleum & Chemical Corp et al. (CN)	Method for deacidifying biodiesel. The invention discloses a preparation method of biodiesel. The method comprises the following steps: (1) introducing acidic gas into organic alkali, and uniformly mixing; (2) grease, monohydric alcohol and the product obtained in the step (1) are contacted to carry out transesterification; and (3) separating the reaction product in the step (2), and distilling the ester phase obtained by separation to obtain the biodiesel. According to the method disclosed by the invention, the acid value of a biodiesel product is greatly reduced, the yield of a target product is improved, and fatty acid in a glycerol phase can be recycled; the method is simple to operate, low in cost and very suitable for a large-scale continuous production process of biodiesel.
CN118421402A	China Petroleum & Chemical Corp et al. (CN)	Production method of biodiesel. The invention discloses a production method of biodiesel. The method comprises the following steps: (1) grease, monohydric alcohol and an organic base catalyst are in contact for transesterification; (2) introducing acid gas into the reaction product in the step (1), and uniformly mixing; (3) separating the mixture in the step (2) to obtain a monohydric alcohol, crude glycerine and ester phase mixture; (4) adding water into the ester phase mixture obtained in the step (3), fully mixing, adding the crude glycerol obtained in the step (3), and uniformly mixing; (5) separating the mixture obtained in the step (4) to obtain a glycerol phase and an ester phase; and distilling the ester phase to obtain the biodiesel. The method greatly reduces the acid value of the biodiesel product, improves the yield of the target product, and has the characteristics of simple operation and low cost.
CN118356953A	Henan Hi Tech Kingdo Ind Co Ltd (CN)	Acid value reducing catalyst for biodiesel production. The invention belongs to the technical field of biodiesel production, and particularly relates to an acid value reducing catalyst for biodiesel production, which is characterized by comprising the following components in parts by weight: 2 to 5 parts of KOH, 7 to 10 parts of Ba (OH) 2, 2 to 6 parts of NaOH, 3 to 6 parts of NaCl, 2 to 5 parts of KCl, 25 to 10 parts of CaCl, 8 to 10 parts of NH3Cl, 10 to 15 parts of Na2SO4, 15 to 20 parts of (NH3) 2SO4 and 10 to 15 parts of water. The method is short in reaction time and high in product yield.
CN118272163A	Henan Hi Tech Kingdo Ind Co Ltd (CN)	Esterification device for biodiesel production. The invention belongs to the technical field of biodiesel production, and particularly relates to an esterification device for biodiesel production. Comprising a tank body, an esterification device feed port and a mixed gas outlet are formed in the top in the tank body, an esterification device discharge port, a circulation port and a methanol inlet are formed in the bottom in the tank body, a heating layer sleeves the tank body, a vibration device is arranged in the tank body, the heating layer is of a cylindrical closed cavity structure, and a water vapor inlet is formed in the upper portion of the side wall of the heating layer. A condensate water outlet is arranged below the side wall of the heating layer, the feed port of the esterification device is also communicated with the discharge port of the microreactor, the mixed gas outlet is communicated with a gas collecting system, the circulating port is communicated with the feed port of the microreactor, and the methanol gas inlet is communicated with a methanol steam generating device. The method is high in reaction speed and short in reaction time.
CN118360088A	Henan Hi Tech Kingdo Ind Co Ltd (CN)	Methyl ester and glycerol separation method and system for biodiesel production. The invention belongs to the technical field of biodiesel production, and particularly relates to a method and a system for separating methyl ester and glycerol for biodiesel production, the method for separating methyl ester and glycerol for biodiesel production is characterized by comprising the following steps: preheating raw oil to 70-80 DEG C, adding glycerol and a catalyst, and carrying out esterification reaction at 40-50 DEG C for 1-2 hours; the method comprises the following steps of: adding methanol and KOH into a first condensing device, cooling in a second condensing device, adding methanol and KOH for transesterification, separating into methyl ester and glycerol in a separating device after transesterification, distilling methyl ester to obtain biodiesel, and filtering residual catalyst and solid impurities in methyl ester in the reaction process.

Nº Publicación	Solicitante (País)	Contenido técnico
CN221268047U	Henan Palm Biomass Energy Co Ltd (CN)	Catalyst feeding device for biodiesel production. The utility model discloses a catalyst feeding device for biodiesel production, and particularly relates to the technical field of diesel production, the catalyst feeding device comprises a chassis, and one side of the chassis is fixedly connected with a rotary feeding mechanism; the rotary feeding mechanism comprises a supporting base, a motor is installed at the top of the supporting base, the output end of the motor is coaxially connected with a rotating shaft, the top end of the rotating shaft is fixedly connected with a rotating disc, one side of the top of the rotating disc is fixedly connected with a transmission block, and the outer side of the transmission block is movably connected with a transmission sleeve rod. And one side of the transmission sleeve rod is movably connected with a movable block. By arranging the rotary feeding mechanism, compared with the prior art, when a catalyst is input into diesel oil through the feeding pipe, the motor can drive the transmission disc to rotate and then drive the transmission sleeve rod to drive the storage barrel, and then the feeding pipe can regularly move in the oil barrel around the supporting frame, so that mixing of the diesel oil and the catalyst can be accelerated.
CN221287838U	Li Fei (CN)	Esterification reaction device for biodiesel production. The utility model relates to a biodiesel production device, in particular to an esterification reaction device for biodiesel production. The utility model provides an efficient mixing esterification reaction device for biodiesel production. An esterification reaction device for biodiesel production comprises a reaction tank, a baffle, a feeding pipe, a constant pressure pipe, a feeding pipe, a stirring rod a, a stirring rod b and a power device, the reaction tank is a hollow cylinder, the feeding pipe with the horizontal sliding closed baffle is arranged at the top of the reaction tank, and the constant pressure pipe and the feeding pipe are further arranged at the top of the reaction tank. The stirring rod b is divided into a closed blade part and a rotating shaft part, the rotating shaft part is hollow, and the stirring rod a and the stirring rod b are rotationally nested. When the motor is started, the driven gear a and the driven gear b can be driven to reversely rotate, and then the stirring rod a and the stirring rod b are driven to reversely rotate, so that materials in the reaction tank can be efficiently and fully stirred.
CN118344899A	Shandong Sanju Biological Energy Co Ltd (CN)	Method for producing alkyl biodiesel from inferior biomass raw oil. The invention provides a method for producing alkyl biodiesel from inferior biomass raw oil, which is characterized in that the inferior biomass raw oil is used as a raw material, and through catalyst grading of each bed layer in a reactor and specific conditions of reaction process conditions, on the basis of ensuring the yield of the alkyl biodiesel product, the yield of the alkyl biodiesel product is increased, and the yield of the alkyl biodiesel product is increased. According to the method, metal, phospholipid, free fatty acid, acidity, sulfur, nitrogen suspended impurities and the like in the inferior biomass raw oil are removed, the purpose of purifying the quality of the inferior biomass raw oil is achieved, the activity of a hydrodeoxygenation catalyst is protected, pressure drop of a reactor is avoided, and finally the product yield of hydrocarbon-based diesel oil production and the service life of the catalyst are guaranteed. Furthermore, fatty acid, triglyceride and the like in the inferior biomass raw oil can be accurately subjected to deoxidation reaction by determining catalyst grading of each bed layer in the reactor and reaction process conditions, so that low-carbon splitting hydrogenation is prevented, smooth double-bond hydrogenation is ensured, and the problems of polymerization, coking, pressure drop and the like are prevented; furthermore, the reduction of the yield of the alkyl biodiesel is avoided, the output of waste hydrogen is reduced, and meanwhile, CO, CO2 and the like are not additionally generated. According to the method provided by the invention, the hydrodeoxygenation operation period of the inferior biomass raw oil can reach 1.5 years, and the yield of n-alkanes reaches 99.93%.
CN221309576U	Shandong Shangjia Renewable Resources Tech Co Ltd (CN)	Biodiesel rectification equipment. The utility model relates to the technical field of biodiesel production and discloses biodiesel rectification equipment which comprises a rectification device, a filtering device is arranged at the top of the rectification device, and a cooling device is arranged on the right side of the top of the rectification device. The rectifying device comprises a mounting base, a rectifying still fixedly mounted at the top of the mounting base and a top cover arranged at the top of the rectifying still, a sealing gasket is arranged between the bottom of the top cover and the top of the rectifying still, and the filtering device comprises a mounting cylinder fixedly mounted at the top of the top cover. According to the biodiesel rectification equipment, biodiesel is heated and rectified through the rectification device, biodiesel is filtered before rectification through the filtering device, internal impurities are further filtered, the situation that the impurities are attached to the inner wall of the rectification kettle to affect follow-up cleaning is avoided, meanwhile, heat transfer is reduced, and the energy consumption is reduced. By arranging the cooling device, the rectified diesel oil is cooled, condensed and collected.

Nº Publicación	Solicitante (País)	Contenido técnico
CN118287141A	Zhejiang Sci Tech Univ et al. (CN)	Porous polymer solid acid material as well as preparation method and application thereof. The invention relates to a porous polymer solid acid material as well as a preparation method and application thereof, and belongs to the technical field of solid acid catalyst synthesis, the solid acid material is PDVB-SO ₃ H-CuCl ₂ solid strong acid, and the BET surface area of the PDVB-SO ₃ H-CuCl ₂ solid strong acid is 569 m ² /g. In the application of the synthesized PDVB-SO ₃ H-CuCl ₂ solid acid catalyst in biodiesel synthesis, the solid acid catalyst has the advantages that the solid acid catalyst has good catalytic activity, and the catalytic activity of the solid acid catalyst is greatly improved. The catalyst has good Catalytic property and selectivity, can accurately catalyze carboxyl and alcohol to generate esterification reaction, has good catalytic effect on fatty acid and methanol, and has the yield of 90% or above under the same reaction condition.

Bio-jet fuels

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024145163A1	Exxonmobil Technology & Engineering Company (US)	Reduced H₂ consumption during deoxygenation. Systems and methods are provided for reducing hydrogen consumption during deoxygenation of bio-derived (or at least partially bio-derived) feedstocks. The reduced hydrogen consumption is achieved by performing the deoxygenation in the presence of a bulk multimetallic catalyst and/or in the presence of a base metal dewaxing catalyst having reduced metal stack heights. Additionally, due in part to being able to reduce or minimize hydrogen consumption, the heat release during deoxygenation can also be reduced, thus allowing a smaller catalyst volume to perform deoxygenation.
WO2024178503A1	His Majesty the King In Right of Canada as Represented by The Mini of Natural Resources (CA)	Production of hydrocarbon fuels from lignin-derived materials. A continuous process for producing hydrocarbon products, such as jet fuel, diesel, and naphtha, from lignin-derived materials comprising lignin oligomers, via hydrodeoxygenation in presence of catalysts under hydrogen pressure. These hydrocarbon products can then be fractionated into fuels such as naphtha, jet fuel, or diesel. Preferably, the jet fuel and diesel meet the corresponding fuel standards. Preferably, the naphtha meets key specifications of the corresponding gasoline and naphtha standards. Because lignin-derived materials are produced from biomass, the hydrocarbon products, including the jet fuel, diesel, and naphtha produced by this process, may contain up to 100% biogenic carbon.
WO2024196450A1	Infinium Tech LLC (US)	Production of fuels from hydroprocessed esters and fatty acids, low carbon hydrogen, and carbon dioxide in an integrated hefa and efuels plant. An integrated facility to produce either renewable diesel fuel or sustainable aviation fuel, or both renewable diesel and sustainable aviation fuel from carbon dioxide including carbon dioxide that is a byproduct of reacting Hydroprocessed Esters and Fatty Acids (HEFA) and hydrogen that produces renewable fuels. HEFA is hydroprocessed to produce a liquid fuel product and may produce water, CO and water, or CO ₂ . Integrated with an eFuels process that produces the hydrogen that is needed in various steps of the integrated process. Renewable or low carbon electricity is used to convert water to hydrogen and oxygen in an electrolyzer. Carbon dioxide is reacted with at least a portion of the hydrogen to produce a stream comprising carbon monoxide with a carbon dioxide conversion per pass of between 50% to 100%, preferably between 60% and 100%, and more preferably between 70% and 100%.
US2024301306A1	Liss Barry (US)	Multi-step process for conversion of carbonaceous feedstocks to renewable liquid fuels and commodity products. A system and method of thermally processing carbonaceous materials, and especially sustainably cultivated woody biomass or cellulosic biomass sorted from municipal solid waste, to produce green fuel, such as diesel, sustainable aviation fuel and other beneficial by-products, including biochar. Synthesis gas is made by gasifying sustainably grown biomass, the thermal energy from which is used to create steam for treatment of biochar by-product to produce higher value activated carbon. Oxygen for the gasifier and hydrogen for a Fischer Tropsch (FT) or other catalytic synthesis stage of the process are generated by electrolysis of water using sustainably produced electricity. The gasification and electrolysis processes are operated to produce a 2:1 ratio of hydrogen to carbon monoxide needed for FT or other catalytic synthesis. The hydrocarbon product is distilled as required to produce either green alcohols or green diesel fuel and sustainable aviation fuel.

Nº Publicación	Solicitante (País)	Contenido técnico
US2024318085A1	Purdue Res Foundation (US)	Biofuels from oxidation products of oleic oil. Methods for making biofuels, such as biokerosene, from various alcohols and nonanoic acid, a primary product of the ozonolysis of oleic acid. The products exhibit excellent low-temperature performance. Cloud points of the nonanoic esters range from -35 to -70° C. This super low-temperature performance shows the potential for replacing winter-season diesel, kerosene, and jet fuels. The products also show excellent oxidation stability and low greenhouse gas emissions. The energy densities of the products increase with the carbon atoms in the alcohols and are less than current biodiesel. The products generally have flash points higher than 90° C., indicating safer handling and storage. Compared to current biodiesel, the products have no issues with the cold soak filtration test.
WO2024194422A1	Topsoe AS (DK)	Removal of fluorine in renewable fuel production. The present invention relates to the removal of fluorine in the processing of renewable feedstocks.
WO2024145330A1	UOP LLC (US)	Process for producing renewable product streams. A biorenewable feed that is concentrated in free fatty acids is produced by hydrodeoxygenating a biorenewable feedstock is produced by use of a Group VIII catalyst producing a 10-13 carbon atom product having a high level of linearity. Normal paraffins in the range desired by the detergents industry can be produced. Either isomerization or an iso-normal separation can be performed to provide green fuel streams.

Biohidrógeno

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024197083A2	Burchfield Larry A (US)	Hydrogen production through methane gas pyrolysis using xenon gas as a catalyst. The present invention relates to a process and system for production of clean hydrogen gas from gaseous biomass sources, such as methane gas, using pyrolysis and a catalyst gas such as xenon in a plasma-driven thermal decomposition system with an integrated carbon removal step. More particularly, the pyrolysis step occurs in a plasma-decomposition system resulting in the release of hydrogen and the catalyst gas that are captured by a cooling-pressure control system processing system using the transition boiling point (liquification) of xenon while the carbon by-product is removed. As a benefit of the above process and system, the catalyst gas xenon is filtered in cooling and can be recycled as the primary catalyst for continuous reuse.
WO2024145171A1	Carbon Tech Holdings LLC (US)	Process and systems for carbon-negative and water-positive hydrogen production. The disclosed technology provides processes for producing hydrogen that is renewable, has negative carbon intensity, and is associated with net water production. The hydrogen is economically, environmentally, and socially superior to conventional hydrogen via steam reforming of natural gas or electrolysis of water. Some variations provide a process for manufacturing carbon-negative hydrogen and optionally activated carbon, comprising: feeding biomass into a first heated vessel or zone to generate dried biomass and a first recovered water stream; feeding the dried biomass into a second heated vessel or zone to pyrolyze the dried biomass, generating a biocatalyst and a biogas; feeding the biocatalyst, the first recovered water stream, and biogas to a third heated vessel or zone for biocatalytic conversion, thereby generating H ₂ , CO, and optionally activated carbon; and recovering the hydrogen. The H ₂ is carbon-negative hydrogen characterized by a carbon intensity less than 0 kg CO ₂ e per metric ton H ₂ .
WO2024163022A1	Kraken Tech Holdings LLC (US)	Process for using waste heat and carbon dioxide from the production of low, neutral and/or negative carbon intensity hydrogen. A method for providing energy to commercial or industrial operations, such as greenhouses and algae farms, is provided. The method includes the step of recovering waste heat from a hydrogen production process, wherein the hydrogen product has a carbon intensity preferably less than about 1.0 kg CO ₂ e / kg H ₂ , more preferably less than about 0.45 kg CO ₂ e / kg H ₂ , and most preferably less than about 0.0 kg CO ₂ e / kg H ₂ . The hydrogen is preferably produced by converting a hydrocarbon feedstock to hydrogen through a reforming process, wherein at least some, and preferably substantially all, of the required energy for the hydrogen production process is provided from a biomass power plant. The method also includes the steps of processing one or more gas streams containing carbon dioxide from the biomass power plant and the hydrogen production process in one or more carbon capture unit to reduce CO ₂ e emissions, and converting at least some of the waste heat to thermal energy for use in the commercial or industrial operations. The method further comprises the step of providing at least some, and preferably substantially all of the required energy for the commercial or industrial operations from the biomass power plant.

Nº Publicación	Solicitante (País)	Contenido técnico
EP4400564A1	Mash Makes AS (DK)	Hydrogen production from a biomass-based synthesis gas. The invention relates to a method of hydrogen production from a biomass-based synthesis gas in a biomass-based hydrogen production system comprising a pyrolysis reactor and a gasification reactor. The method comprises pyrolysing a provided biomass feedstock in a pyrolysis reactor to produce a pyrolysis gas (PG) and a solid pyrolysis char (PC). At least partially oxidizing the pyrolysis gas into an oxidized pyrolysis gas by providing an oxidizing gas and gasifying the pyrolysis char in a gasification reactor using the partially oxidized pyrolysis gas to produce a synthesis gas (SG). The synthesis gas has a high content of hydrogen molecules, H ₂ . The synthesis gas (SG) is separated into two streams, one being a hydrogen-rich stream (H ₂ G) and the other being an off-gas (OG) stream, wherein the off-gas stream comprises hydrogen at a lower concentration than in the hydrogen-rich stream, and other synthesis gas (SG) elements. The method further comprises extracting mechanical energy (ME), electrical energy (EE) and/or thermal energy (TE) from the off-gas (OG) by way of an energy conversion system (ECS), and using said mechanical, electrical, and/or thermal energy (EE and TE) to provide power to the biomass-based hydrogen production system. The invention further relates to a biomass-based hydrogen production system.
WO2024148641A1	Ningbo Inst Materials Tech & Eng CAS (CN)	Method for coupling of electrocatalytic biomass oxidation and green hydrogen production by magnetic field enhancement. Disclosed in the present invention is a method for coupling of electrocatalytic biomass oxidation and green hydrogen production by magnetic field enhancement, comprising the following steps: soaking a metal substrate in a metal salt solution in contact with air, and obtaining a self-supporting precursor by means of natural corrosion; carrying out phosphating treatment on the self-supporting precursor in an inert gas atmosphere; carrying out surface electro-oxidation on the self-supporting precursor subjected to the phosphating treatment to obtain a magnetic field-responsive monolithic electrocatalyst; forming a double-electrode system by using the monolithic electrocatalyst as an anode and a cathode of an electrocatalytic coupling reaction, and adding an alkaline solution containing biomass into a diaphragmless electrolytic cell to serve as an electrolyte; applying a magnetic field around the anode and the cathode, the magnetic line of force of the magnetic field passing through the electrodes, the electrodes being immersed in the electrolyte, the anode being subjected to a biomass electrocatalytic oxidation reaction, and the cathode being subjected to a hydrogen evolution reaction. According to the present invention, production of hydrogen by electrolysis of water is coupled with biomass oxidation, and an external magnetic field is applied, such that the total reaction rate is increased, thereby improving the efficiency of producing hydrogen at the cathode and producing FDCA at the anode.
WO2024141655A1	Synthec Fuels GmbH (DE)	Facility and method for storing hydrogen. A facility (100) for storing hydrogen in an organic liquid is disclosed. The facility (100) comprises an absorption chamber (190) adapted to hold the organic liquid, to receive synthesis gas such that the organic liquid absorbs the synthesis gas, separates the hydrogen from other components of the synthesis gas and bounds the hydrogen to store the hydrogen in the organic liquid, and to release the other components of the synthesis gas from the organic liquid. Further, a method for storing hydrogen in an organic liquid is disclosed.

Otros biocombustibles (bioaceites, FAGE, LPG, naphta, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
US12054685B1	Nat Tech & Eng Solutions Sandia LLC (US)	Coupling high yield biochemical intermediates for fuel production. A chemical upgrading of two high-yield fermentation products to produce a novel biofuel with properties desirable for use in internal combustion engines produces a C7 to C22 alkoxyalkanoate corresponding to formula (I): wherein R2 and R1 are alkyl groups independently selected to have 2 to 18 carbon atoms; wherein the R3 group is a C1 to C5 group divalent alkyl group. The alkoxyalkanoate can be used as a neat fuel or blend with biodiesel, diesel, gasoline, ethanol or other fuels. The alkoxyalkanoates have improved cloud point properties over diesel fuels. A method for making the alkoxyalkanoate from a biomass source is also disclosed.
WO2024160733A1	Topsoe AS (DK)	Removal of arsenic in renewable fuel production. The invention relates to the removal of heteroatoms such as arsenic in the processing of renewable feedstocks.

PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2024189436A1	A Shed SRL (IT)	Multilayer panel and related production method. The present invention relates to a multilayer panel (1) comprising: - at least one layer (2) consisting of at least one sheet (3) of cardboard, preferably cardboard of the recycled type; - two outer layers (4) that pack the said layer (2) of cardboard between them; - and wherein said two outer layers (4) are made of plant-based material.
WO2024160874A1	Champion Link Int Corp et al. (BE)	Panel for forming a floor or wall covering. The invention relates to a panel, such as a floor panel, wall panel, or a ceiling panel, comprising at least one core layer and at least one decorative top layer, wherein at least one core layer comprises a significant of natural fibers having an average fiber length of at least 4 mm.
WO2024138263A1	CTK Res and Development Canada Ltd (CA)	Biodegradable polymer based biocomposites. The present invention provides biodegradable polymeric materials. In particular, it relates to biocomposites materials comprising poly(butylene furanoate) copolyester(s) and plant material residue, and method of making same.
EP4403348A1	Faurecia Interieur Ind (FR)	Lining element comprising polypropylene on its outer surface. The vehicle trim element (1) comprises a body (2) extending between an inner surface (4), intended to be turned towards a support of the trim element, and an outer surface (6), opposite the inner surface (4) and intended to be turned towards the passenger compartment of the vehicle, said body (2) being formed from at least one non-woven or woven material comprising natural fibers, a first group of polypropylene fibers having a first melt flow index and a second group of polypropylene fibers having a second melt flow index, lower than the first melt flow index, the polypropylene from the fibers of the first group extending mainly in an upper layer (26) of the body (2), said upper layer (26) forming the outer surface (6) of the body (2).
EP4420655A1	Malai Biomaterials Design Sro (SK)	Bacterial cellulose bio-composite and an article comprising said bio-composite. Bacterial cellulose bio-composite obtained by the manufacturing process including cutting the banana fibre, the hemp fibre and the sisal fibre, each separately, to a length of 2 to 10 cm; delignification of the fibres; pulping the fibres; pulping a bacterial cellulose; adding 0,2 to 20 wt. % of polysaccharide cationic gum; diluting the mixture with water and pouring the solution of fibres and matrix in a sheet forming mould; further dewatering the sheet; drying the sheet; treating the sheet with humectant; mechanical manipulation - multiple stretching and folding of the sheet in order for material to be pliable and without warps; treating both sides of the sheet with water solution of sizing; sheet is further mechanically softened and texturized.
WO2024160370A1	Suncoal Ind GmbH (DE)	Dry-granulation of particulate carbon material and agglomerates produced thereby. The present invention relates to a method for producing an agglomerated particulate carbon material, wherein said method comprises providing a particulate carbon starting material comprising or consisting of hydrothermally treated lignin particles, the particulate carbon starting material having a particle size $\leq 500 \mu\text{m}$; compacting the particulate carbon starting material by applying a compaction force, thereby forming a compacted particulate carbon material; crushing the thus obtained compacted particulate carbon material, thus forming a crushed compacted carbon material; subjecting the crushed compacted carbon material to at least one granulator, thus further reducing the size of the crushed compacted carbon material, and forming a mixture of agglomerated particulate carbon material having a particle size $> 500 \mu\text{m}$ and $\leq 5000 \mu\text{m}$, and a particulate carbon material, having a particle size $\leq 500 \mu\text{m}$; and removing particulate carbon material having a particle size $\leq 500 \mu\text{m}$ and $> 5000 \mu\text{m}$, if present, from the agglomerated particulate carbon material having a particle size in the range of $> 500 \mu\text{m}$ and $\leq 5000 \mu\text{m}$. The invention further relates to the agglomerated particulate carbon material, which is obtainable according to the method, its use in polymeric material as well as the polymeric material comprising particulate carbon material formed from the agglomerated particulate carbon material.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024182456A1	Sze Ka Shuen (US)	Methods for producing a biodegradable binding agent and an article made from a bio-composite material using thereof. A novel binding agent may be produced using a powder made by grinding a substance known as a spent mushroom substrate. Such a substance is a waste product of agricultural processes, and yet it contains a high quantity of mycelium, which in turn includes chitin, a natural polymer, that may be used as a key ingredient of the binding agent. <i>Ganoderma lucidum</i> fungi may be a preferred SMS because of its rich chitin content. The novel article, such as a mixed-density particle board, made from bio-composite materials, may be produced by a hot-pressing process using a mixture of the binding agent and a plurality of particles of at least a first natural substance, such as Coco coir to form the article.
EP4410511A2	UPM Kymmene Corp (FI)	Natural fiber plastic composite. The invention relates to a method for manufacturing a natural fiber plastic composite material (100), the method comprising: forming a basic mixture (51) comprising at least 20 wt.% (by dry weight) label stock based pulp (11) comprising thermoplastic polymer(s) and cellulose based fibers, wherein equal to or more than 90 % of the cellulose based fibers have a fiber length of less than 1.5 mm, by feeding the materials into a pre-mixer (50), and heating the materials to a processing temperature of the thermoplastic polymer(s), and forming natural fiber plastic composite material (100) comprising the basic mixture (51) by using a melt processing. The invention further relates to a natural fiber plastic composite material (100). The invention further relates to a label stock based pulp (11), and a method for producing a label stock based pulp (11).
EP4424775A1	Voisin Bernard et al. (FR)	Composite of polyvinyl chloride and plant fibres and method for manufacturing such a composite. The present invention relates to a method for manufacturing a compound comprising polyvinyl chloride and plant fibres, the plant fibre content being at least 50% by mass, relative to the mass of the compound, by means of a co-kneading installation comprising a hot mixer (2), a cold mixer (3), a co-kneader (4) provided with a first inlet (15), one or more intermediate inlets (17, 18, 19, 27), a last inlet (16), and an outlet (20), the plant fibres being introduced into the co-kneader (4) in at least two stages. The invention also relates to the compound obtained by this process and to a method for the continuous manufacture of a potentially foamed extruded structure comprising polyvinyl chloride and plant fibers, the plant fiber content being at least 50% by mass, relative to the mass of said extruded structure.
EP4414165A1	Volvo Car Corp (SE)	A fiber composite product and a method for producing thereof. The disclosure relates to a fiber composite product (10) for an automotive interior or exterior component. The fiber composite product (10) comprises a first layer (11) comprising a structured natural fiber fabric embedded within a solidified matrix of thermoplastic resin; a second layer (12) comprising natural fibers in form of a non-woven mat within a solidified matrix of thermoplastic resin, which is attached at the first layer (11), and injections of thermoplastic resin (13) onto the second layer.

Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024194513A1	Carrero Puig Marcos (ES)	Method and system for manufacturing absorbent pads. The invention relates to a method for manufacturing absorbent pads that comprises: a) opening and building a natural fibre web (53) on cards (52); b) generating a paper sheet profile (33) on a paper former (3) with cellulose fluff pulp formed by a hammer mill (11) and polylactic acid (PLA) fibres from a fibre opener; c) mixing and generating a commutative unit (4) of air-laid paper with the natural fibre web (53) and the fluff pulp and PLA fibre sheet profile (33); and d) forming the top and bottom surfaces, internally preforming the air-laid paper (61) and forming an absorbent pad (6) by rolling the top and bottom surfaces thereof. The invention includes a system for manufacturing said absorbent pads.
WO2024189110A1	Corail Artefact Science & Tech (FR)	Biodegradable polymer for 3D printing. The invention relates to a biodegradable material comprising at least (1) a mixture of biodegradable polymers comprising at least one polyhydroxyalkanoate (PHA) having a high melting point higher than about 120°C and at least one polyhydroxyalkanoate (PHA) having a low melting point lower than about 80°C, and (2) at least one dehydrated calcareous alga and/or a non-water-soluble dry residue of a calcareous alga. The invention also relates to a method for producing such a material, to the use thereof for growing a marine coral, to a three-dimensional (3D) printing filament comprising the material and to a device for holding a coral fragment formed of the material.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024160870A1	Dionymer (FR)	Method for obtaining a solution of volatile fatty acids, solution obtained, and use for the production of polyhydroxyalkanoates. The invention relates to a method for treating a mixture obtained from organic waste by anaerobic digestion, making it possible to obtain a particular volatile fatty acid (VFA) solution. The invention also relates to the VFA solution obtained and to the use thereof for producing PHAs, in particular high-quality PHBVs.
WO2024157882A1	Kaneka Corp (JP)	Method for producing polyhydroxyalkanoate. The present invention addresses the problem of providing a new method for producing PHA by which PHA having a small amount of impurities and a high degree of purity can be produced at high yield without increasing the amount of washing water. The problem is resolved by a method for producing polyhydroxyalkanoate that uses a culture solution containing bacterial cells containing a PHB copolymer having a specific composition ratio, said method comprising: (d) a step for enzymatically treating the culture solution; (e) a step for enzymatically treating the bacterial cells in the culture solution obtained in step (d); (b) a step for adjusting the pH of the culture solution and adding a surfactant; and (f) a step for subjecting the obtained aqueous suspension to solid-liquid separation to recover PHA-containing cake.
WO2024186069A1	LG Chemical Ltd (KR)	Manufacturing method of polylactic acid blown film. The present invention relates to a manufacturing method enabling a polylactic acid blown film to be manufactured. The present invention can provide a polylactic acid blown film having high transparency and excellent surface property even without an additive such as a plasticizer, and can enhance process stability.
WO2024152061A9	Plastic Suppliers Inc Dba Earthfirst (US)	Producing polyhydroxyalkanoate (PHA) blown film. A method for producing polyhydroxyalkanoate (PHA) blown film comprising the steps of melting PHA material to form a molten mass with a viscosity ranging from 1400P to 1600P at 340°F to 350°F (melting point of PHA), forming a bubble from the resulting molten mass and collapsing the bubble to form a film. Furthermore, due to the tight processing window of PHA compared to other blown films, PHA benefits from being produced using an enclosed climate-controlled blown film process as the climate can be controlled within the enclosure to ensure the tight processing window is maintained.
WO2024197106A2	The Regents of the Univ of California (US)	Continuous polyhydroxyalkanoate production by perchlorate respiring microorganisms. Continuous polyhydroxyalkanoate production by perchlorate respiring microorganisms utilizes the unique ability of microorganisms growing on perchlorate to produce PHA throughout their growth cycle.
WO2024185565A1	Toray Industries (JP)	Polyhydroxyalkanoate film, package, agricultural material, biodegradation method, and agricultural raw material. The present invention addresses the problem of providing a polyhydroxyalkanoate film that is not only biodegradable but also has excellent quality with few film defects, and a package and agricultural material using the same. As a means for solving the problem, the polyhydroxyalkanoate film has a melt specific resistance at 180°C of 3-400 MΩ•cm, and a weight retention rate of at least 97% when held for 30 minutes at a temperature which is 30°C higher than the melting point of the film.
WO2024180218A1	Totalenergies Onetech (FR)	Mass polymerisation section for preparing polylactic acid. The present invention relates to the field of polymerisation of lactic acid to form polylactic acid (PLA). The present invention in particular relates to a process for mass polymerisation in a PLA production process. The present invention also relates to an apparatus for performing the process of the invention, and to the use of the present process or apparatus in the production of a polylactide polymer.
WO2024185612A1	Toyo Boseki (JP)	Polylactic acid film and laminated film. The present invention relates to a polylactic acid that is derived from a biomass raw material and that is biodegradable, and provides a polylactic acid film which has excellent elastic modulus and heat resistance. The polylactic acid film comprises a resin composition containing a polylactic acid. In this polylactic acid film, the tensile elastic modulus E_a in the length direction and the tensile elastic modulus E_b in the width direction satisfy the expression $E_a + E_b > 8.0$ GPa, the degree of crystallization is 40-90%, and, upon heating for 30 minutes at 150°C, thermal shrinkage in the length direction and thermal shrinkage in the width direction are each not more than 10.0%. In the polylactic acid film, the weight ratio of L-lactic acid / D-lactic acid is preferably 100/0 to 85/15.

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

Biofertilizantes, bioadhesivos, etc.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024192809A1	Anhui Science and Technology Univ (CN)	Biochar-based coated selenium controlled-release fertilizer and preparation method therefor. The present invention belongs to the technical field of fertilizers. Disclosed are a biochar-based coated selenium controlled-release fertilizer and a preparation method therefor. The fertilizer comprises a core layer and a coating layer coating the surface of the core layer, wherein, in parts by mass, raw materials of the core layer comprise the following components: 70-80 parts of urea, 60-70 parts of monoammonium phosphate, 50-60 parts of potassium chloride, 30-40 parts of triple superphosphate, 2-3 parts of sodium silicate, 2-4 parts of magnesium sulfate, 8-15 parts of nano-selenium, and 4-6 parts of tourmaline powder; and raw materials of the coating layer comprise the following components: 120-150 parts of a modified biochar powder and 20-30 parts of a modified starch/polyvinyl alcohol compound. The fertilizer has a good controlled-release effect, a high selenium utilization rate and good fertilizer efficiency, can effectively improve the yield and quality of crops, and has a simple preparation process, a low cost and no pollution.
WO2024168067A1	Cupron Inc (US)	Antimicrobial thermoset polymers, adhesives, and curable coatings comprising a synergistic blend of components. The antimicrobial adhesives, uncured thermoset polymers, thermoset polymers, polyurethanes, and epoxy resins or resin components molded or extruded article, adhesives, and binders, such as binders for engineered wood products, may include a mixture of at least one antimicrobial metal compound and at least one synergistic compound. The composition may further include at least one pH adjuvant that creates an acidic environment within or exterior to the composition. It has been surprisingly found that these components create a synergistic relationship within a composition that provides a more tailored antimicrobial polymeric composition or article.
WO2024142431A1	Dainichiseika Color Chem (JP)	Pigment dispersion solution and manufacturing method thereof. Provided is a pigment dispersion solution in which a biomass-derived carbon black is highly finely dispersed and which enables the preparation of a water-based inkjet ink that has excellent discharge stability and can record images having a high concentration and excellent color and gloss properties. The pigment dispersion solution, which contains a pigment, a dispersant, a water-soluble organic solvent and water, is to be used for preparing a water-based inkjet ink. The pigment is a biomass-derived carbon black having a number-average particle size of 80-300 nm when dispersed in the pigment dispersion solution. The dispersant is a polymer which contains a constituent unit (i) derived from (meth)acrylic acid, etc. and a constituent unit (ii) derived from a biomass-derived (meth)acrylate, and in which at least a portion of the carboxy groups is neutralized by an alkali, wherein: the acid number of the polymer is 50-150 mg KOH/g; and the biomass-derived (meth)acrylate is isobornyl (meth)acrylate, etc.
WO2024181673A1	Dongwoo Fine Chem Co Ltd (KR)	Adhesive composition, adhesive sheet, and display comprising same. The present invention relates to an adhesive composition, an adhesive sheet manufactured using same, and a display comprising same, the adhesive composition comprising an acrylic copolymer polymerized by mixing biomass-derived monomers, and thus being environmentally friendly, superbly durable, and therefore superbly reliable even in a high-temperature and high-humidity environment.
WO2024194829A1	Natural Plant Prot Limited (IN)	A biofertilizer. The present disclosure relates to a biofertilizer. Particularly, the present disclosure relates to biofertilizer combinations and compositions comprising endophytic bacteria and mycorrhiza, and methods of uses thereof.
WO2024165794A1	Neova OY (FI)	Use of finely milled biomass comprising sphagnum moss for improving plant growth. The present invention is directed to a novel use of finely milled biomass comprising Sphagnum moss for improving plant growth, wherein the particle size of said finely milled biomass is under 150 microns (μm), preferably in the range of 0.2 – 100 microns. The present invention is also directed to a fertilizer or a plant growing medium comprising finely milled biomass essentially comprising Sphagnum moss. The present invention is further directed to a method for improving plant growth or plant development comprising a step of applying finely milled biomass comprising Sphagnum moss to a plant, growing medium, or soil where the plant is cultivated.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024186809A2	The Board of Trustees of Western Michigan Univ (US)	Natural binders for high-strength non-woven and textile fabrics. Embodiments of the present invention include a grafted aqueous carboxymethyl cellulose (CMC) binder comprising CMC chemically bonded with a monomer, where the CMC has a weight ratio of water to CMC of from about 99.9:0.1 to about 1,000:500, wherein the monomer is characterized by a weight ratio of monomer to CMC of from about 1:1 to about 1:1,000, and non-woven fabrics and articles including CMC binders, and methods of manufacture of the same. Aspects of the invention include a method of synthesizing a grafted aqueous carboxymethyl cellulose (CMC), the method comprising: contacting CMC with water to form a CMC solution, contacting the CMC solution with an initiator; contacting the CMC solution with a monomer to start grafting polymerization reaction between the CMC and a monomer. In some embodiments, the binder and non-woven fabrics including the same are non-toxic and biodegradable.
WO2024189381A1	Tumblebug Ltd (GB)	Manure processing method. A method and system for processing manure to dry and sterilise the manure for storage and to recapture nutrients lost in the drying process for use in fertilisers. The method comprises removing water from manure by heating the manure in a chamber (12), extracting gas from the chamber (12) and passing the extracted gas through a filter (24) comprising biochar (66) to collect water and nutrients removed from the manure.
WO2024138280A1	Univ del Bio Bio (CL)	Bio-based adhesive comprising yeast protein extracts from liquid industrial waste from the brewing and bread industries, reinforced with nanolignin and at least one cross-linking agent, useful for the production of particle board (PB), plywood (PW) and oriented strand board (OSB). The invention relates to a bio-based adhesive for the sustainable production of particle board (PB), plywood (PW) and oriented strand board (OSB). The adhesive according to the invention is protein-based and comprises a yeast protein extract from yeast from liquid industrial waste from the brewing industry or a mixture of yeast protein extracts from yeast from liquid industrial waste from the brewing and bread industries, and it is reinforced with nanolignin and at least one cross-linking agent, which can be selected from resorcinol, glyoxal, diphenylmethane diisocyanate, glutaraldehyde, melamine, lignosulfonate or a mixture thereof. The invention also relates to a preparation method for said adhesive and the production of said boards.
WO2024159015A1	Univ North Carolina State (US)	Compositions and methods relating to inhalable therapeutic compositions. The present disclosure provides compositions and methods related to inhalable therapeutics. In particular, the present disclosure provides hydrogel-based inhalable bioadhesives that safely and effectively coat the airway to provide a barrier against pathogenic organisms, allergens, and environmental pollutants.

Biocosméticos, Biofarmacéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024194423A1	AGS Therapeutics SAS (FR)	Extracellular vesicles from microalgae, their use for vaccines and for immunomodulation. Provided are vaccines and immunomodulatory compositions containing extracellular vesicles from microalgae (MEVs) that are loaded with bioactive cargo, that includes antigens and/or immunomodulatory proteins, nucleic acids, and nucleic acid encoding the proteins. The MEVs are formulated and administered by a variety of routes of administration that are advantageous for modulating the immune systems. Vaccines include those that are therapeutic for treating a disease, disorder, or condition, those that elicit an immunoprotective response, and/or otherwise modulate the immune system. The compositions include MEVs containing cargos for modulating intracellular receptors.
WO2024165939A1	Crodarom (FR)	Cosmetic use of a combination of plant extracts. The present invention provides the use of a combination of plant extracts comprising at least an extract of Scutellaria, an extract of Glycyrrhiza, an extract of Ziziphus and an extract of Paeonia, or a composition comprising said association and a physiologically acceptable medium, for a topical non-therapeutic cosmetic treatment. The extracts can be obtained by different techniques, preferably by digestion and/or by means of microwaves. The cosmetic treatment can be a soothing treatment, a moisturizing treatment, an anti-aging treatment and/or a slimming treatment.

Nº Publicación	Solicitante (País)	Contenido técnico
ES2978728A1	Fernández Guarino Montserrat (ES)	Fotoprotección solar con cromóforos naturales presentes en microorganismos acuáticos que absorben luz inocuos para el ser humano y el medio ambiente. La idea es la búsqueda e inclusión de sustancias presentes en microorganismos marinos de forma natural e incluirlos en las cremas de protección solar con capacidad para protección frente a luz visible y ultravioleta al ser cromóforos. En el momento actual el manejo de los cromóforos en dermatología se ha centrado en el tratamiento con fuentes de luz láser o no coherentes de diversas patologías inflamatorias y tumorales. El dermatólogo está familiarizado con estos sistemas de control de la luz en la piel y sus efectos. La necesidad de filtros que no dañen el medio ambiente está por cubrir, ya que todos ellos in vitro dañan el medio marino y por ello todo el ecosistema al recircular.
EP4406532A1	Inst Politecnico da Guarda (PT)	Gel formulation for the treatment of drug intoxication and a process to obtain the same. The present invention relates to a gel formulation for oral administration comprising microalgae biomass from <i>Chlorella sorokiniana</i> , <i>Chlorella vulgaris</i> or <i>Tetrademus obliquus</i> , free or encapsulated in particles, suitable to adsorb different drugs in the gastrointestinal tract. It is also disclosed a process to obtain the gel formulation. The gel formulation is suitable for the treatment of drug intoxication in humans or animals, therefore finding application in pharmaceutical, medical and veterinary technical fields.
WO2024189030A1	Jafer Entpr R&D Slu (ES) et al.	Method for obtaining a rosewood extract, compositions comprising same and cosmetic uses thereof. The invention relates to a rosewood extract obtained from co-products of the distillation of rosewood (<i>Aniba rosaeodora</i>) essential oil by extraction using supercritical CO ₂ in the presence of a co-solvent. The subject matter of the invention is also a method for obtaining such an extract. The invention further relates to the cosmetic compositions comprising such an extract and finally to the cosmetic uses of such compositions for firming the skin, limiting the appearance of ptosis, redefining the contour of the face, and limiting the appearance of wrinkles and fine lines.
EP4397300A1	Laboratoires de Biologie Vegetale Yves Rocher (FR)	Combination comprising spirulina or indigo pigment extract and black iron oxide pigment, and uses. The present invention relates to a non-therapeutic cosmetic use of a combination of spirulina extract and/or an indigo pigment and black iron oxide pigment to bring radiance to the complexion of the skin and/or mucous membranes. The present invention also relates to a non-therapeutic cosmetic use of a spirulina extract and/or indigo pigment in a cosmetic or dermatological composition comprising a black iron oxide pigment, to reduce a dulling effect on the shade of said cosmetic or dermatological composition due to the presence of the black iron oxide pigment, or to make a black coloring deeper. The present invention further relates to a combination comprising a spirulina extract and/or indigo pigment and a black iron oxide pigment, wherein the ratio between the amount of spirulina extract or indigo extract and the amount of black iron oxide is between 1/99 and 99/1, preferably about 100/0, the value of 0 being possibly excluded.
WO2024142004A1	NGN Healthcare New Generation Nutraceuticals SRL (IT)	Oleolyte of lyophilized apple or grape pomace with high content of ursolic acid. The present invention describes a process for the extraction of ursolic acid (UA) in sunflower oil from lyophilized apple, in particular of the Annurca variety, or from lyophilized grape pomace, in particular of the Fiano di Avellino DOCG variety, the oleolyte obtained and the use thereof in cosmetic preparations.
WO2024171136A1	Olmix et al. (FR)	Fucales-based composition for use in the oral treatment of helminthiasis, and method for obtaining a corresponding preparation. The invention relates to a preparation for pharmaceutical, veterinary or food use containing at least one alga and/or at least one extract from an alga belonging to the Fucales order for use as an anthelmintic in the oral treatment of helminthiasis caused by organisms in the Rhabditina and/or Spirurina suborder which are resistant to anthelmintics belonging to the groups of macrocyclic lactones, benzimidazoles, imidazothiazoles and/or tetrahydropyrimidines, to the use of such a preparation to treat, control and prevent helminth infections in a warm-blooded animal or a human being, and to a method for obtaining such a preparation.
WO2024194369A1	Soc Dexploitation de Produits pour les Industries Chimiques Seppic (FR)	Process for the preparation of a polar lipid-enriched algal extract. The invention relates to a novel process for preparing an algal extract from algal biomass, comprising chlorophyll, polar lipids and optionally triglycerides, said plant extract comprising polar lipids which are dissolved in 1,3-propanediol and for which the parameter a* according to the CIELAB color space is greater than or equal to -5, to the use of said algal extract as an active cosmetic agent, and to a cosmetic composition containing same.

Nº Publicación	Solicitante (País)	Contenido técnico
ES2977833A1	Univ Madrid Autonoma et al. (ES)	Procedure for obtaining exosomes from buttermilk, obtained exosomes and their applications. Process for obtaining exosomes from buttermilk, obtained exosomes and applications thereof. This invention completes a process for isolating exosomes from buttermilk comprising: (a) selecting the buttermilk as a by-product of the dairy industry, (b) subjecting it to a first centrifugation, under conditions between 10,000 g and 15,000 g, 1°C and 8°C and 15 and 30 min, obtaining an upper fatty layer, an aqueous fraction, and a precipitate; (c) Subjecting the aqueous fraction to a second centrifugation, under conditions between 30,000 g and 35,000 g, 1 and 10°C and between 50 min and 1 hour and 20 min; obtaining a precipitate and a supernatant; (d) collecting the upper 75% of the supernatant; (e) concentrating or separating the exosomes from the supernatant fraction; and (f) filtering the fraction obtained to obtain a fraction enriched in exosomes. Also contemplated are the exosomes obtained by the method of the invention and their applications in medicine, cosmetics and nutraceuticals.

Bioaditivos alimentarios y nutracéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024180552A2	Bountica Ltd et al. (IL)	An eco-friendly, sustainable food preservative. The present invention is directed to methods and compositions comprising S100 proteins, for example psoriasin, useful as anti-fungal and anti-bacterial food and beverage preservatives.
WO2024182133A1	Corn Products Dev Inc (US)	Use of deamidated legume protein isolates in melting compositions. The technology disclosed in this specification pertains to the use of deamidated legume proteins in meltable compositions. In at least some embodiments the meltable compositions are imitation cheese, including vegan imitation cheese. The deamidated legume protein is used to as an emulsifier and to facilitate increased melt-spread of the meltable composition.
WO2024149806A1	Frieslandcampina Nederland BV (NL)	Use of a phospholipid-enriched milk fraction in the prevention of an infection with RSV. Phospholipid-enriched milk fraction for use in the prevention of a viral infection with respiratory syncytial virus (RSV) and/or the prevention of further development of a viral infection with respiratory syncytial virus (RSV).
WO2024179977A1	Givaudan SA (CH)	Compositions. The present invention is related to a method for preparing a storage-stable flavored composition, said method comprising:(a) providing a flavored composition comprising a synthetic and/or natural flavor as a flavoring agent; and (b) adding a lemon balm extract comprising rosmarinic acid to the flavored composition from step (a) to obtain a storage-stable, flavored composition, as well as the storage stable flavored compositions so obtained.
WO2024184869A1	Global Pharmacies Partner SRL (IT)	Composition comprising medium-chain triglycerides, omega-3 and choline for use in a method of treatment of cognitive decline and dementia. The present invention relates to a mixture, and a composition comprising said mixture, comprising medium-chain triglycerides MCT, omega-3 and choline. In particular, the present invention relates to a mixture, and a composition comprising said mixture, comprising medium-chain triglycerides MCT, omega-3 and choline for use in a method of treatment, preferably a preventive method of treatment, of a subjective memory disorder, a mild cognitive decline (MCI), a dementia or an Alzheimer's disease.
WO2024181722A1	Korea Inst Ocean Sci & Tech (KR)	Method for producing stabilized phycocyanobilin, phycocyanobilin produced using same, and composition containing same phycocyanobilin. The present invention relates to a method for producing stabilized phycocyanobilin, phycocyanobilin produced using same, and a composition containing the same phycocyanobilin. By adding an acid, base, or catalyst to phycocyanin to accelerate the decomposition of proteins and phycocyanobilin and mixing with a stabilizer, phycocyanobilin is not only produced in the conditions of reduced extraction time and lower extraction temperature, compared to conventional phycocyanobilin extraction methods, but phycocyanobilin with improved stability and antioxidant activity is also provided.
EP4427596A2	Planted Foods AG (CH)	Foodstuffs and methods for making the same. The present invention relates to foodstuffs comprising structured fats and/or fat-like compositions and methods for making the same. In particular, the foodstuff may be a sausage, baked good, dairy product, confectionery product or food emulsion with improved properties, such as health benefits and/or improved thermal and/or textural properties and/or an improved oral sensory experience.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024192180A1	Shiru Inc (US) et al.	Structured protein particulate in fibre or sheet form that forms oleogels and macrocolloids for replacing fats and thickeners in food and cosmetic products. This disclosure provides a protein dry particulate that has a defined microstructure with beneficial properties. When combined with aqueous solution, the dry particulate forms a macrocolloid with improved thickening and stabilizing properties. When combined with an oil, the dry particulate forms an oleogel with unique oil structuring and release properties. The microstructure is in the form of fibrils, sheets, or other particles that are substantially not interconnected and have a high aspect ratio. The dry particulate can be manufactured by denaturing the protein in an aqueous liquid, and organizing the protein by freeze channeling. The oleogel can be manufactured by gradually and gently adding a suitable oil so as not to triturate the microstructure. The oleogel releases some but not all of the oil when heated, and forms a spreadable emulsion in an aqueous liquid that is stable for at least six weeks. The oleogel can replace animal fats and tropical oils in foods, cosmetics, and pharmaceuticals.
WO2024192354A2	WM Wrigley Jr Company (US)	Bulk sweetener systems for confections. Bulk sweetener compositions and reduced sugar confections are described. The bulk sweetener composition may include at least one of a glucose syrup, a soluble fiber, and maltodextrin; and at least one of a monosaccharide, a disaccharide, and a low calorie monosaccharide. The bulk sweetener composition may provide for at least 33% sugar reduction in a confectionery product.
EP4421064A1	Zhejiang Keming Biopharmaceutical Co Ltd et al. (CN)	A preparation method of carotenoid agent. The present disclosure provides a preparation method of carotenoid agent. The preparation method provided in present disclosure includes: mixing a suspended organic dispersion phase of a carotenoid crystal with a first organic solvent in a spiral coil of a coil heat exchanger to form a mixed solution, with the carotenoid crystal in the suspended organic phase of the carotenoid crystal being dissolved in the first organic solvent to obtain an oil phase matrix of the carotenoid dissolution solution, wherein the temperature inside the spiral coil is from 50°C to 70°C. In the present disclosure, the carotenoid crystal is dissolved in the first organic solvent at 50°C to 70°C, effectively avoiding the drawbacks of isomerization reaction of the carotenoid agent when it is dissolved in traditional preparation methods.

Bioproductos alimenticios para animales

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024188908A1	Bevo Biotechnologies Resitve DOO (SI)	Bone analogue. A vegetarian bone analogue including non-animal derived protein and a plasticizer that is mimetic of animal bone is provided. Also provided are methods of forming the bone analogue and uses of the bone analogue for example, in a meat analogue.
WO2024172785A1	Bursa Uludag Ueniversitesi (TR)	Use of grape seed extract for reduction of oxidative stress in calves. The invention relates to a compound for reducing the antioxidant system and the resulting oxidative stress in animals, in particular calves, which is compromised by the increasing environmental temperature in summer. The invention in particular relates to the use of grape seed extract with antioxidant and anti-inflammatory properties for the reduction and/or prevention of oxidative stress caused by heat stress in calves.
WO2024165357A1	Evonik Operations GmbH (DE)	Process for preparing guanidinoacetic acid comprising granulates. The present application relates to a process for preparing guanidinoacetic acid comprising granulates, comprising the steps of a) providing a fermentation broth comprising guanidinoacetic acid and biomass, b) reducing the content of water in the fermentation broth provided in step a) to give a concentrated fermentation broth, and c) subjecting the concentrated fermentation broth of step b) to a wet granulation.
WO2024194349A1	Fermentationexperts AS (DK)	Method of preparing a nutritional product from mannan-rich materials. The present invention relates to a process for providing a product having an improved nutritional value from a mannan-rich material, the method comprises the steps of (i) providing the mannan-rich material; (ii) adding at least one microorganism, in preferably at least one lactic acid bacterial strain, to the mannan-rich material, providing an inoculated mannan-rich material; and (iii) allowing the inoculated mannan-rich material to ferment for a period of at least 3 days, providing a fermented mannan-rich material having an improved nutritional value.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2024178159A1	Figure 8 Inc et al. (US)	Method to produce soluble protein powder recovered from organic waste. This invention relates to the field of preparing water-soluble powders of protein extracted from organic waste including, but not limited to manure, food waste, digestate of anaerobic digesters, animal body parts such as hair, wool, nails, skins, feathers, hooves, claws and other body parts by thermal hydrolysis process (THP) without using chemical solvents. The protein includes, but not limited to, keratin, collagen, manure protein, plant proteins. More specifically, the invention relates to process to prepare water-soluble powders of protein recovered from organic waste by adjusting the pH of the extracted solution before undergoing concentration of the solution, removal of water from the solution, finally drying processes such as a spray drying or freeze drying to prepare water-soluble powders.
WO2024152131A1	Jefo Nutrition Inc (CA)	Additive compositions, methods and uses thereof in pig nutrition. The present application relates to livestock feeding composition. More specifically, the present application relates to additives for feed compositions, methods and uses thereof in pig nutrition. The present application includes an additive composition for a pig feeding composition, comprising: at least one vitamin; at least one fermentation extract; and at least one lipid matrix; wherein the at least one vitamin and the at least one fermentation extract are incorporated within the at least one lipid matrix or at least one vitamin and at least one lipid matrix; wherein the at least one vitamin are incorporated within the at least one lipid matrix. The present application also includes feed composition comprising the additive composition, uses of the additive composition and methods for improving pig growth, feed conversion and feed efficiency using the additive composition.
WO2024158272A1	NJSC Kazakh National Agrarian Research Univ (KZ)	Method for producing a protein feed concentrate from microbial protein. The invention relates to the field of agrotechnology and can be used for producing a protein feed concentrate, while also protecting the environment. The technical result is that of improving the composition and nutritional value of a feed concentrate, as well as reducing harmful emissions into the environment by applying automated processes for degassing a gas phase in a fermenter and using closed cyclic systems for circulating said gas phase during cultivation processes. This result is achieved in that in the present method for producing a protein feed concentrate consisting of microbial protein, which includes cultivating bacteria in a bioreactor supplied with a gas medium, cultivation of the methanotrophic bacteria <i>Methylococcus capsulatus</i> VKM B-2990 is carried out with the cyclic use of a gas mixture, wherein the gas mixture is continuously fed from the fermenter into a degassing chamber.
WO2024184531A1	Nutreco IP Assets BV (NL)	Feed additive for improving performance of farming animals. The present invention is in the field of feed additives for animals, e.g., farming animals, in particular feed additives to be added to animal feed to obtain an improved performance, e.g., an increasing feed intake, increasing average daily gain, increasing feed efficiency (i.e., decreasing feed conversion ratio), and/or increasing milk fat yield, of such animals.
WO2024191282A1	Sento Biotech SDN BHD (MY)	Feed substrate and method of preparing thereof. A method of preparing fermented <i>S. grandiflora</i> leaves comprising the steps of (i) adding a solvent to <i>S. grandiflora</i> leaves, (ii) grinding the <i>S. grandiflora</i> leaves mixture, (iii) heating the <i>S. grandiflora</i> leaves paste, (iv) cooling down the heated <i>S. grandiflora</i> leaves paste, (v) inoculating <i>Lactobacillus acidophilus</i> into the cooled <i>S. grandiflora</i> leaves paste and (vi) covering the inoculated <i>S. grandiflora</i> leaves in a container. Fermented <i>S. grandiflora</i> leaves obtained by the method as described above which includes at least 30.5% dry matter of protein, at least 0.8% dry matter of lipid and at least 9% dry matter of ash. Fermented <i>S. grandiflora</i> leaves obtained by the method as described above which includes 72% of essential amino acid and 28% of non-essential amino acid. A feed substrate comprises fermented <i>S. grandiflora</i> leaves obtained by the method as described above.
WO2024141617A1	Ynsect (FR)	Use of a composition obtained from insects for improving faecal consistency. The present invention relates to the use of a composition obtained from insects, comprising at least 35% by weight of proteins, between 1% and 20% by weight of lipids and between 0.1% and 5% by weight of dietary fibre, the percentages by weight being indicated relative to the dry weight of the composition, for improving faecal consistency. The invention also relates to said use for preparing animal feed.

NIPO: 220-24-010-X



Boletín elaborado con la colaboración de:

**Agencia Estatal
de Investigación**

C/ Torrelaguna, 58
28071 Madrid

Bioplat

C/ Cedaceros, 11, 2º C
28014 Madrid
Tel.: 91 074 54 28
E-mail: secretaria@bioplat.org
www.bioplat.org

CIEMAT

Avda. Complutense, 40
28040 Madrid
Tel: 91 346 08 99
E-mail: uip@ciemat.es
www.ciemat.es

OEPM

Paseo de la Castellana, 75
28071 Madrid
Tel: 91 349 53 00
E-mail: carmen.toledo@oepm.es
www.oepm.es



Esta publicación está bajo licencia Creative Commons Reconocimiento, NoComercial, Compartirigual, (by-nc-sa). Usted puede usar, copiar y difundir este documento o parte del mismo siempre y cuando se mencione su origen, no se use de forma comercial y no se modifique su licencia. Más información: <http://creativecommons.org/licenses/by-nc-sa/3.0/>