

OBJETIVOS DE DESARROLLO SOSTENIBLE



BOLETÍN BIOENERGÍA Y BIOPRODUCTOS

Residuos plásticos en una economía circular

El aumento de los residuos plásticos se ha convertido en una preocupación mundial. Actualmente, solo en Europa, se producen alrededor de 26 000 millones de toneladas cada año. La Unión Europea, desde hace tiempo, estimula el desarrollo de nuevas tecnologías para el reciclaje de los residuos plásticos y fomenta la investigación para la producción de plásticos biodegradables, mediante la financiación de proyectos.

En la Tabla 1 se recogen algunos ejemplos de los proyectos pertenecientes a los programas Horizon 2020 (2014-2021) y Horizonte Europa (2021-2027) con participación de empresas españolas y fecha de finalización posterior a junio de 2023. Los proyectos se identificaron en la base de datos CORDIS de la Unión Europea. En dicha Tabla se recogen las fechas de iniciación y finalización de cada proyecto, su coste total y la contribución de la Unión Europea. Asimismo, se incluyen los participantes españoles y palabras clave que permiten dilucidar hacia dónde va dirigido el proyecto.

Tabla 1. Proyectos europeos

PROGRAMA HORIZONTE EUROPA	
BIO-UPTAKE: BIOcomposites in smart plastic transformation processes to pave the way for the large-scale UPTAKE of sustainable bio-based products	
Inicio: 01-12-2022 Coste Total: 5 994 888,75 €	Finalización: 31-05-2026 Contribución UE: 5 994 886 €
Coordinador: Fundación AITIIP (España)	
Participantes españoles:	
<ul style="list-style-type: none"> • Fundación CIDETEC • IRIS Technology Solutions, SL • Asociación de Investigación Metalúrgica del Noroeste • Moses Productos SL • Asociación Española de Normalización 	
Otros participantes: Sí	
Palabras clave: Fibras sintéticas naturales/ base biológica, biopolímeros, construcción, medicina, embalaje	
REPurpose: Recyclable Elastomeric Plastics safely and sUstainably designed and produced via enzymatic Recycling of Post-cOnsumer waStE strEams	
Inicio: 01-09-2022 Coste Total: 6 493 373,75 €	Finalización: 31-08-2026 Contribución UE: 6 058 487 €
Coordinador: Bio Base Europe Pilot Plant VZW (Bélgica)	
Participantes españoles:	
<ul style="list-style-type: none"> • AIMPLAS • Asociación Valenciana de Empresarios de Plásticos 	
Otros participantes: Sí	
Palabras clave: Biomasa, residuos plásticos, residuos orgánicos, degradación enzimática, polímeros elastómeros reciclables	
GREEN-LOOP: Sustainable manufacture systems towards novel bio-based materials	
Inicio: 01-09-2022 Coste Total: 5 238 263,75 €	Finalización: 31-08-2025 Contribución UE: 5 138 388 €
Coordinador: Idener Research & Development Agrupación de Interés Económico (España)	
Participantes españoles:	
<ul style="list-style-type: none"> • IRIS Technology Solution SL • Asociación de Investigación Metalúrgica del Noroeste 	
Otros participantes: Sí	
Palabras clave: Materiales de base biológica, paneles multifuncionales de caucho, cierres de botellas, cojinetes construcción, embalaje, alimentos, bebidas	

PROGRAMA HORIZON 2020

PEPSA-MATE: Nanopeptides and Nanosaccharides for Advanced and Sustainable Materials

Inicio: 01-03-2020
Coste Total: 1 232 800 €

Finalización: 31-08-2025
Contribución UE: 961 400 €

Coordinador: Università Degli Studi di Roma tor Vergata (Italia)

Participantes españoles:

- Royal Melbourne Institute of Technology Spain SL
- Universidad de Vigo

Otros participantes: Sí

Palabras clave: Nanopartículas de fitoglucógeno, bioplásticos, fabricación ultrasónica de nanopéptidos

BeonNAT: Innovative value chains from tree & shrub species grown in marginal lands as a source of biomass for bio-based industries

Inicio: 01-07-2020
Coste Total: 5 686 476,25 €

Finalización: 30-06-2025
Contribución UE: 4 980 430,28 €

Coordinador: CIEMAT (España)

Participantes españoles:

- Fundación Centro de Servicios y Promoción Forestal y de su Industria de Castilla y León
- AIMPLAS
- Contactica SL
- Idoasis 2002 SL
- El Jarpil SL
- Envirohemp SL
- Tolsa SA
- Laboratorios Maverick SL
- Asociación para la Certificación Española Forestal

Otros participantes: Sí

Palabras clave: Especies leñosas, árboles, arbustos, producción, bioplásticos, aceites esenciales

UNLOCK: Unlocking a feather bioeconomy for keratin-based agricultural products

Inicio: 01-05-2021
Coste Total: 7 304 952,50 €

Finalización: 30-04-2025
Contribución UE: 5 108 554 €

Coordinador: Fundación CIDETEC (España)

Participantes españoles:

- Nuevas Tecnologías para el Desarrollo de Packaging y Productos Agroalimentarios con Componente Plástica SL
- Inkoa Sistemas SL
- AIMPLAS
- Associació Comarcal Urgell d'Ajuda al Minusvalid

Otros participantes: Sí

Palabras clave: Plumas, materiales basados en queratina, bioplásticos, aplicaciones agrícolas

UPLIFT: sUustainable PLastlcs for the Food and drink packaging indusTry

Inicio: 01-03-2021
Coste Total: 7 640 653,75 €

Finalización: 28-02-2025
Contribución UE: 7 517 180,75 €

Coordinador: Aalborg Universitet (Dinamarca)

Participantes españoles:

- AIMPLAS
- Sustainable Innovations Europe SL

Otros participantes: Sí

Palabras clave: Degradación, enzimática, microbiana, diseño ecológico, ecopolímeros renovables

INN-PRESSME: open INNOVation ecosystem for sustainable Plant-based nano-enabled biomateRials deploymEnt for packaging, tranSport and conSuMEr goods

Inicio: 01-01-2021
Coste Total: 16 338 121,95 €

Finalización: 31-01-2025
Contribución UE: 14 484 959,51 €

Coordinador: Teknologian Tutkimuskeskus VTT OY (Finlandia)

Participantes españoles:

- Fundación Cidetec
- Fundación AITIIP
- AIMPLAS
- Gnanomat SL
- Global Equity & Corporate Consulting SL
- Innovación y Consulting Tecnológico de Madrid
- Asociación Española de Normalización
- Maier SCOOP
- Podo Activa SL
- Guarro Casas SA

Otros participantes: Sí

Palabras clave: PLA, PHA, fibras naturales, celulosa, transformación, procesamiento

BIOMAC: European Sustainable BIObased nanoMATERIALS Community

Inicio: 01-01-2021
Coste Total: 16 721 764,96 €

Finalización: 31-12-2024
Contribución UE: 14 807 314,50 €

Coordinador: Aristotelio Panepistimio Thessalonikis (Grecia)

Participantes españoles:

- AIMPLAS
- Instituto Tecnológico del Embalaje, Transporte y Logística
- Asociación de Investigación Metalúrgica del Noroeste
- Acciona Construcción SA
- IDENER Research & Development Agrupación de Interés Económico
- Universidad de Burgos
- IRIS Technology Solutions SL
- Eversia SA

Otros participantes: Sí

Palabras clave: Nanomateriales, base biológica, biopolímeros, envasado de alimentos, construcción, automoción

NATURE: Innovative designs to enable plastic packaging circular economy

Inicio: 01-01-2021
Coste Total: 1 093 606,44 €

Finalización: 31-12-2024
Contribución UE: 1 093 606,44 €

Coordinador: Polykey Polymers SL (España)

Participantes españoles:

- Universidad del País Vasco

Otros participantes: Sí

Palabras clave: Materiales poliméricos, base biológica

PRESERVE: High performance sustainable bio-based packaging with tailored end of life and upcycled secondary use

Inicio: 01-01-2021
Coste Total: 7 999 576,25 €

Finalización: 31-12-2024
Contribución UE: 7 999 576,25 €

Coordinador: IRIS Technology Solutions SL (España)

Participantes españoles:

- AIMPLAS
- Instituto Tecnológico del Embalaje, Transporte y Logística
- Biopolis SL
- Kneia SL

Otros participantes: Sí

Palabras clave: Envases, base biológica, enzimas, biodegradación, economía circular

upPE-T - Upcycling of PE and PET wastes to generate biodegradable bioplastics for food and drink packaging

Inicio: 01-11-2020
Coste Total: 7 826 685 €

Finalización: 31-11-2024
Contribución UE: 7 826 685 €

Coordinador: Asociación Empresarial de Investigación Centro Tecnológico del Calzado y del Plástico de la Región de Murcia (España)

Participantes españoles:

- Asociación para la Promoción, Investigación, Desarrollo e Innovación Tecnológica de la Industria del Calzado Conexas de La Rioja
- Asociación Española de Normalización
- Cetec Biotechnology SL
- Universidad de Alicante
- Moses Productos SL

Otros participantes: Sí

Palabras clave: Despolimerización, PE, PET, ingeniería enzimática, bioconversión, bioplásticos biodegradables, envases alimentos y bebidas

BioSupPack: Demonstrative process for the production and enzymatic recycling of environmentally safe, superior and versatile PHA-based rigid packaging solutions by plasma integration in the value chain

Inicio: 01-06-2021
Coste Total: 8 810 331,19 €

Finalización: 30-11-2024
Contribución UE: 6 403 796,60 €

Coordinador: AIMPLAS (España)

Participantes españoles:

- Pasión del Duero SL
- IRIS Technology Solutions SL
- Sociedad Anónima Agricultores de Lavega de Valencia

Otros participantes: Sí

Palabras clave: Bagazo, PHAs, alimentación, cosmética

RECOVER: Development of innovative biotic symbiosis for plastic biodegradation and synthesis to solve their end of life challenges in the agriculture and food industries

Inicio: 01-06-2020
Coste Total: 5 767 400,72 €

Finalización: 31-04-2024
Contribución UE: 4 399 362,59 €

Coordinador: Universidad de Almería (España)

Participantes españoles:

- Asociación Agraria De Jóvenes Agricultores
- Universidad Miguel Hernández de Elche
- Naturplas Plásticos Agrícolas SL
- IRIS Technology Solutions SL
- Sociedad Anónima Agricultores de Lavega de Valencia

Otros participantes: Sí

Palabras clave: Estrategias circulares innovadoras, PHA, PLA, materiales de almidón

NENU2PHAR: For a sustainable and european value chain of PHA-based materials for high-volume consumer products Horizon 2020

Inicio: 01-09-2020
Coste Total: 10 281 120,49 €

Finalización: 29-02-2024
Contribución UE: 8 527 315,22 €

Coordinador: Commissariat a L'Energie Atomique et aux Energies Alternatives (Francia)

Participantes españoles:

- Instituto Tecnológico del Embalaje, Transporte y Logística
- Lomartov SL

Otros participantes: Sí

Palabras clave: PHAs, microalgas, bacterias

MIX-UP: MIXed plastics biodegradation and UPcycling using microbial communities	
Inicio: 01-01-2020 Coste Total: 7 365 335 €	Finalización: 31-12-2023 Contribución UE: 5 465 335 €
Coordinador: Rheinisch-Westfaelische Technische Hochschule Aachen (Alemania)	
Participantes españoles: • CSIC	
Otros participantes: Sí	
Palabras clave: Mezclas, plásticos fósiles (PP, PE, PUR, PET y PS), plásticos biodegradables (PLA y PHA) degradación microbiana y enzimática, producción polímeros, productos químicos de valor agregado	
BiolCEP: Bio Innovation of a Circular Economy for Plastics	
Inicio: 01-01-2020 Coste Total: 6 904 714,25 €	Finalización: 31-12-2023 Contribución UE: 4 997 789 €
Coordinador: Technological University of the Shannon: Midlands Midwest (Irlanda)	
Participantes españoles: • Acteco Productos y Servicios SL • AIMPLAS	
Otros participantes: Sí	
Palabras clave: Desintegración mecano-bioquímica, digestión biocatalítica, consorcios microbianos, nuevos polímeros, bioproductos	
BIOSNAP: smart, sustainable & convenient unit dose packaging	
Inicio: 01-11-2019 Coste Total: 2 872 962 €	Finalización: 31-10-2023 Contribución UE: 2 144 779,50 €
Coordinador: Easysnap Techonology SRL (Italia)	
Participantes españoles: • Asociación para la Investigación Desarrollo e Innovación del Sector Agroalimentario	
Otros participantes: Sí	
Palabras clave: Envase de dosis unitaria, base biológica, aplicaciones alimentarias	
BIO-PLASTICS EUROPE: Developing and Implementing Sustainability-Based Solutions for Bio-Based Plastic Production and Use to Preserve Land and Sea Environmental Quality in Europe	
Inicio: 01-11-2019 Coste Total: 8 503 592,50 €	Finalización: 30-09-2023 Contribución UE: 8 117 529,63 €
Coordinador: Hochschule fur Angewandte Wissenschaften Hamburg (Alemania)	
Participantes españoles: • Universidad Politécnica de Madrid • Ecoembalajes España SA	
Otros participantes: Sí	
Palabras clave: Sostenibilidad, base biológica, reutilización, reciclaje, juguetes, alimentación	
BIOP: Upcycling plastic wastes: biopolymers for a circular economy	
Inicio: 01-09-2021 Coste Total: 160 932,48 €	Finalización: 31-08-2023 Contribución UE: 160 932,48 €
Coordinador: Universidad de Sevilla (España)	
Participantes españoles: -	
Otros participantes: No	
Palabras clave: Reciclaje, PE/PP, alquenos de bajo peso molecular, 5-hidroximetilfurfural, ácido 2,5-furanodicarboxílico	

PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023014679 A1 20230209	Carbon Tech Holdings Llc (US)	Processes and systems for recapturing carbon from biomass pyrolysis liquids. This disclosure provides a method of making a high-fixed-carbon material comprising pyrolyzing biomass to generate intermediate solids and a pyrolysis vapor; condensing the pyrolysis vapor to generate pyrolysis liquid; blending the pyrolysis liquid with the intermediate solids, to generate a mixture; and further pyrolyzing the mixture to generate a high-fixed-carbon material. A process can comprise: pyrolyzing a biomass-comprising feedstock in a first pyrolysis reactor to generate a first biogenic reagent and a first pyrolysis vapor; introducing the first pyrolysis vapor to a condensing system to generate a condenser liquid; contacting the first biogenic reagent with the condenser liquid, thereby generating an intermediate material; further pyrolyzing the intermediate material in a second pyrolysis reactor to generate a second biogenic reagent and a second pyrolysis vapor; and recovering the second biogenic reagent as a high-yield biocarbon composition. The process can further comprise pelletizing the intermediate material. Many process and system configurations are disclosed.
WO 2023283284 A1 20230112	Carbon Tech Holdings Llc (US)	Low-water-intensity biocarbon products, and processes for producing low-water-intensity biocarbon products. The processes disclosed herein are environmentally friendly technologies to produce biocarbon products with low water intensity as well as low carbon intensity. Some variations provide a low-water-intensity process for producing a biocarbon product, comprising: providing a starting feedstock comprising biomass and water; drying the starting feedstock to generate a dried feedstock and a first vapor; pyrolyzing the dried feedstock to generate hot solids and a second vapor; condensing the first vapor to generate a first condensed liquid having a first pH from about 1 to about 7; condensing the second vapor to generate a second condensed liquid having a second pH from about 1 to about 7; forming acid water comprising the first condensed liquid, the second condensed liquid, or a mixture thereof; washing and cooling the hot solids using the acid water, to generate washed, cooled solids; and recovering the washed, cooled solids as a low-water-intensity biocarbon product.
WO 2023283289 A1 20230112	Carbon Tech Holdings Llc (US)	Processes for producing biocarbon pellets with high fixed-carbon content and optimized reactivity, and biocarbon pellets obtained therefrom. Some variations provide a process for producing biocarbon pellets, comprising: pyrolyzing a biomass-containing feedstock in a first pyrolysis reactor to generate a first biogenic reagent and a pyrolysis vapor; introducing the pyrolysis vapor to a separation unit, to generate a pyrolysis precipitate in liquid or solid form; contacting the first biogenic reagent with the pyrolysis precipitate, thereby generating an intermediate material; pelletizing the intermediate material, to generate intermediate pellets; optionally, drying the intermediate pellets; separately pyrolyzing the intermediate pellets in a second pyrolysis reactor to generate a second biogenic reagent and a pyrolysis off-gas; and recovering the second biogenic reagent as biocarbon pellets. Some variations provide a similar process that utilizes a carbon-containing condensed-matter material, which is not necessarily a pyrolysis precipitate. The disclosure provides improved processes for producing biocarbon compositions, especially with respect to carbon yield and biocarbon properties, such as reactivity.
WO 2023021865 A1 20230223	Idemitsu Kosan Co (JP)	Equipment for manufacturing biomass solid fuel. Equipment for manufacturing biomass solid fuel according to the present invention comprises: a preheater for preheating pellets; a heat source for the preheating; a reactor for semi-carbonizing the pellets preheated by the preheater; a circulation channel (L2) that connects a gas discharge port (G2) and a gas introduction port (G1) of the reactor (12), the circulation channel (L2) circulating semi-carbonization gas produced when the pellets are semi-carbonized in the reactor; a branch channel (L3) that branches from the circulation channel (L2), the branch channel (L2) channeling the semi-carburization gas; a burner into which the semi-carburization gas is introduced, the burner burning the semi-carburization gas; a first heat exchanger disposed in the circulation channel (L2); and a first combustion gas channel (L41) that connects the burner and the first heat exchanger, the first combustion gas channel (L41) channeling a combustion gas produced in the burner. The first heat exchanger exchanges the heat of the combustion gas produced in the burner with the semi-carburization gas circulating through the circulation channel (L2).

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023276755 A1 20230105	IHI Corp et al. (JP)	Solid fuel production system and solid fuel production method. A solid fuel production system includes a continuous explosion unit configured to explode a lignocellulosic biomass by using water contained in the lignocellulosic biomass. The solid fuel production system includes a dryer configured to dry the lignocellulosic biomass exploded in the continuous explosion unit. The solid fuel production system includes a shaping unit configured to shape the lignocellulosic biomass dried in the dryer into a solid fuel.
WO 2023002990 A1 20230126	Jujo Paper Co Ltd (JP)	Wood chips and use thereof. The purpose of the present invention is to provide wood chips useful for various applications such as fuel. Specifically, the present invention provides wood chips derived from eucalyptus plants such as a hybrid of Eucalyptus perita and Eucalyptus brassiana, the wood chips having a fiber length of 1.10 mm or less, a volumetric weight of 635 kg/m ³ or more, and a maximum moisture content of 40% or less. The wood chips are preferably such that the lower calorific value at maximum water content is 1800 kcal/kg or above. The eucalyptus plants preferably have an age of 2-15 years (inclusive). The wood chips of the present invention can be used as a fuel for heat utilization, power generation, or cogeneration.
WO 2023034636 A1 20230309	Logan Outdoor Products Llc (US)	Cooking devices with secondary smoke generation. A cooking device including a cooking chamber comprising at least one cooking surface, a wood pellet burner positioned below the cooking chamber and configured to combust wood pellets and provide a first source of smoke, a wood pellet hopper configured to store a supply of wood pellets, an auger configured to feed wood pellets to the wood pellet burner, and a secondary solid fuel combustion unit removably inserted into the cooking device below the cooking chamber and configured to combust a second solid fuel and provide a second source of smoke.
EP 4155639 A1 20230329	Proxipel SA (CH)	Method and device for drying biomass. The invention relates to a biomass drying process comprising the following steps:- generating a flow of hot air or superheated steam,- mixing the hot air or superheated steam with particulate biomass, so as to form a fluidized bed,- subjecting the fluidized bed to a partial vacuum;characterized by the fact that the partial vacuum is obtained by applying an expansion phase to the fluidized bed.
WO 2023041841 A1 20230323	Valmet Technologies Oy (FI)	A method for thermal processing of biomass, a system for the same, and a method for teaching a data-driven model. A method for thermal processing of biomass, the method comprising taking at least one image from a feedstock (FS) comprising solid biomass; feeding at least the feedstock (FS) to a plant for thermal processing; determining primary information indicative of a heating value of the feedstock (FS) using a processing unit (CPU) and the at least one image; and based on the primary information controlling a flow of material fed into the plant and/or a temperature or a content of the material fed into the plant. A system for the same. In addition, a method for teaching a data-driven model, the data-driven model being for the purpose of determining from at least one image primary information indicative of a heating value of the material shown in the at least one image.

Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
EP 4151706 A1 20230322	Bios Bioenergiesysteme GmbH (AT)	A method and a device to produce low-tar- and low-dust product gas. Method to produce a product gas with low tar and dust contents from solid biomass, biogenic residues and/or organic waste fractions with a gas production device, the gas production device comprising: a fuel conversion reactor (1a, 1b), which is an updraft gasification reactor (1a) or a pyrolysis reactor (1b); and a gas treatment reactor located downstream the fuel conversion reactor (1a, 1b); wherein the fuel conversion reactor (1a, 1b) is close-coupled with the gas treatment reactor; wherein the fuel conversion reactor (1a, 1b) comprises a space to contain a fuel bed above a grate; wherein the gas treatment reactor comprises the following: a POX zone, and at least one POX nozzle for supplying an oxidiser into the POX zone; and a gas heating zone fluidic located between the space to contain the fuel bed and the POX zone; wherein the method comprises the following steps: Creating an initial product gas (VI) in the fuel conversion reactor (1a, 1b); Heating the initial product gas, which is created in the fuel conversion reactor (1a, 1b), in the gas heating zone; Combusting the heated initial product gas in the gas treatment reactor partially in the POX zone of the gas treatment reactor by injecting or supplying an oxidiser through the POX nozzles into the POX zone.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023013163 A1 20230209	Ebara Env Plant Co Ltd (JP)	Processing apparatus and processing method for recovering decomposition oil from pyrolysis gas. The present invention pertains to a processing apparatus and a processing method for recovering decomposition oil from a pyrolysis gas generated through thermal decomposition of organic matter such as waste plastic, biomass, and waste products. The present invention particularly pertains to a processing apparatus and a processing method for recovering high quality decomposition oil from a pyrolysis gas. The processing apparatus is provided with a physical separation part for physically removing particles from the pyrolysis gas, and an oil recovery part for recovering a decomposition oil from the pyrolysis gas from which particles have been removed. The physical separation part is provided with a rinsing and dust collection device for removing particles from the pyrolysis gas by spraying a rinsing medium to the pyrolysis gas.
WO 2023283703 A1 20230119	Eco Garb Ltd (BG)	Technological line for processing household solid waste. The technological line for processing household solid waste is inclusive of functionally and sequentially connected by means of conveyor belts shredder-breaker, metal separator, second separator for separation of glass and inert fractions, second shredder for additional shredding, intermediate storage tank for shredded waste, dryer, third separator for inert fraction, hammer mill, second hopper for temporary storage, dispenser with shutter and pyrolysis reactor. The pyrolysis reactor decomposes household waste to obtain fuel raw materials such as pyrocarbon, pyrolysis oil and gas. In the gasifier the pyrocarbon is converted into gas, which is transported to reach the gas hopper for the purposes of further storage. The gas-pyrolysis mixture is undergoing a number of processing stages, as a result of which the gaseous mixture is filtered in the gas filter and transported to the hopper for gas storage, which feeds gas burners, supporting the combustion process in the pyrolysis reactor and in the gasifier and supplying the power generation module. The liquid mixture - pyrolysis oil, from cooling columns is processed and transported to the pyrolysis oil storage hopper, which supplies the power generation module and diesel burners, supporting the process of operation of the pyrolysis reactor and the gasifier.
WO 2023027406 A1 20230302	Hae Pyo Co Ltd (KR)	Device for detecting input amount of raw material for biomass gasifier. The present invention relates to a device provided on a reaction chamber of a biomass gasifier so as to detect the input amount of raw material in the reaction chamber, the device comprising: a round rod having a predetermined length inserted in a vertical direction from the outside to the inside of the reaction chamber; a sensor in contact with the raw material inside the reaction chamber so as to sense the raw material; a sensor flange for sealing between an insertion hole and the round rod; and a level switch for detecting the input amount of the raw material when the sensor is in contact with the raw material inside the reaction chamber, and thus the amount of the raw material in the reaction chamber is accurately sensed even in a high-temperature environment so that the input amount of the raw material can be accurately controlled.
WO 2022269554 A1 20221229	Kira Tech Srl (IT)	Cogeneration process and related apparatus. The present invention relates to a process of cogeneration of electrical energy and heat starting from biomass in a micro-cogenerator, said process comprising: i) feeding the biomass to a pyrolytic gasifier where it reacts thus generating syngas; ii) feeding the syngas to a burner where it is burned thus generating combustion gases; iii) subjecting the combustion gases to heat exchange in the hot exchanger of a Stirling engine, with exhaust fumes being obtained, during said step ii) the air-syngas ratio is adjusted based on a signal provided by a lambda probe crossed by a flow of said exhaust fumes, said process comprising a start-up phase the micro-cogenerator which comprises, in turn, a step a) of detecting the presence of syngas inside the burner and a subsequent step b) of ignition of the burner, wherein: said first step a) comprises calculating the integral over time of the temperature of the reaction chamber of the pyrolytic gasifier and calculating the integral over time of the value read by said lambda probe, during said step a) the value of the integral over time of the temperature is compared with a preset threshold value of said integral and, when said threshold value is exceeded, the value of the integral over time of the value read by the lambda probe is, in turn, compared with a corresponding threshold value until it is exceeded, said second step b) is started when the latter threshold value is exceeded.
WO 2023281085 A1 20230112	Mash Makes AS (DK)	Hydrotreatment of a fuel feed. The invention relates to a method of hydrotreatment of a fuel feed. The method comprises providing a biomass feedstock and a fuel feed to be hydrotreated, and pyrolysing the biomass feedstock in a pyrolysis reactor to produce a pyrolysis gas and a solid pyrolysis char. The method further comprises at least partially oxidizing the pyrolysis gas into a partially 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, wherein the synthesis gas has a high content of hydrogen molecules. Finally, the method comprises performing a hydrotreatment process on the fuel feed using the synthesis gas to produce a hydrotreated fuel feed. Further, the invention relates to a biomass- based hydrotreatment system.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023013519 A1 20230209	Mitsubishi Heavy Ind Ltd (JP)	Biomass gasification apparatus, biomass gasification plant, and biomass gas production method. The purpose of the present invention is to improve an energy efficiency. A biomass gasification apparatus is provided with: a biomass gasification furnace for producing a biomass gas from a biomass fuel and a gasification agent; a filter for separating a char from the biomass gas discharged from the biomass gasification furnace; and a char cooler for performing the heat exchange between the char separated by the filter and at least a portion of the gasification to be fed to the biomass gasification furnace to heat the gasification agent.
WO 2023280738 A1 20230112	Tridon Julien (AD) et al.	Device and system for gasifying products containing organic matter. Said device for gasifying products containing organic matter comprises a gasification chamber defined by an enclosure, an injector for injecting the product into the gasification chamber, a receiver for receiving synthesis gas from the gasification chamber and a burner. An outlet of the injector, an outlet port of the burner and a mouth of the collector are arranged at the top of the gasification chamber. The surface of the enclosure that defines the gasification chamber increases in width from bottom to top at least partially over the height thereof. The gasification chamber extends above the outlet of the injector, the outlet port of the burner and the mouth of the collector.
WO 2023027590 A1 20230302	Wai Env Solutions AS (NO)	Process for treatment of organic waste and resource recovery. Present invention relates to a method for treatment of organic waste, said method comprising the following step: i) supply a wet feedstock comprising organic waste to a dryer and obtain a dried feedstock; ii) mix and pretreat the dried feedstock with a dry feedstock comprising organic waste to obtain a mixed feedstock; iii) supply the mixed feedstock to a thermo-chemical process and obtain a char fraction and a hot syngas; iv) discharge the char fraction and separate the hot syngas stream into warm syngas and tar in a tar separation unit; v) supply an AD feedstock and the warm syngas from the tar separation unit to a fermenter and expose the AD feedstock and the warm syngas for a series of biological reactions to obtain a headspace gas and a slurry in the fermenter; vi) supply the slurry from the fermenter to a digester and expose the slurry for a series of biological reactions to obtain biogas and digestate; vii) supply a portion of the headspace gas from the fermenter to the thermo-chemical process as carrier gas for syngas production and supply the rest of the head space gas from the fermenter to a second thermo-chemical process as fuel for energy production.

Biogás

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023041427 A1 20230323	Aprotek (FR)	Novel composition based on a superabsorbent polymer and iron for accelerating the breakdown of organic waste. The technical field of the present invention is that of the fermentation of organic waste and this invention makes it possible to increase the yield of methane production through anaerobic fermentation using lignocellulose materials of plant origin. The invention relates to a novel composition based on a superabsorbent polymer and iron that allows the breakdown of this type of organic waste to be accelerated, and to a method implementing this composition.)
WO 2023033423 A1 20230309	E & Chem Solution Corp (KR)	Biogas processing device using iron hydroxide powder. The present invention comprises: a bag filter having the lower part through which biogas containing hydrogen sulfide is introduced, the upper part through which processed gas having passed through a filter bag is discharged, and the central part equipped with the filter bag; a biogas supply line for supplying biogas to the bag filter; an iron hydroxide powder feeding line connected to the biogas supply line to feed iron hydroxide powder; a processed gas discharge line for discharging processed gas from the bag filter; a suction fan located in the processed gas discharge line and suctioning processed gas from the bag filter; a differential pressure sensor for measuring the pressure of processed gas in the bag filter; a processed gas feedback line having one end connected to the processed gas discharge line and the other end extending to the upper part of the filter bag so as to resupply processed gas from the process gas discharge line; a processed gas nozzle extending from the processed gas feedback line into the filter bag and injecting processed gas into the filter bag; a compressor located in the processing gas feedback line and suctioning processed gas from the processed gas discharge line to supply the processed gas to the processed gas feedback line; and a control unit configured to operate the suction fan and stop the compressor when the pressure measured by the differential pressure sensor is greater than or equal to a standard, and to stop the suction fan and operate the compressor when the pressure measured by the differential pressure sensor is equal to or lower than the standard.

Nº Publicación	Solicitante (País)	Contenido técnico
EP 4148242 A1 20230315	Hujber Otto (HU)	A system enabling the storage of electricity and regulation of the electricity system and a procedure for operating the system. The subject of the invention is a system enabling the storage of electricity - preferably renewable electricity - and the regulation of the electricity system, which includes at least one methanization reactor producing biomethane from carbon dioxide and hydrogen, at least one water electrolyzer producing hydrogen and oxygen, pumps, heat exchangers, valves, compressors, pipelines connecting the individual elements and the control system. The feature of the solution is that the system also includes at least one gas engine that can be operated using air burning in traditional way or in carbon dioxide generating mode. The exhaust pipe of the gas engine is connected via a valve and at least one heat exchanger to a separator for dewatering the flue gases leaving the exhaust pipe. The separator is connected on the one hand to a first water purifier and on the other hand through additional heat exchangers, compressors and valve to a buffer tank provided to store carbon dioxide. The buffer tank is connected to the methanization reactor via a carbon dioxide supply valve on the one hand, and on the other hand, via a carbon dioxide valve and a mixing valve as well as an additional valve and a static mixing element to the inlet of the gas engine. The methanization reactor is connected to the hydrogen output of the water electrolyzer via a hydrogen supply valve, a hydrogen buffer tank and a compressor. The reaction water drain of the methanization reactor is connected to a second water purifier, which is connected to the water inlet of the water electrolyzer. The water inlet of the water electrolyzer is also connected to the water output of the first water purifier. The oxygen output of the water electrolyzer is connected via a compressor to an oxygen buffer tank, which is connected to the mixing valve via an oxygen valve. The methanization reactor can be connected to the natural gas network via valve and compressor. The control system is in a controlling connection with the water electrolyzer, the valves, the buffer tanks and the compressors.
WO 2023021042 A1 20230223	NXO Eng (FR)	Device and method for purifying wastewater. The device for purifying wastewater comprises: - a vacuum anaerobic digester comprising: - in the lower part, an inlet for wastewater, - in the upper part: - a weir for treated water comprising a water outlet positioned at a first height starting from the lower part and - a biogas outlet positioned at a second height higher than the first height, - a riser column for raising water by suction of the biogas from the lower part to the upper part, - a downer column for bringing down untreated wastewater from the upper part to the lower part and - a vacuum pump connected to the biogas outlet, and - a buffer column configured to receive wastewater.
WO 2023041755 A1 20230323	Prodeval SAS (FR)	Biogas purification unit. Disclosed is a purification unit (UE) configured to receive an inflow of biogas (BS) and to separate said received inflow of biogas (BS) into a stream of biomethane (BM), preferably containing at least 90% methane, and a stream of residual gases (GR1), referred to as combustion gases, the methane content of which is greater than 25%.
WO 2023031764 A1 20230309	Rithema Srl (IT)	Composting device and contemporaneous use of biogas. Food scraps composting device comprising an outer shell, comprising an upper surface provided with at least a cooker supplied with the gas contained inside a storage tank, characterized in that inside said shell there are provided, enclosed inside a space hermetically separated from outside: at least an extractable waste container provided with a respective closing cap which guarantees the air tightness when said container is introduced inside said separated space and with at least partially holed walls; at least a leachate accumulation basin, positioned under said at least one waste container and configured to collect liquids dropping from waste contained in said at least one container, and in that inside said outer shell there are also contained: a separation tank, installed in communication with said separated space, a first nonreturn valve being interposed between them; an accumulation tank connected to said separation tank, a second nonreturn valve and a vacuum pump, configured to keep the separation tank under depression by extracting from the same the gases produced and by pumping them in the accumulation tank, being interposed between them; a storage tank connected to said accumulation tank by means of a nonreturn valve.
WO 2023017229 A1 20230216	Suez Int (FR)	Method and device for predicting an indicator for monitoring the state of a digester. A method for predicting an indicator for monitoring the state of a digester suitable for producing a digestate and biogas, containing methane, from an input, comprising: - a step of defining a mechanistic model suitable for determining at least one value of an indicator for monitoring the state of the digester; - a step of determining the setting parameters for the mechanistic model describing the kinetics of at least one of the steps of acidogenesis, acetogenesis and methanogenesis or the combination thereof according to the control parameters of the digester and parameters relating to the quality of the input; - a step of calibrating the mechanistic model; and - a step of implementing the mechanistic model in order to predict the change in the at least one value of an indicator for monitoring the state of the digester.

Nº Publicación	Solicitante (País)	Contenido técnico
EP 4124652 A1 20230201	Syctom Lagence Metropolitaine des Dechets Menagers et al. (FR)	Dual-stage input processing device and input processing method implemented in such a device. The present invention belongs to the field of methane production, more particularly of the valorization of inputs comprising a mixture of an organic fraction of household waste, sludge and possibly manure and grease.
WO 2022270557 A1 20221229	Univ Nat Corp Tokyo Medical & Dental (JP)	Enzyme membrane and biogas measurement device. This enzyme membrane is used in a biogas measurement device for measuring a target substance contained in biogas, wherein an enzyme is immobilized, by chemical bonding, on a porous membrane material having a self-assembled monolayer.

Bioalcoholes (bioetanol, biometanol, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023275712 A1 20230105	Eni Spa (IT), BASF SE (DE)	A process for the conversion of glycerol to propanols. The present invention relates to a process to produce propanol and iso-propanol (bio-propanol), a biocomponent for gasoline. The invention particularly relates to the conversion of bio-glycerin to bio-propanol and bio-iso-5 propanol. In particular, the present invention relates to a process for the conversion of glycerin, in particular glycerin from renewable sources, to propanols, the process comprising the following steps: 10 a) Hydrogenating a glycerin phase with a Co-Cu-Mn-Mo based hydrogenation catalyst to give an effluent containing water and an organic mixture of more than 40 wt% of a mixture of ethanol, 1-propanol and 2-propanol and the rest being 15 unreacted propanediols and glycerin, with traces of ethylene glycol; b) Separating by mainly distillation the ethanol, 1-propanol and 2-propanol mixture from the other components in the effluent of step a); 20 c) Optionally, recycling all or part of the unreacted propanediols and glycerin deriving from steps a) and/or b) to the hydrogenation step a).
WO 2023274289 A1 20230105	Highchem Co Ltd (JP)	Method for co-production of methanol and ethanol from synthesis gas. The present invention relates to a method for co-production of methanol and ethanol from a synthesis gas, the reaction process being completed in three reactors. The method comprises: a) causing raw material synthesis gas and dimethyl ether to enter a first reactor to contact a solid acid catalyst in the first reactor to react, obtaining an effluent containing methyl acetate and/or acetic acid; b) causing the effluent from the first reactor to undergo separation and purification, and causing purified MA and synthesis gas to enter a second reactor to contact a hydrogenation catalyst in the second reactor and undergo a reaction, obtaining an effluent containing methanol and ethanol; c) separating the effluent from the second reactor, obtaining product methanol and ethanol; and d) optionally, causing methanol from step c) to enter a third reactor so as to perform a dehydration reaction, obtaining dimethyl ether, and causing the obtained dimethyl ether and unconverted synthesis gas to enter the first reactor for cyclic reaction. The present process has the flexibility to generate methanol and ethanol from a synthesis gas, and at the same time solves the problem of stability of the MA hydrogenation catalyst. Compared with indirect methods, it does not have the step of producing methanol from a synthesis gas, nor does it require separation of carbon monoxide and hydrogen from the synthesis gas, and co-production of methanol and ethanol from the synthesis gas can be achieved.
FR 3126993 A1 20230317	IFP Energies (FR)	Device and method for converting a feed comprising oxygen-rich hydrocarbon compounds. Device and method for converting a feed comprising oxygen-rich hydrocarbon compounds, in which: a chemical loop combustion unit (10) treats a hydrocarbon feed (1) having an elemental oxygen content at least greater than 1% by weight, and produces a chemical looping combustion effluent (2) comprising at least CO ₂ and H ₂ O; an RWGS inverted water gas conversion reaction section (20) treats the chemical loop combustion effluent (2) and produces an RWGS gas (4) enriched in CO and water; and a fermentation reaction section (30) treats the RWGS gas (4) and produces a fermentation effluent (6) enriched in ethanol.
WO 2023012644 A1 20230209	Nextchem Spa (IT)	Process and apparatus for producing bioethanol without CO₂ emissions by conversion of syngas obtained from the thermal conversion of waste at high temperature. The invention is a process and apparatus for producing bioethanol without CO ₂ emissions by anaerobic fermentation of a synthesis gas, produced by the thermal conversion at high temperature of a feed consisting of municipal solid waste (MSW), agricultural waste or derivatives thereof such as refuse derived fuel (RFD) or even industrial waste such as non-recyclable plastic waste or a combination thereof, to which extra hydrogen is added through electrolysis so as to balance the H ₂ /CO ratio, thus maximizing the conversion of the organic components in the fermentation step so as to prevent any emission of CO ₂ into the atmosphere.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023274282 A1 20230105	Novozymes AS (DK)	Processes for producing fermentation products using fiber-degrading enzymes in fermentation. Provided is a subject matter relates to a process for producing fermentation products from starch-containing material comprising the steps of: i) saccharifying using a carbohydrate-source generating enzyme; ii) fermenting using a fermenting organism; wherein at least one polypeptide having cellobiohydrolase activity, endoglucanase activity, or beta-glucosidase activity are present or added during fermentation or simultaneous saccharification and fermentation. The subject matter also relates to an enzyme blend or composition comprising the polypeptides.
WO 2023275049 A1 20230105	Topsoe AS (DK)	Process and plant for producing methane or methanol from a solid renewable feedstock. Process for producing methane or methanol, said process comprising the steps of: i) conducting a solid renewable feedstock to a thermal decomposition step, this being a pyrolysis step or a hydrothermal liquefaction step, for producing: a first off-gas stream comprising hydrocarbons, a solid carbon stream, and optionally a first liquid oil stream; upgrading the first off-gas stream by conducting it to a hydro/deoxygenation (HDO/DO) step i.e. hydrodeoxygenation or deoxygenation step in which said HDO/DO step is conducted in the absence of steam, and a subsequent separation step, for generating water, a second liquid oil stream and an upgraded first off-gas stream; ii) conducting the first off-gas stream or the upgraded first off-gas stream to an olefin removal step, for generating a further upgraded first off-gas stream which is free of olefins; iii-1) conducting the first off-gas stream, or the upgraded first off-gas stream, or the further upgraded first off-gas stream, to a methanation step under the generation of steam for producing said methane; or iii-2) conducting the first off-gas stream, or the upgraded first off-gas stream, or the further upgraded first off-gas stream, to a steam reforming step for producing a methanol synthesis gas and subsequently conducting the methanol synthesis gas to a methanol synthesis step under the generation of steam for producing said methanol; iv) conducting steam, such as at least a portion of the steam generated in step iii-1) or iii-2), to an electrolysis step for producing an oxygen stream and a hydrogen stream; v) conducting at least a portion of the hydrogen stream from the electrolysis step to any of the: thermal decomposition step including HDO-step, olefin hydrogenation step, methanation step, methanol synthesis step, or combinations thereof.
EP 4134471 A1 20230215	Toyota Motor Co Ltd (JP)	Fuel production plant. A fuel production plant (1) includes an electrolysis apparatus (2); an ethanol generation apparatus (3) that decomposes sugars to generate ethanol and carbon dioxide; and a hydrocarbon generation apparatus (4) that generates hydrocarbons by reacting carbon dioxide with hydrogen. The fuel production plant (1) further includes a hydrogen supply part (5) that supplies hydrogen generated in the electrolysis apparatus (2) to the hydrocarbon generation apparatus (4) by coupling the electrolysis apparatus (2) to the hydrocarbon generation apparatus (4), an oxygen supply part (6) that supplies oxygen generated in the electrolysis apparatus (2) to the ethanol generation apparatus (3) by coupling the electrolysis apparatus (2) to the ethanol generation apparatus (3), and a carbon dioxide supply part (7) that supplies carbon dioxide generated in the ethanol generation apparatus (3) to the hydrocarbon generation apparatus (4) by coupling the ethanol generation apparatus (3) to the hydrocarbon generation apparatus (4).
CN 115558589 A 20230103	Wang Liping (CN)	Cellulosic enzymolysis reaction device for producing cellulosic ethanol. The invention discloses a cellulosic enzymolysis reaction device for cellulosic ethanol production, and relates to the technical field of biochemical reaction devices. The cellulosic enzymolysis reaction device comprises a reaction device body, a feeding hopper and a discharging pipe are fixedly connected to the outer surface of the reaction device body, and a stirring mechanism is arranged in the reaction device body; a heat dissipation mechanism is arranged on the outer side of the reaction device main body. Through cooperation of a motor, a rotating rod, a wedge-shaped block, a transverse stirring rod, an arc-shaped stirring rod, a connecting plate and a soft scraping plate, when a material is fed into the reaction device main body through a feeding hopper, the rotating rod is firstly driven by the motor to rotate, so that the transverse stirring rod, the arc-shaped stirring rod, the connecting plate and the soft scraping plate rotate together; the materials in the reaction device main body are fully stirred, so that the enzymolysis reaction is fully carried out, and the materials attached to the inner wall of the reaction device main body are scraped under the action of the soft scraper, so that the problem of insufficient reaction caused by adhesion of the materials is avoided.

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023288234 A1 20230119	Xylogenics Inc (US)	Strains of <i>Saccharomyces cerevisiae</i> that exhibit an increased ability to ferment oligosaccharides into ethanol without supplemental glucoamylase and methods of making and using the same. Disclosed herein is a yeast strain capable of fermenting corn mash into ethanol with no exogenous glucoamylase resulting in greater speed and efficiency than the leading industrial strain. Said yeast strain causes enhanced co-fermentation of DP3 sugars, maltose and glucose in strains otherwise identical to commercial fuel ethanol yeast strains.
CN 115558681 A 20230103	Yu Xiaofeng (CN)	Process and device for producing fuel ethanol by using sweet sorghum stalks. The invention relates to the technical field of ethanol production, and discloses a process and a device for producing fuel ethanol by using sweet sorghum stalks, and the process is characterized by comprising the following steps: S1, using a large-scale Tesla harvesting and crushing linkage device to crush the sweet sorghum stalks into irregular crushed particles of 5-15 mm while harvesting, transferring to a dump truck following the harvester; s2, transporting the crushed materials to a material treatment position by a dump truck, dumping the crushed materials on a site, dispersing the crushed materials by a rake, and cooling for 2-4 hours; after air cooling is finished, a high-pressure and high-temperature gas gun is used for spraying gas to disinfect and sterilize the scattered crushed aggregates; through the solid state fermentation technology, the problems in the industry are effectively solved, meanwhile, compared with liquid state fermentation, large-scale production is more convenient, a fermentation tank is not needed, the industrial investment is greatly reduced, particularly, the sweet sorghum stem material subjected to solid state fermentation does not go bad after being stored for two years, the ethanol fuel can be continuously and normally produced, and meanwhile, the seasonal production material supply contradiction is solved.

Biodiésel

Nº Publicación	Solicitante (País)	Contenido técnico
MX 2019004068 A 20201009	Centro de Investig Científica de Yucatan A C Star (MX)	Composite catalytic membrane for the production of biodiesel. The present invention relates to the preparation and use of a catalytic membrane composed of fully polymeric systems of polyvinyl alcohol and poly (2-acrylamide-2-methyl propane sulfonic acid) or some other organic compounds that contain sulfonic groups in different concentrations, preferably between 30% and 50% by weight. Said composite prepares on a porous support preparation method. Also, at the top, it has a thin layer of up to eight microns of the membrane with catalytic capacity, acting as a promoter of the esterification and transesterification reactions of fatty acids and triglycerides to produce biodiesel, among other compounds obtained by esterification. Further, it can perform the separation of the secondary reaction products when it is properly coupled to a vacuum system to achieve separation, which provides the advantage of avoiding subsequent washes to separate the biodiesel, in a single stage, bringing economic benefits at an industrial level. Finally, this type of material allows using low-quality raw materials in production with a high content of fatty acids.
EP 4151741 A1 20230322	Gecco SAS, Univ Lille (FR)	Process for the enzymatic synthesis of biodiesel from used lipids. The present invention relates to a process for the synthesis of a biodiesel composed of a mixture of ethyl or methyl esters from waste lipids originating from waste non-acid vegetable oil, acid waste oil and/or or used animal fat.
CN 115558556 A 20230103	Longyan Zhuoyue New Energy Dev Co Ltd (CN)	Esterification method and device for producing biodiesel by using waste grease. The invention discloses an esterification method and device for producing biodiesel by using waste oil and fat. The reactor of the esterification device is positioned above the liquid feeding distributor and is filled with a filler for rectifying methanol; one end of the gas phase pipe is connected with the top of the reactor; the bottom of the separating and depositing tank is provided with an automatic water and slag discharging pipe; one end of the reactor discharge pipe is connected with the lower side of the reactor; a middle outlet pipeline of the separation settling tank is divided into two paths after passing through a circulating pump, one path is a discharging pipeline, the other path extends into the reactor from the upper part of the filler, and a material backflow distribution disc is arranged at the tail part. The esterification method comprises the operation steps of feeding, esterification reaction and methanol condensation heat recovery, wherein excessive methanol steam in the reaction is separated in the filler and then is directly led to the material mixer from the gas phase pipe for heating raw materials, and water generated in the reaction is directly subjected to liquid phase dehydration in the separation and precipitation tank and is detected in real time. The invention has the advantages of energy saving, high efficiency, high esterification rate and low manufacturing cost.

Nº Publicación	Solicitante (País)	Contenido técnico
KR 20220170545 A 20221230	Moojin Machinetool Co Ltd (KR)	Oil extraction and biodiesel conversion process from microalgae. The present invention relates to a process for extracting oil from microalgae and converting biodiesel to high-efficiency biodiesel using microalgal oil extracted while extracting oil as a raw material for biodiesel from microalgae with a high yield. The configuration includes a first step of extracting oil, which is a raw material for biodiesel production, from microalgae, a second step of supplying the oil extracted in the first step to each supply tank 100 together with methanol, and the second step A third step of reacting the oil and methanol supplied through the reactor 300 with a set amount of an alkaline solid catalyst or an acidic solid catalyst, and a reaction mixture generated through the third step It consists of a fourth step of precipitating and separating, and a fifth step of removing methanol from the reaction mixture precipitated and separated through the fourth step and converting it to biodiesel by distillation.
WO 2023277842 A2 20230105	Mugla Sitki Kocman Univ Strateji Gelistirme Daire Baskanligi (TR)	A green catalyst for obtaining biodiesel. The technical field of the invention is renewable energy sources and the generation of energy from biomass. Accordingly, the invention relates to an environmentally friendly and economical catalyst that does not contain any additional chemical component and increases the efficiency of the transesterification reactions for the production of biodiesel. The invention includes the arrangements for obtaining the said catalyst.
KR 20230009573 A 20230117	Myungsung Biotech Co Ltd (KR)	Manufacturing method of biodiesel using waste cooking oil. The present invention relates to a method for producing biodiesel using waste cooking oil, and more particularly, a heating step of heating the waste cooking oil, mixing a mixture of methanol and caustic soda with the heated waste cooking oil through the heating step to obtain glycerin It consists of a glycerin separation step of separating and a methanol removal step of removing methanol by heating the mixture from which glycerin is separated through the glycerin separation step. The biodiesel manufacturing method produced through the above process provides high-purity biodiesel by mixing methanol with waste cooking oil to separate glycerin, and since the input methanol is collected and reused, the manufacturing cost is low and eco-friendly.
US 2023063878 A1 20230302	Petroleo Brasileiro SA (BR)	Process for producing biodiesel from acidic charges. The present invention concerns a process for producing biodiesel with bifunctional heterogeneous acidic catalysts from acidic raw materials, such as fatty acids and mixtures of fatty acids with triglycerides.
LV 15700 A 20230120	Rīgas Tehniskā Universitāte (LV)	Method of obtaining biodiesel without improving the quality of the transesterification product. The invention relates to the production and use of renewable fuels for diesel engines and heating appliances, in particular the production and use of renewable fuels based on a mixture of fatty acid methyl esters (FAME), which is commonly referred to as biodiesel. The production and use of such biodiesel in Europe exceeds 10 million tonnes/year, but the by-product of production is low-value glycerol. In the current production process, the product obtained from the triglyceride transesterification reaction with methanol is purified by washing with water and/or using additional sorbents. The invention provides for the synthesis of biodiesel without a purification step, thus significantly reducing the environmental impact of the production process in the form of wastewater. The invention is applicable to the production of biodiesel for transport and heating devices without the realization of the purification step of the transesterification reaction product.
WO 2022266952 A1 20221229	Shandong Tsingchuang Chemicals Co Ltd (CN)	Micro-reaction apparatus and method for preparing biodiesel by base catalysis. The present application relates to a micro-reaction apparatus and method for preparing biodiesel by base catalysis. The apparatus comprises a feeding system, a micro-reaction device, and a separation device, the feeding system is communicated with the micro-reaction device, and the micro-reaction device is communicated with the separation device; the micro-reaction device comprises a micro-reactor, and the micro-reactor is a micro-dispersion type micro-reactor; in the micro-reaction device, an oil phase and a short-chain alcohol undergo an ester exchange reaction under base catalysis to generate a fatty acid ester and by-product glycerol; the micro-dispersion type reactor has a micro-dispersion structure for dispersing the short-chain alcohol into micron-sized droplets. By adoption of the solution of the present application, the intrinsic safety of the process is improved, the reaction time is greatly shortened, the material flow resistance is smaller, and the system operation pressure is low; the micro-reaction apparatus has a large single-channel treatment capacity which is 10-500 times that of a micro-channel reactor, and has industrial potential.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115672204 A 20230203	Sichuan Jinshang Environmental Protection Tech Co Ltd (CN)	System and method for large-scale production of biodiesel from low-acid-value waste cooking oil. The invention discloses a system and a method for large-scale production of biodiesel from low-acid-value waste cooking oil, and solves the technical problems of high soap content of glycerol, difficulty in separation, poor quality, large investment of a separation system and low total yield of biodiesel in the process of producing biodiesel from the low-acid-value waste cooking oil in the prior art. The biodiesel system comprises a pretreatment system and a solid acid catalysis system. The production method comprises the following steps: hydrolyzing the low-acid-value waste cooking oil through the pretreatment system to obtain hydrolyzed fatty acid, then feeding the hydrolyzed fatty acid into the solid acid catalysis system, and performing solid acid catalysis on the hydrolyzed fatty acid and methanol to efficiently generate the high-purity biodiesel. According to the invention, grease hydrolysis and solid acid catalysis are integrated into a continuous biodiesel production system, so that the production cost is low, the process route is short, the loss of methanol is reduced, and glycerol is thoroughly separated.

Bio-jet fuels		
Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023287579 A1 20230119	Exxonmobil Technology & Engineering Company (US)	Integrated conversion and oligomerization of bio-derived alcohols. Systems and methods are provided for integrated conversion of biomass to ultimately form naphtha and/or diesel boiling range products. The integrated conversion can include an initial conversion of biomass to alcohols, such as by fermentation, followed by conversion of alcohols to olefins and then olefins to naphtha, jet, and diesel boiling range compounds, with high selectivity for formation of diesel boiling range compounds. The integrated conversion process can be facilitated by using a common catalyst for both the conversion of alcohols to olefins and the conversion of olefins to naphtha and/or diesel boiling range compounds. For example, ZSM- 48 (an MRE zeotype framework structure catalyst) can be used as the catalyst for both conversion of alcohols to olefins and for oligomerization of olefins with increased selectivity for formation of diesel boiling range products.
WO 2023031513 A1 20230309	Neste Oyj (FI)	Renewable jet fuel with additive. The current invention provides a jet fuel composition comprising a renewable jet fuel component containing hydro-processed esters and fatty acid synthetic paraffinic kerosene, which fulfils the ASTM D7566 Annex A2 requirements for renewable jet fuel and an additive component comprising a blend of phenylenediamine and hindered phenol. The jet fuel composition can further comprise petroleum-based jet fuel component.
WO 2023043764 A1 20230323	Shell USA Inc (US) et al.	Process for producing kerosene and diesel from renewable sources. A process for improving yield of kerosene from a renewable feedstock involves directing a hydroprocessed liquid stream to a lead stripper to separate a lead stripper bottoms stream and a lead stripper overhead stream comprising naphtha, lower and higher boiling point range hydrocarbons and water. Bulk water is removed from the lead stripper overhead stream resulting in an unstabilized hydrocarbon stream, which is passed to a stabilization column to separate a stabilized naphtha-containing stream from the lower boiling point range hydrocarbons. The stabilized naphtha-containing stream is passed to a rectification column to separate a rectification bottoms stream and a naphtha product stream. Kerosene and diesel boiling range product streams are separated from the lead stripper bottoms stream in a vacuum fractionator.
EP 4148103 A1 20230315	Totalenergies Onetech (FR)	Renewable jet fuel composition. The invention relates to a jet fuel composition derived from renewable feedstocks comprising from 65% to 95% by weight of at least one paraffin base derived from a hydrotreatment of esters and fatty acids or a Fischer-Tropsch process and comprising at least 90% by weight of paraffin and from 5% to 35% by weight of at least one C6-C16 or C8-C16 aromatic base, characterised in that the aromatic base corresponds to the C6-C16 or C8-C16 fraction of a biofuel produced by a method for converting at least one C2 bioalcohol to one fuel and characterised in that the aromatic base contains at least 60% by weight of aromatic compounds, the aromatic compounds comprising at least 50% by weight of benzene substituted by at least one C2-C5 n-alkyl, wherein n is an integer from 1 to 3. The final jet fuel composition comprises less than 9.5% by weight of C6-C16 cycloalkanes.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115746923 A 20230307	- (CN)	Method for preparing aviation fuel from lignin derivatives. The invention discloses a method for preparing aviation fuel from lignin derivatives. The method comprises the following steps: under the action of the first heteropolyacid catalyst, alkylating lignin phenol derivatives and lignin aldehyde derivatives under solvent-free conditions to obtain tricyclic oxygen-containing fuels Precursor: Under the joint action of the second heteropolyacid catalyst and hydrogenation metal catalyst, the tricyclic oxygen-containing fuel precursor is subjected to hydrodeoxygenation and isomerization reactions in a solvent to form a variety of isomerized naphthenes . The invention can efficiently convert the lignin phenolic derivatives with low carbon number and low calorific value into high-performance aviation fuel, and has good practical value.
CN 115772429 A 20230310	- (CN)	Preparation method for a composite fuel replacing aviation kerosene. A preparation method for a composite fuel replacing aviation kerosene, comprising the following steps: (1) preparing additives: using isooctane with a purity of 99%, butylhydrocarbyl anisole with a purity of 98%, and isooctyl alcohol with a purity of 99%, according to 1-2:1-3:6-8 by weight ratio to obtain additives; (2) Prepare base liquid: mix methanol with a purity of 99.99% and dimethyl ether with a purity of 98% in a volume ratio of 1:1-3 Mix to obtain base liquid; (3) Microemulsion mixing: add base liquid, additives and hydrogen-rich water in sequence in the container, stir while adding, then add bio-oil in stages, stir and emulsify to obtain composite fuel; base liquid, additives , the weight-to-volume ratio of hydrogen-rich water and bio-oil is 18-22:3-7:12-18:55-65; the preparation method of the present invention is simple, and methanol and dimethyl ether are mixed as a base liquid, and microemulsification technology is used to Additives, hydrogen-rich water, and bio-oil are prepared into a water-in-oil nanoemulsion, and the new composite fuel made has a high boiling point, is not volatile, is easier to ignite, is convenient for transportation, and has high safety. It has significant social and economic benefits.

Biohidrógeno

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115627244 A 20230120	Chongqing Endurance Ecological Tech Co Ltd (CN)	Dry anaerobic fermentation complex microbial inoculant, and preparation method and application thereof. The invention relates to a complex microbial inoculant for dry anaerobic fermentation as well as a preparation method and application thereof, and relates to the field of microorganisms. The complex microbial inoculant for dry anaerobic fermentation is prepared from the following components in parts by weight: halophilic bacteria, hydrogen-producing spore bacteria, thermophilic bacteria, acetobacter, ruminococcus UCG-012, keratinobacillus, sphingobacterium sp., Candidate Caldtribacterium, syntrophy bacteria, lactobacillus, rumen clostridium, proteophilic bacteria, non-cholesteric plasma, RC9 and syntrophy monad. Compared with the prior art, the selection range of microbial inoculation in the dry anaerobic kitchen waste fermentation process is widened, meanwhile, the flora structure culture conditions are relatively mild, the control condition range is wider, the self-adjusting capacity in the anaerobic fermentation process is more prominent, the operation cost is correspondingly reduced, and the method is suitable for industrial production. If the steam amount required for heating is smaller, the water and electricity consumption is lower.
CN 115141853 A 20221004	Fudan Univ (CN)	Hydrogen production method and device. The invention relates to a hydrogen production method and device. The hydrogen production method comprises the following steps: adding an algae substance into a reactor isolated from an external light source; adding a sodium sulfite solution with a concentration lower than a target concentration to the reactor; and providing pulsed illumination to the algal substance treated by the sodium sulfite solution for the interval photosynthesis of the algal substance. By executing the steps, the hydrogen production method can improve the hydrogen production efficiency of the algae substance, prolong the hydrogen production time of the algae substance and reduce the production cost of biological hydrogen production, thereby promoting the biological hydrogen production technology to be put into large-scale industrial production.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115672231 A 20230203	Hangzhou Special Equipment Emergency Disposal Center (CN)	Tubular reactor, heating furnace device and biomass charcoal hydrogen production device with heating furnace device. The invention discloses a tubular reactor, a heating furnace device and a biomass charcoal hydrogen production device with the same. The tubular reactor is characterized in that a closed steam inlet chamber is arranged on the outer wall of a reaction section, a first through hole communicated with the reaction section is formed in the position, corresponding to the steam inlet chamber, of the reaction section, and a second through hole communicated with the steam inlet chamber is formed in the outer wall of the steam inlet chamber; the gas collecting pipe is arranged in the pipe body, the axis of the gas collecting pipe is parallel to or coincides with the axis of the pipe body, a biomass charcoal channel is formed between the outer wall of the gas collecting pipe and the inner wall of the pipe body, the gas collecting pipe comprises a first collecting pipe and a second collecting pipe, the first collecting pipe is arranged on the top of the second collecting pipe in a sleeving mode, and a gap is formed for gas to pass through. Wherein the lower end face of the first collecting pipe is located at the junction of the reaction section and the heating section or partially extends into the reaction section. According to the tubular reactor for the biomass charcoal hydrogen production device disclosed by the embodiment of the invention, heat transfer can be enhanced, and the hydrogen yield can be effectively increased.
CN 115650161 A 20230131	Jiangxi Jinkang New Material Tech Co Ltd (CN)	Comprehensive utilization method of biomass and alkali heat treatment fixed bed reaction device. The invention relates to the technical field of comprehensive utilization of biomass, in particular to a comprehensive utilization method of biomass and an alkali heat treatment fixed bed reaction device. The invention provides a comprehensive utilization method of biomass, which comprises the following steps: mixing biomass and alkali to obtain a mixture; the mass ratio of the biomass to the alkali is 1: (1-4); the alkali comprises alkali metal elements; and in a nitrogen atmosphere, carrying out alkali heat treatment on the mixture at 350-600 DEG C for 30-150 minutes to respectively obtain hydrogen and porous carbon. According to the comprehensive utilization method, the carbon material containing a large number of pore structures can be prepared, and meanwhile high-purity hydrogen can be generated.
CN 115678618 A 20230203	Kunshan Hongri New Energy Co Ltd (CN)	Internal heating type biomass gasification hydrogen production system and hydrogen production method thereof. The internal heating type biomass gasification hydrogen production system comprises a gasification medium generator, a gasification furnace device, a mixed gas condensation device and a gas component analysis device which are sequentially communicated through a pipeline, and the gasification medium generator is located at the top of the gasification furnace device and fixedly connected with the gasification furnace device into a whole.
CN 115577919 A 20230106	Univ Huazhong Science Tech (CN)	Optimized operation method and system of multi-energy coupling complementary hydrogen production system. The invention discloses an optimized operation method and system of a multi-energy coupling complementary hydrogen production system, and belongs to the field of electrical engineering, and the method comprises the following steps: establishing a water electrolysis hydrogen production sub-model, a biomass hydrogen production sub-model and a natural gas hydrogen production sub-model; a substance complementary utilization constraint is constructed by taking the criterion that oxygen generated by hydrogen production through water electrolysis is complementarily utilized by hydrogen production through biomass and hydrogen production through natural gas and the criterion that hydrocarbon fuel generated by hydrogen production through biomass is complementarily utilized by hydrogen production through natural gas, and a heat complementary utilization constraint is constructed by taking the criterion that global heat balance is formed by coupling hydrogen production through biomass and hydrogen production through natural gas as a criterion; constructing a multi-energy coupling complementary hydrogen production optimization model by taking the maximum stable hydrogen production amount as a target according to each sub-model, each complementary utilization constraint and the system operation constraint; nonlinear terms in the model are subjected to linearization processing and then are solved, and an optimal hydrogen production plan is obtained. The comprehensive energy utilization efficiency of the system is improved, and carbon emission is reduced.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115537232 A 20221230	Univ Shandong (CN)	Carbon-rich material steam gasification method and system for co-producing sulfur and hydrogen through calcium circulation. The invention belongs to the technical field of energy conservation, environmental protection and resource recycling, and relates to an organic solid waste gasification technology, in particular to a carbon-rich material steam gasification method and system for co-producing sulfur and hydrogen through calcium circulation. The method comprises the following steps: carrying out gasification reaction on a carbon-rich material, water vapor and calcined CaO together to obtain hydrogen-rich gasified gas and calcium carbonate, carrying out limestone gypsum wet desulfurization on the obtained calcium carbonate and sulfur-containing flue gas to obtain desulfurized gypsum, and carrying out calcination reduction on the obtained desulfurized gypsum and a part of the hydrogen-rich gasified gas to obtain calcined CaO and SO ₂ , the other part of hydrogen-rich gasified gas and SO ₂ generated by reduction calcination are used as products; the carbon-rich material is biomass and/or organic solid waste. Calcium is used as a flowing medium for circulation, so that massive exploitation of limestone is avoided, organic solid waste can be treated, sulfur resources are recycled, and hydrogen is produced as a byproduct.
CN 115535963 A 20221230	Univ Shandong Technology (CN)	Biomass chemical looping circulation hydrogen production system. The invention relates to the technical field of biomass energy conversion and utilization, in particular to a biomass chemical looping circulation hydrogen production system which comprises a biomass gasification device, a bifunctional reaction device, a condensing device and a water storage device which are sequentially connected through a pipeline. The water storage device is connected with the difunctional reaction device through a gas pipeline, the top of the difunctional reaction device is connected with the gas collection device through a pipeline, the difunctional reaction device is provided with a heating mechanism, and an oxygen carrier is arranged in the difunctional reaction device. According to the system, biomass solid-phase feeding is changed into gas-phase feeding, the gas-phase feeding and the oxygen carrier are mixed and contacted more sufficiently, and the raw material conversion rate is greatly increased.
CN 115572741 A 20230106	Univ Tongji (CN)	Method for stepwise recycling kitchen waste biomass energy based on component metabolism rate. The invention relates to a method for stepwise recycling kitchen waste biomass energy based on a component metabolism rate. The method specifically comprises the following steps: (1) crushing kitchen waste into mixture particles; (2) carrying out heat treatment on the sludge discharged from the anaerobic fermentation reactor; (3) by taking the mixture particles as a matrix and the heat-treated sludge as inoculation mud, adjusting the pH value of the mixture, then carrying out dark fermentation reaction, and collecting the generated hydrogen; (4) carrying out hydrolysis treatment on the discharged material in the step (3); (5) taking the mixture obtained in the step (4) as a matrix, taking heat-treated sludge as inoculation mud, adjusting the pH value of the mixture, then carrying out dark fermentation reaction, and collecting generated hydrogen; and (6) taking the mixture obtained in the step (5) as a substrate, taking sludge discharged from an anaerobic fermentation reactor as inoculation sludge, adjusting the pH value of the mixture, carrying out anaerobic fermentation reaction, and collecting the generated methane. Compared with the prior art, the biomass energy conversion efficiency of organic matters in the kitchen waste is improved, and anaerobic biological treatment of the kitchen waste is enhanced.
CN 115537869 A 20221230	Univ Zhejiang Science & Tech (CN)	Nickel-manganese aerogel catalyst and application thereof in hydrogen production by electrocatalysis of alkaline biomass aqueous solution. The invention relates to the field of hydrogen production, and discloses a nickel-manganese aerogel catalyst and application thereof in hydrogen production by electrocatalysis of an alkaline biomass aqueous solution. The catalyst takes crystalline elemental nickel as a framework, and the surface of the catalyst is covered with amorphous nickel hydroxide and crystalline manganese oxide. According to the application, a nickel-manganese aerogel catalyst is used as an electrocatalyst, and an alkaline biomass aqueous solution is used as an electrolyte. When the nickel-manganese aerogel catalyst is applied to hydrogen production by electrocatalysis of an alkaline biomass aqueous solution, charge transfer in an oxygen evolution reaction process can be promoted, and the nickel-manganese aerogel catalyst has ultrahigh electrocatalytic oxidation performance. According to the hydrogen production system, an OER process is replaced by an oxidation process of biomass such as ethylene glycol to provide electrons, hydrogen production of an HER process can be promoted, and the hydrogen production system has the characteristics that hydrogen production is efficient, the hydrogen production condition is mild, the catalytic process is safe, and byproducts with economic value can be produced while hydrogen production is performed.

Otros biocombustibles (hidrobiodiesel, combustibles marinos, bio-oils, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
WO 2023026111 A1 20230302	Chevron USA (US)	Co-processing of waste plastic pyrolysis oils and biorenewable feedstocks. A process is provided for producing a liquid hydrocarbon material suitable for use as a fuel or as a blending component in a fuel. The process includes co-processing a pyrolysis oil derived from a waste plastic raw material and a biorenewable feedstock comprising triglycerides in a catalytic cracking process in a presence of a solid catalyst at catalytic cracking conditions to provide a cracking product. The cracking product may be fractionated to provide at least one of a gasoline fraction and a middle distillate fraction.
WO 2023037050 A1 20230316	Neste Oyj (FI)	A marine fuel blend. The present invention relates to a marine fuel blend having a kinematic viscosity of 2-30 mm ² /s as measured at 50 °C according to EN ISO 3104:2020 and comprising 0.5 – 50 vol-% of palm oil effluent sludge bottom.
US 2023014266 A1 20230119	Neste Oyj (FI)	Process for the manufacture of diesel range hydrocarbons. The invention relates to a process for the manufacture of diesel range hydrocarbons wherein a feed is hydrotreated in a hydrotreating step and isomerised in an isomerisation step, and a feed comprising fresh feed containing more than 5 wt % of free fatty acids and at least one diluting agent is hydrotreated at a reaction temperature of 200-400° C., in a hydrotreating reactor in the presence of catalyst, and the ratio of the diluting agent/fresh feed is 5-30:1.
CN 115645963 A 20230131	Ren Yulan (CN)	Fractionation and condensation equipment for preparing liquid fuel. The invention discloses fractionation and condensation equipment for liquid fuel preparation. Relates to the technical field of biomass liquid fuel preparation. Comprising a condensation box, the bottom of the condensation box is fixedly connected with the tops of supporting legs, a condensation pipe penetrates through the side wall of the condensation box, the condensation pipe is fixedly connected with the penetrating position of the condensation box, the top of the condensation box is fixedly connected with the bottom of a motor, and a rotating rod is fixed to the output end of the motor. According to the fractionation condensing equipment for preparing the liquid fuel, when the temperature in the condensing box reaches the specified temperature, a controller sends out a signal through a temperature sensor to start a motor, a rotating rod can be made to rotate, and through cooperation of a half gear, a rack, a spring and a connecting rod, the connecting rod can drive a sliding block and a spraying head to reciprocate left and right; and therefore, the effect that the spraying range of the spraying head is wider can be achieved, the contact range of water and the condensation pipe is wider, and the cooling effect is better.
WO 2023033692 A1 20230309	Swedish Biofuels AB (SE)	Method for producing motor fuel from ethanol. A method is for producing motor fuel, and more particularly gasoline, kerosene, and diesel, from ethanol is disclosed. The ethanol is suitably obtained from a feedstock of mainly plant origin. In addition, intermediate products and by-products from the inventive motor fuel synthesis, e.g. alcohols, aldehydes, ketones, ethers, olefins, paraffins, and aromatic compounds can be obtained using the method.
WO 2023018718 A1 20230216	Univ Georgia, UT Battelle LLC, The Univ of Tennessee Research Foundation (US)	Microbial approach for the production of long chain compounds. This disclosure describes recombinant Megasphaera microbes designed to include increased consumption of acetate, increased carbon flux to butyryl-CoA and/or hexanoyl-CoA, increased production of butyrate and/or hexanoate, or a combination thereof, than a comparable control. This disclosure also describes methods that generally include growing such recombinant microbes under conditions effective for the recombinant microbes to consume greater amounts of acetate, produce increased amounts of butyryl-CoA and/or hexanoyl-CoA, produce increased amounts of butyrate and/or hexanoate, or a combination thereof.
BR 102021015202 A2 20230214	Univ Rio de Janeiro (BR)	Processo para produção de combustíveis e petroquímicos renováveis a partir da conversão de acetais isopropilidênicos. Esta invenção apresenta um processo para produção de combustíveis e insumos petroquímicos renováveis. O processo é caracterizado por utilizar uma fonte de derivados da biomassa de segunda geração obtido por reações de cetalização, designado como bio-petroleo (BP) e convertê-lo misturado com um hidrocarboneto em condições e com catalisadores típicos de craqueamento catalítico fluidizado (FCC). O processo tem flexibilidade de empregar misturas em uma ampla faixa de concentração (desde baixa, 10%p/p até 80%p/p em BP) e misturado com hidrocarbonetos de ampla faixa de peso molecular. Em todas essas faixas, baixo teor de coque é gerado. O processo de menores teores de BP aumenta a conversão de gás óleo, produz gasolina de alta octanagem e insumos como olefinas leves e aromáticos. Utilizando misturas contendo principalmente BP, o processo transforma essa fonte renovável em produtos de alto valor agregado como gasolina renovável e olefinas leves, com rendimento em carbono-verde incorporado nos produtos em torno de 70%.

Nº Publicación	Solicitante (País)	Contenido técnico
CN 115646390 A 20230131	Univ Shenyang Ligong (CN)	Device and method for preparing phenolic bio-oil by continuously depolymerizing lignin. The invention provides a device and a method for preparing phenolic bio-oil by continuously depolymerizing lignin, which are a novel process for continuously degrading lignin in reaction time from dozens of seconds to several minutes by taking lignin and hydrogen as raw materials. The problem that lignin cannot be continuously depolymerized in the prior art is solved. And carrying out operations such as conveying, preheating, catalyzing, reacting, separating and the like on the materials to obtain the polyphenol bio-oil. The method is simple and convenient to operate, high in conversion rate, high in oil yield, high in operation safety and relatively small in process environmental pollution.
CN 115678623 A 20230203	Yang Hongbo (CN)	Biomass liquid fuel. The invention relates to a biomass liquid fuel. The gasoline is prepared from the following raw materials in percentage by weight: 35-40% of solvent oil, 18-20% of gasoline aromatic hydrocarbon, 10-20% of an additive, 15-20% of an organic solvent, 10-15% of a cosolvent, 0.1-0.5% of glycerol, 0.1-0.5% of a mixture of paraffin oil and palm wax, 0.1-0.3% of oleic acid, 0.5-1.0% of benzotriazole and 0.1-0.5% of ferrocene. The biomass liquid fuel provided by the invention can reduce emission, remove carbon deposition, save fuel oil, enhance power and protect an engine, and has strong substitutability.

PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2023025471 A1 20230302	BSH Hausgeraete GmbH (DE)	A process for obtaining composite materials for use in ethylene adsorption. The present invention proposes a process for obtaining composite materials, comprising the steps of producing an activated carbon component using a physical activation technique from a cellulose-based material containing lignin in an amount of 40-55% by weight (i); preparing a mixture by adding the activated carbon component to polypropylene, wherein the amount of the activated carbon component in the mixture is 0.1-10% by weight (ii); and extruding and molding the mixture (iii). The present invention also proposes a composite material for use in ethylene adsorption, obtained by said process.
WO2023001911 A1 20230126	Cellucomp Ltd et al. (GB)	Biodegradable and reusable cellulosic microporous superabsorbent materials. The present invention relates to a process for preparing an antimicrobial cellulose-containing microporous superabsorbent composition from an herbaceous plant material, the process comprising the step of comminuting dry granulated herbaceous plant material to form microparticles having an average particle diameter of from 100 µm to 800 µm; to obtain the cellulose -containing microporous superabsorbent composition.
WO2023279206 A1 20230112	CTK Res and Development Canada Ltd (CA)	Biodegradable polymer based biocomposites. The present invention provides compositions for use in making biodegradable biodegradable composite, and biodegradable composite comprising polybutylene adipate terephthalate (PBAT)-component; hemp powder; and optionally one or more compatibilizers and/or PBAT grafted with one or more compatibilizers selected from maleic anhydride, glycidyl methacrylate, pyromellitic anhydride, acrylic acid, polyacrylic acid, methylene diphenyl diisocyanate, poly(glycidyl methacrylate, copolymer(s) of glycidyl methacrylate and/or copolymers of acrylic acid. The invention also relates to methods of preparing the composites.
EP4124633 A1 20230201	Evertree (FR)	Process for the manufacture of a lignocellulosic fibre-based composite material using polysaccharide-based pellets and composite material obtained by such process. The present invention relates to a process for the manufacture of a lignocellulosic fibre-based composite material comprising the steps of:- obtaining a fibrous mix (S1) comprising defibrated lignocellulosic material and defibrated polysaccharide-based pellets;- blending the fibrous mix with an adapted liquid to form a composite mixture;- curing (S3) the composite mixture, thereby forming the lignocellulosic fibre-based composite material. The polysaccharide-based pellets comprise polysaccharides and optionally a resin that constitute more than 50% by weight of each pellet. The adapted liquid can comprise a resin, or an aqueous liquid and/or a resin if the polysaccharides contained in the polysaccharides based pellets comprise wheat flour, starch, gum arabic, glucomannan, methyl or carboxymethylcellulose, or chitosan. A preferred application of this process is the manufacture of fibreboards, such as MDF.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2023274851 A1 20230105	Fluidsolids AG (CH)	Recyclable material. The present application relates to recyclable material. The recyclable material comprises 30-97 wt.% of cellulose material, 2-45 wt.% of at least one protein binder, 1-20 wt.% of at least one alcohol or ester and 0-45 wt.% of at least one additive. The present application further relates to a method for producing a recyclable material and to a molded part produced therefrom.
WO2023018030 A1 20230216	LG Chemical Ltd (KR)	Polymer composite and molded product comprising same. The present invention relates to a polymer composite and a molded product comprising same. According to the present invention, provided is a polymer composite capable of exhibiting excellent mechanical properties while being environmentally friendly by including cellulose fibers as a reinforcement.
ES2933271 A1 20230203	Llapart Ramos Rosa Maria (ES) et al.	Compostable and biodegradable food container. Compostable and biodegradable food container made up of a tray and a transparent closing film joined by heat welding in which the tray is made of a material that is a mixture of wood fiber, calcium carbonate, porcelain clay, starch, latex and a water, treated with a mixture of alkyl ketene dimer, water and sodium hydroxide, while the closure film is made with a transparent sheet mixed with polylactic acid and acetyl tributyl citrate.
WO2023016951 A1 20230216	Nestle SA (CH)	A material for making packages comprising a polyhydroxyalcanoate resin mixed with a very high content of cellulose. The present invention primarily concerns a hollow container made of a polymeric compound, characterized in that said polymeric compound comprises: (i) a polyhydroxyalcanoate (PHA) resin, and (ii) hardwood cellulose fibres having a length comprised within the range of 15 µm to 150 µm, preferably within the range of 20 µm to 120 µm, and having a density of at least 1.0 g/cm ³ , preferably of at least 1.5 g/cm ³ , and said fibres being present in an amount of more than 50% wt. of the total compound weight.
EP4116358 A1 20230111	Papershell AB (SE)	A 3D article comprising cellulosic fibers and having improved strength. The present invention relates to a load-bearing 3D article comprising a surface, wherein the surface has at least one developable and/or non-developable surface portion. The load-bearing 3D article comprises a composite material comprising cellulosic fibers having a length of maximum 4 mm and a composite agent selected from the group consisting of substituted and non-substituted furan, hemicellulose, lignin, phenolic resin, and combinations thereof. The load-bearing 3D article has a tensile strength of at least 100 MPa.
WO2023002043 A1 20230126	PDA Ecolab (FR)	Hybridization of natural-fiber reinforcement for composites and fabrics made of the same. The present disclosure relates to a roving or tow for a fiber-reinforced composite comprising: one or more natural reinforcement fibers of a first type of material; and one or more further reinforcement fibers of a second type of material different from the first type, wherein the natural and further reinforcement fibers are orientated lengthwise without twist, or with minimal achievable twist, in a single roving or tow configured to reinforce a matrix of the fiber-reinforced composite.

Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
WO2023012142 A2 20230209	Arapaha BV (NL)	A method of closed loop recycling of polylactic acid. The present invention pertains to a process for chemically recycling polylactic acid (PLA), the process comprising at least a first stage of depolymerisation of the PLA and a separate second consecutive stage of depolymerisation, to which first and second stages the PLA is subjected in a continuous manner, wherein in the first stage of the two consecutive stages, the PLA is continuously fed to an extruder operated at a temperature above the melting temperature of the PLA, while a first amount of water is co-fed to the extruder, in order to produce a fluid mixture comprising a melt of the at least partly depolymerised PLA, and in the second stage, the said fluid mixture is continuously fed to a continuously stirred tank reactor (CSTR) operated at a temperature above the melting temperature of the PLA, while co-feeding a second amount of water to the CSTR, wherein a residence time in the CSTR is used to provide at the outlet of the CSTR a continuous stream of PLA depolymerised into an oligomeric ester. The invention also pertains to a product comprising PLA comprising coupled lactide monomers that form the PLA, the PLA having a D/L ratio for the lactide monomers, the product being provided with a persistent marking which indicates the said D/L ratio of the PLA comprised in the product.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2023000019 A1 20230126	Boulos & Cooper Labs Pty Ltd (AU)	Bioplastic and method of making thereof. Disclosed is a method of forming a bioplastic material. The method comprises providing a mixture comprising a keratinaceous substrate, and a secondary biopolymer substrate that includes one or more of an amine, hydroxyl and carboxyl group. The method also comprises 5 crosslinking the keratinaceous substrate and the secondary biopolymer substrate to form the bioplastic material. A crosslinking agent may be used.
WO2023279159 A1 20230112	C Sea Solutions Pty Ltd (AU)	Process to produce polyhydroxyalkanoates from seaweed. A process is described for producing polyhydroxyalkanoates from macroalgae, the process comprising the steps of: forming a macroalgal mixture from macroalgae and a liquid; hydrolysing the macroalgal mixture to form a macroalgal hydrolysate; producing a growth medium comprising the macroalgal hydrolysate; fermenting the growth medium using halophilic microbes capable of producing polyhydroxyalkanoates; and extracting the polyhydroxyalkanoates from within the halophilic cells using a water-based, osmosis-driven lysis process.
WO2023025817 A1 20230302	Futero SA (BE)	Valorisation of lactic acid stream in the production process of polylactic acid. The present invention discloses a valorisation method of a flux containing undesired lactic acid (ester(s)) in the production process of polylactic acid, the lactic acid and/or the lactic acid ester(s) obtained by recycling during the various stage of the production of polylactic acid are forming a recycle stream, 0 to 100% by weight of which are subjected to a treatment in order to selectively separate a fraction containing L-lactic acid and/or L-lactic acid ester(s) from a fraction containing D-lactic acid and/or D-lactic acid ester(s); and 100 to 0% by weight of said recycle stream are used as a base for the synthesis of molecules insensitive to the optical isometry D or L of lactic acid and/or of lactic acid ester(s).
WO2022270869 A1 20221229	LG Chemical Ltd (KR)	Method for preparation of poly lactic acid polymer. The present invention relates to a method for the preparation of a polylactic acid polymer, and more specifically, to a method for preparing a polylactic acid polymer having a high molecular weight, good color characteristics, and a high polymerization rate by using a specific catalyst combination in a ring-opening polymerization reaction of a lactic acid oligomer.
WO2023282864 A1 20230112	MD Polimer Gida Sanayi Ticaret Ltd Sirketi (TR)	Synthesis of poly(lactic acid) catalyzed by nanoparticle metal. The invention relates to the synthesis of polylactic acid catalyzed by nanoparticle 5 metal, wherein, by use of metal powder in the size of nanoparticles, it enables not only increasing reaction efficiency but also easily removing metal powder from the reaction medium when the reaction is completed, without the need for depolymerization, and it prevents the primary reaction product from undergoing external processes, reduces the total reaction processing time and the number of 0 reactors, units employed in the reaction, and allows obtaining high molecular weight product.
WO2023027953 A1 20230302	Meredian Inc (US)	Method for recovering PHAs from a biomass. A method for recovering polyhydroxyalkanoates from a biomass is disclosed. According to the method, polynucleotide chains are cleaved by addition of an endonuclease. A lysing agent is used to disrupt cell walls of the microorganism cells and release the intracellular polyhydroxyalkanoates from the cells. Proteins are also degraded by addition of a peptidase. The polyhydroxyalkanoates are then separated from cellular debris of the cells. According to the present disclosure, this method is carried out without the use of organic solvents in the cleaving, lysing, and degrading steps.
WO2023041822 A1 20230323	Quim Tecnica Ecologica SLU et al. (ES)	Method and equipment for the production of polyhydroxyalkanoates and root biostimulants from organic wastes. Method and equipment for the production of polyhydroxyalkanoates and root biostimulants from organic wastes. The present invention relates to a process and equipment required for the transformation of residual organic matter into PHA (polyhydroxyalkanoates) and compostable material for agriculture. According to the process of the present invention, the residual organic matter generated by human activity will be used as raw material for the process described in the invention to generate biodegradable plastic in the form of PHA and compostable material for agriculture, rich in organic matter and nitrogen, potassium and phosphorus.
WO2023283609 A1 20230112	Univ Leland Stanford Junior (US)	Polyhydroxyalkanoates and methods of making thereof. Provided are microorganisms for making polyhydroxyalkanoate (PHA) compounds. For instance, the microorganism can include a polyhydroxyalkanoate (PHA) synthase (phaC) gene and one or both of an isocaproenyl-CoA:2-hydroxyisocaproate CoA-transferase (hadA) gene and a propionate CoA-transferase (pct) gene. In some cases, the species of the microorganism is a <i>Cupriavidus necator</i> bacteria that has been genetically modified to include the PHA and hadA or pct genes.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2023000019 A1 20230126	Univ New York State Res Found (US)	Method of making polyhydroxyalkanoate copolymers from diverse substrates. The present disclosure provides a microorganism and expression cassette useful for biologically producing PHA homopolymers and/or PHA copolymers, including PHB-co-MCL copolymers of controllable or predetermined composition. In embodiments, the present disclosure provides a nucleic acid construct suitable for use in a microorganism and/or expression cassette including a nucleic acid construct including: one or more genes comprising a phaJ4 gene, a phaA gene, a phaB gene, a phaC1 gene, or combinations thereof; a cDNA that encodes one or more proteins comprising an enoyl-CoA hydratase 2, a β -ketothiolase, an acetoacetyl-CoA reductase, a type II polyhydroxyalkanoate synthase, or combinations thereof; or one or more nucleic acid sequences that encode one or more proteins including an enoyl-CoA hydratase 2, a β -ketothiolase, an acetoacetyl-CoA reductase, a type II polyhydroxyalkanoate synthase, or combinations thereof.

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

Biofertilizantes, bioadhesivos, etc.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2023275619 A1 20230105	Bostik SA (FR)	Poly (3 -hydroxyacid) polymers from long-chain epoxides and their uses related to hot melt adhesives. A macromolecule comprises a ring-opened polymerized product of β -lactone monomers of formula I: and having a structure of formula IA: wherein R1 is an alkyl group having at least 8 carbon atoms. The macromolecule may be hydroxy-terminated, and may be copolymerized with other β -lactone monomers having different substituting groups and/or with higher lactone monomers. The macromolecule may be used as a reactant to form an alkoxy silane-terminated polymer, a polyurethane, or a (co)polyester, or may be used as an elastomeric midblock in a triblock copolymer having hard end blocks, such as polylactic acid. Such triblock systems demonstrate two discreet regions having properties similar to styrene block copolymers and are therefore suitable for use as hot melt or pressure-sensitive adhesives. In some embodiments, such triblock polymers may be entirely bio-sourced and compostable.
WO2023009636 A1 20230202	Envirokure Incorporated (US)	Bionutritional compositions for plants and soils. Bionutritional compositions for plants and soils, such as liquid biostimulant compositions and emulsified compositions or solid biofertilizer compositions, produced from animal manure are disclosed. Also disclosed are processes for manufacturing such bionutritional compositions. The processes include the delivery of pure oxygen or oxygen-enriched air to aqueous animal waste slurry and further include subjecting the aqueous animal waste slurry to an autothermal thermophilic aerobic bioreaction (ATAB). The processes may also include a separation step to separate the digested or decomposed animal waste composition after ATAB into a substantially liquid component and substantially solid component, each capable of being further processed to produce a biostimulant composition and biofertilizer composition, respectively. Also disclosed are methods of using the bionutritional compositions for promoting plant health or conditioning soil.
WO2023008298 A1 20230202	Fuence Co Ltd (JP)	Adhesive composition containing biodegradable bio-polymer, adhesive agent, and method for changing adhesive strength of adhesive agent. Provided are: an adhesive composition containing a polyhydroxyalkanoate having repeating units substantially consisting of 3-hydroxybutanoate and 3-hydroxyhexanoate; an adhesive agent; and a method for adjusting the adhesive strength of the adhesive agent. As a result, the present invention provides an adhesive agent containing an adhesive composition that has biodegradability and biocompatibility, and that can be suitably applied to a wide range of use applications such as medicinal use applications.
WO2023025930 A1 20230302	Fytek SA (BE)	Biobased herbicide enhancer agent and method for using the same. The current invention relates to a herbicide enhancer agent for enhancing the efficiency of herbicides, comprising a polymer of a hydroxycinnamic acid with an average molecular mass higher than 400 g/mol. The invention also relates to a herbicidal formulation comprising: a herbicide and a polymer, wherein, the polymer is a polymer of a hydroxycinnamic acid with an average molecular mass higher than 400 g/mol, and the weight ratio of the herbicide to the polymer is between 1 : 10 and 1000 : 1. The invention also relates to the use of said formulation. The invention furthermore relates to a method for controlling weeds or for aiding harvest (desiccant).

Nº Publicación	Solicitante (País)	Contenido técnico
EP4112813 A1 20230104	Seiko Epson Corp (JP)	Binder and formed body producing method. A binder includes an inorganic particle and a binding material particle containing a binding material to mutually bind fiber by being provided with water, wherein the binder includes a composite particle in which the binding material particle and the inorganic particle are integrated, and a specific surface area of the inorganic particle is 150 m ² /g or more and 280 m ² /g or less.
WO2023002017 A1 20230126	Sentryx BV (NL)	Bio-adhesive. The present invention concerns a bio-adhesive comprising one or more protein-based polymers with catechol and quinone functionality wherein the polymer is substituted with at least 2 different functionalization agents each having a 3,4-dihydroxyphenyl group and each having a different resistance to oxidation, wherein the at least 2 different functionalization agents are oxidized to a different degree, wherein - the protein-based polymer is selected from silk, fibrin, collagen and/or gelatin, making up at least 50% by weight on the entire polymer content of the bio-adhesive, and - the ratio of the functionalization agents and amount of oxidant are selected such as to achieve a conversion of 4 to 96% of the catechol moieties into quinone moieties. It further concerns a bio-adhesive for application on the outside or inside of a living human or animal body, suitably, this may be in the form of a kit of parts.
WO2023036762 A1 20230316	STM Tech Srl (IT)	New binding composition for multiple applications. The present invention relates to an aqueous binding composition comprising at least one reducing sugar; at least one sulphamate and/or sulphamic acid; a pH-adjusting agent consisting of ammonium hydroxide (NH ₄ OH), an organic and/or inorganic ammonium salt and/or an organic amine or combinations thereof; and at least one lactam. Said binder may be effectively used to bind cotton fibers, cellulose fibers, organic fabrics, carbon powders, natural and artificial inorganic fibers, thus obtaining products with high mechanical properties.
WO2023003988 A1 20230126	South Dakota Board of Regents (US)	Biochar based fertilizer and associated systems and methods. Disclosed herein is a biochar controlled release fertilizer composition. Various embodiments include biochar and one or more nutrients encapsulated in a biodegradable polymer composite. Further embodiments of the controlled release fertilizer composition include one or more of alginate, kaolin, and waste water sludge. The nutrients of the fertilizer may be released such as to be available at the time needed for crop growth while minimizing waste and potentially harmful environmental effects.
WO2022268837 A1 20221229	Tesa SE et al. (DE)	Biodegradable pressure-sensitive adhesive. The invention aims to provide a pressure-sensitive adhesive which has good adhesive performance parameters and is biodegradable as defined by current standards. This is achieved with a pressure-sensitive adhesive which comprises at least one polyhydroxyalkanoate and which is characterized in that the polyhydroxyalkanoate - comprises 20% to 70% by weight structural units derivable from 3-hydroxybutyric acid (3-HB); and - comprises at least one further structural unit derivable from a hydroxyalkanoic acid selected from the group consisting of 4-hydroxybutyric acid (4-HB), 3-hydroxyvaleric acid (3-HV), 4-hydroxyvaleric acid (4-HV), 3-hydroxyhexanoic acid (3-HX) and/or 4-hydroxyhexanoic acid (4-HX). The invention further provides - a multilayer composite system comprising at least one carrier material and a pressure-sensitive adhesive according to the invention; - a skin-wearable medical device (wearable device) that comprises a pressure-sensitive adhesive according to the invention and a medical system; and - the use of a pressure-sensitive adhesive according to the invention as an adhesive for producing adhesive bonds on the skin.
WO2023036893 A1 20230316	Thyssenkrupp Ind Solutions AG et al. (DE)	PLA coating of fertilisers. The invention relates to a particulate fertiliser, wherein the particulate fertiliser has a coating, wherein the coating contains polylactic acid mass, characterised in that the polylactic acid mass has a proportion of 70% to 99% L-lactic acid monomer units and a proportion of 1% to 30% D-lactic acid monomer units. The polylactic acid mass also has at least one first polylactic acid and at least one second polylactic acid. The first polylactic acid has a proportion of 50% to 67% L-lactic acid monomer units and a proportion of 33% to 50% D-lactic acid monomer units, and the second polylactic acid has a proportion of 95% to 100% L-lactic acid monomer units and a proportion of 0% to 5% D-lactic acid monomer units.

Biocosméticos, Biofarmaceúticos

Nº Publicación	Solicitante (País)	Contenido técnico
EP4144345 A1 20230308	Clariant Int Ltd (CH)	Prunella vulgaris extract and use thereof. The present invention relates to an extract of the aerial parts of <i>Prunella vulgaris</i> targeting the psycho-emotional stress that is responsible for the aggravation of the skin and the hair conditions. Preferably, the present invention relates to the use of a composition comprising or consisting of the aerial parts of <i>Prunella vulgaris</i> intended for preventing and/or treating the psychoemotional stress related disorders and/or damages on the skin and the hair follicles.
WO2023017203 A1 20230216	Cocunat SL (ES)	Hair balsam for hair restoration and repair. Disclosed is a hair balsam for hair restoration and repair, which comprises: hydrating agents comprising glycerol, panthenol, betaine and phytantriol; lipid balance restoration agents or regreasing agents comprising shea butter, jojoba oil, argan oil, pracaxi oil and coconut oil; microencapsulated active restructuring agents which contain polysaccharides and adhere to the hair fibre to repair damage, and which, by means of electrical charges of the structural membrane thereof, bond to the electrical charges of the amino acids of the damaged proteins, the microcapsules detecting the damaged areas (negatively charged); and conditioning agents consisting of PCA glyceryl oleate. The balsam allows the hair to be repaired without changing the chemical structure of the hair fibre and without changing the chemical structure of the hair, and does not contain ingredients suspected of being toxic or polluting.
EP4137118 A1 20230222	Henkel AG & Co KGaA (DE)	Hair treatment composition comprising trimethylglycine based hair conditioning agents and an oil. The invention relates to hair treatment compositions which contain at least one reaction product obtainable by reacting trimethylglycine with polyglycerol or polyglycerol ester and an acid, and at least one oil. The invention also relates to a method for improving hair care, comprising applying the hair treatment agent to the hair.
WO2023275329 A1 20230105	Inaturals (FR)	Cosmetic use of a solanum lycopersicum fruit (tomato) skin extract. The present invention relates to the cosmetic use of a lipophilic <i>Solanum lycopersicum</i> fruit peel extract comprising at least 5 % by weight of amyryns, at least 1.5 % by weight of sterols, and at most 0.5% by weight of lycopene for maintaining, restoring and/or balancing, or reinforcing the natural defenses of the skin or mucous membranes.
WO2023002115 A1 20230126	LVMH Rech (FR)	Cosmetic use of an extract of black tea from mauritius. The present invention relates to a cosmetic skincare and/or make up method for keratin materials, in particular the skin and/or lips and specifically the skin of the face and/or neck, comprising the topical application to said keratin materials of a cosmetic composition comprising an extract of black tea leaves of the species <i>Camellia sinensis</i> from Mauritius.
EP4134064 A1 20230215	Macsumsuk GM Co Ltd (KR)	Method for preparing cosmetic product using dead sea mud and macsumsuk. The present invention relates to a method for preparing a cosmetic, which is a method for preparing a cosmetic product using Dead Sea mud and Macsumsuk. The Macsumsuk, the Dead Sea mud, and the herbal medicines are processed and granulated and the natural salt is powdered using Macsumsuk, and then the cosmetic composition is prepared by appropriately mixing them. Therefore, the powder flying, the powder agglomeration, and the usability thereof is greatly improved.
WO2022268643 A1 20221229	Sederma SA (FR)	Use of zerumbone for a cosmetic treatment. According to the invention, zerumbone, derivative and/or analog thereof, or of a plant extract containing it, is used for a treatment of hyperpigmented areas on the skin (to prevent them from appearing and/or to treat them once they are present so that they fade and/or disappear), through the phosphorylation of Akt, ERK-1 and ERK-2 metabolic pathways, and the reduction of PGE2 production, influencing the tyrosinase and melanin production, therefore its transfer from the melanosome to the keratinocytes. The zerumbone or the plant extract containing it is from the Zingiberaceae family and the extraction is carried out using a supercritical fluid.
WO2023015037 A1 20230209	Univ Delaware (US)	Production of lignin derived renewable lubricants. Disclosed herein are bio-based compositions comprising branched aromatic compounds and/or branched cycloaliphatic compounds, and methods of their preparation from lignin-derived monomers, and their use as base oils in lubricant compositions, personal care compositions, and pharmaceutical compositions.

Nº Publicación	Solicitante (País)	Contenido técnico
EP4137125 A1 20230222	Univ im Adama Mickiewicza w Poznaniu (PL)	A method of obtaining of lipid nanoparticles synthesised on the basis of marine microalgae (schizochytrium) and lipids obtained from diatoms (halamphora). A manner of obtaining lipid nanoparticles synthesised on the basis of marine microalgae oil (Schizochytrium) and lipids obtained from diatoms (Halamphora) using a HSH method, consisting of a mixture containing glycerol stearate (lmwitor 900K) in an amount of 1-5 g, advantageously 2.5 g, cetyltrimethylammonium bromide (CTAB) in an amount of 0.1-0.8 g advantageously 0.4 g, lipids extracted earlier from Halamphora diatoms in an amount of 0.2-1 g advantageously 0.6 g, oil from marine microalgae (Schizochytrium) in an amount of 0.4-1.2 g advantageously 0.8 g and glycerol in an amount of 5-15 g advantageously 10 g, to a temperature above 75°C with continuous mixing at a speed of 400-600 rpm advantageously 600 rpm until an uniform consistence is obtained, then the mixture is subjected to pre-homogenisation at a speed of 8 000-24 000 rpm advantageously 13 500 rpm for 5-20 seconds, advantageously 10 seconds, afterwards to the homogenised sample 1 ml of Tween 80 aqueous water solution heated to the temperature of 40°C at concentration of 10-60% w/w, advantageously 30% w/w is added and mixed at a speed of 400-600 rpm, advantageously 600 rpm for 0.5-2 minutes advantageously for 1 minute until a uniform consistency is obtained, then the sample is subjected to two-stage proper homogenisation: in the first stage at a speed of 13 500 - 24 000 rpm advantageously 20 500 rpm for 5-15 seconds, advantageously 10 seconds; in the second stage at a speed of 8 000-13 500 rpm advantageously 9,500 rpm for 5-15 seconds, advantageously 10 seconds, after which the obtained dispersion is added to 14-14.9 ml advantageously 14.3 ml of Tween 80 water solution at concentration of 10-60% w/w advantageously 30% w/w with continuous mixing at a speed of 350-550 rpm, advantageously 350 rpm and is mixed until the system cools down to room temperature, advantageously 25°C and until NLC type lipid nanoparticles are obtained, characterised with a particle size in the range of 100-300 nm.
ES2931084 A1 20221223	Univ Madrid Complutense (ES)	Integrated process and equipment for obtaining type II or native collagen from cartilage of animal origin by contact with CO2. Integrated process and equipment for obtaining type II or native collagen from cartilage of animal origin by contact with CO2. Traditional collagen production procedures include several steps that can sometimes cause deterioration in the sensitive three-dimensional structure of native collagen, as well as treatment with various solvents and aggressive agents that can remain in the collagen as residues. The present invention proposes a clean and simple, integrated process to obtain a native collagen type II since, from the crushing of the natural raw material, only one treatment with CO2 is needed. supercritical to obtain a native collagen that maintains its three-dimensional structure intact and is free of solvents that would allow its use in medical and nutraceutical applications.

Bioaditivos alimentarios		
Nº Publicación	Solicitante (País)	Contenido técnico
WO2023023773 A1 20230302	All G Foods Holdings Pty Ltd (AU)	Food products. The present disclosure relates to food products comprising at least one colour-change protein, wherein the colour-change protein imparts a colour to the food product and changes said colour on cooking, and methods for preparing such food products.
WO2023012157 A1 20230209	Bayn Solutions AB (SE)	Confectionery sprinkle. There is provided a sprinkle comprising a high intensity sweetener, a non-sucrose bulk sweetener and a low digestible carbohydrate polymer, where the non-sucrose bulk sweetener is present in an amount of from 85% to 90 % by weight, where the low digestible carbohydrate polymer is present in an amount of from 9 % to 13 % by weight and the high intensity sweetener is present in an amount of from 0.01 % to 1% by weight and where the particle has a size of from 1000 um to 5000 um.
WO2023034069 A1 20230309	Corn Products Dev Inc (US)	Oil-in-water emulsions stabilize comprising sweet corn flour. The technology disclosed in this specification pertains oil-in-water emulsions comprising a sweet corn flour. In various embodiments the oil-in-water emulsions further comprise pulse protein. Also disclosed are emulsifier compositions comprising a pulse protein and sweet corn flour that can be used in liquid or powdered form to obtain oil-in water emulsions. Embodiments of the disclosed oil-in-water emulsions are long term stable against separation of oil and water as measured by change in oil droplet size over time.
WO2022269103 A2 20221229	DSM IP Assets BV (NL)	Protein bar. The invention relates to a protein bar comprising 20 to 70 wt. % of a binder, water, pea protein and rapeseed protein, wherein the sum of the pea protein and rapeseed protein is at least 20 wt. % of the protein bar.

Nº Publicación	Solicitante (País)	Contenido técnico
WO2023027106 A1 20230302	Kaneka Corp (JP)	Degradation odor inhibitor for emulsified food, emulsified food containing said degradation odor inhibitor, and production methods therefor. Provided are: a naturally-occurring degradation odor inhibitor which is for an emulsified food, does not change additive-derived color tones, does not spoil emulsified food-derived flavor, and can inhibit the degradation odor of an emulsified food caused due to storage; an emulsified food containing said degradation odor inhibitor; and production methods therefor. This degradation odor inhibitor for an emulsified food contains the solid content contained in a mushroom extract in an amount of 0.05-100 wt% of the entire degradation odor inhibitor for an emulsified food, wherein the mushroom extract is an extract obtained by subjecting a mixture having a mushroom (wet weight)/alkaline water or water (weight ratio) of 0.05-10 to a heat treatment at 100-150°C under a pressure of 0.05-0.3 MPa for 0.2-5 hours and then removing extraction residues.
WO2023021259 A1 20230223	Ketom Plus (FR)	Composition for ketogenic diet and method for preparing same. Orally administrable composition for a ketogenic diet, comprising a mass proportion of lipids of between 70 and 92%, including 30 to 65% of medium-chain triglycerides, known as MCTs (C6 to C12 fatty acid triglycerides), and from 5 to 15% of taurine, preferably between 7 and 12% of taurine, and a thickener chosen from an edible wax with a melting point of between 55 and 85°C. The composition for a ketogenic diet is prepared according to the method comprising mixing said edible wax and the MCT triglycerides, with stirring, at a temperature at which the edible wax is liquid, adding taurine, then, after cooling, introducing the other ingredients, still with stirring, in order to obtain said composition capable of thickening while standing at ambient temperature and of returning to a fluid appearance with stirring, while at the same time preserving the homogeneity thereof.
WO2023006894 A1 20230202	Nutricia NV (NL)	Process for preparing powders by spray drying and powders obtainable thereby. The present invention relates to a use of octenylsuccinyl anhydride substituted starch (OSA starch) for increasing the dry weight content and/or the fat content of a liquid composition that is subjected to a spray-drying step, and also to a process for preparing powders. The present invention enables the spray-drying of emulsions that contain a high amount of fat. The present invention also relates to the powder products obtainable by the process and nutritional products such as an infant milk powder, grow up milk, toddler milk or as a medical nutritional product that can be formulated therewith.
EP4151096 A1 20230322	Roquette Freres (FR)	Use of pea starch and its cross linked derivatives to improve the texture of meat products and meat analogues. The present invention is relative to the use of native or cross-linked leguminous starches as food texture improver for meat products or free meat products.
EP4124243 A1 20230201	Sonneveld Group BV (NL)	Edible coating composition for a bakery product. The present invention relates to an edible coating composition for a bakery product, preferably a coating composition for a pretzel or bagel, wherein the composition is an aqueous solution comprised of a colorant suitable for consumption, mono and/or disaccharides, and hydrocolloid agents. The present invention further relates to a bakery product comprising the edible coating composition and a method for producing a pretzel using the coating composition.
WO2023277070 A1 20230105	Suntory Holdings Ltd (JP)	Jelly beverage. Development of a novel jelly beverage has been awaited. One embodiment of the present invention provides a jelly beverage comprising: (A) one or more gelling agents A selected from the group consisting of agar 0.3-3.2g/L, carrageenan 0.3-3.2 g/L, and Amorphophallus konjac 0.3-3.2 g/L; (B) one or more gelling agents B selected from the group consisting of locust bean gum 0.6-3 g/L, xanthane gum 0.6-3 g/L, and gellan gum 0.6-3 g/L; (C) potassium citrate, calcium citrate, or potassium citrate and calcium citrate. The total amount of the one or more gelling agents A is 0.9-6.4 g/L.

Bioproductos alimenticios para animales

Nº Publicación	Solicitante (País)	Contenido técnico
EP4118974 A1 20230118	Alfa Laval Corp AB (SE)	Method and system for providing an insect-based, low-fat protein meal from an insect-based raw material. The present invention relates to a method and system for producing a low-fat protein meal from an insect-based raw material. The method and system comprise providing an insect-based raw material, which is optionally reduced in size. In the next step, the insect-based raw material is pumped to a heating step, in which the insect-based raw material is heated to a temperature from 75 to 100°C. Optionally, the heated insect-based raw material may be submitted to a buffer/mixing tank. After heating, the heated insect-based raw material is subjected to one or more separation steps. Then, the solid phase and at least part of the aqueous protein-containing fraction, which is optionally concentrated, is subjected to a drying step to provide the insect-based, low-fat protein meal. In the method, water or separated liquid heavy phase may be added to the feed upstream of the separation steps. Alternatively, a pre-separation step is included before a main separation step to provide a protein meal with reduced fat content. No enzymes or chemicals need to be added during the method.
WO2023036836 A1 20230316	Bretagne Chimie Fine (FR)	Fish feed composition comprising a hydrolysate with high levels of free amino acids, and uses. The invention relates to a fish feed composition containing from 0.05 to 2 wt.% of a keratin hydrolysate comprising at least 88 wt.% of free amino acids, based on the total weight of the amino acids of the hydrolysate, said composition comprising the following levels of the following amino acids in free form: aspartic acid from 0.009 wt.% to 0.074 wt.%; serine from 0.016 wt.% to 0.132 wt.%; glutamic acid from 0.013 wt.% to 0.106 wt.%; glycine from 0.011 wt.% to 0.086 wt.%; alanine from 0.006 wt.% to 0.050 wt.%; arginine from 0.008 to 0.064 wt.%; proline from 0.014 to 0.118 wt.%, based on the total weight of the composition, and to uses for improving the quality and quantity of fish flesh.
WO2023280891 A1 20230112	DSM IP Assets BV (NL)	Novel use of natural phenolic substances. The present invention relates to a novel use of one or more natural phenolic substances for improving nitrogen use efficiency (NUE), increasing nitrogen retention, decreasing nitrogen excretion in manure, and/or increasing microbial protein production in animals.
WO2023279152 A1 20230112	Graincorp Ltd (AU)	Crumble feed formulation for ruminant animals and method for preparing said crumble feed formulation. A crumble feed formulation for reducing methane production by a ruminant animal, said crumble feed formulation is disclosed. The crumble feed formulation comprises an effective amount of at least one species of red marine macroalgae combined within a crumble nutrient, wherein said crumble feed formulation has a dry matter content of from about 85% to about 95% by weight.
WO2023004388 A1 20230126	IMS Trading LLC (US)	Corn cob pet chew. A corn cob type pet chew where the corn cob has improved digestibility. The improved digestibility is provided by digestive enzymes and/or incorporating selected locations of mechanical weakening so that the corn cob will also more readily reduce in size when chewed upon by the animal. The corn cob may also optionally include other additives, such as mineral fillers. The minerals may also assist in digestion.
WO2023017322 A1 20230216	Kishor Gupta Aditya (IN)	Herbal poultry feed composition for producing low cholesterol, high omega-3 and high omega-7 containing eggs. The present invention relates to a poultry herbal feed composition for producing eggs characterized by low cholesterol, high Omega-7, high omega 3 and DHA content. The present invention more particularly relates to the poultry herbal feed composition comprising of a) a combination of plant extracts; b) a plurality of herbal extract, c) a plurality of pure spices, d) a plurality of algal extract, e) a DHA, and f) a Resveratrol grapeseed extract. The composition of the present invention produces eggs rich in omega 7 and omega 3 fatty acids with low cholesterol levels.
WO2023277820 A2 20230105	Nutrition Science Design Pte Ltd (SG)	Methods of feeding polyphenols to animals. The present invention relates to methods of feeding polyphenols to animals, including associated feeds and preparation thereof, and methods of consuming animals fed the polyphenols.
WO2023000103 A1 20230126	Smart Earth Camelina Corp (CA)	Ruminant bypass feed supplements comprising coated flaked camelina seeds. This disclosure relates to high-protein high-energy ruminant bypass feed supplements for lactating ruminant livestock and to methods for producing the high-protein high-energy ruminant bypass feed supplements. The ruminant bypass feed supplements comprise cracked or flaked camelina seeds coated with a material selected to be a solid in environments having temperatures less than 45°C near-neutral pHs in a range of 6.2 to 7.0, and to rapidly degrade or solubilize in environments have pHs less than 3.0 and/or in neutral pH to slightly alkaline environments containing bile salts. Suitable coating materials include one or more of C12-20 saturated fatty acids, their calcium salts, their sodium salts, their potassium salts, their magnesium salts, and mixtures thereof.

Nº Publicación	Solicitante (País)	Contenido técnico
WQ2022270497 A1 20221229	Sumitomo Chemical Co (JP) et al.	Feed for aquatic animals. Provided is a technique for increasing a target fatty acid on the body surface of an aquatic animal. A feed for aquatic animals that contains a lipid containing 10 mass% or more of at least one fatty acid selected from the group consisting of palmitoleic acid and oleic acid as a lipid constituent fatty acid or a free fatty acid, wherein the content of the lipid is 50 mass% or less.
EP4122324 A1 20230125	Symborg SL (ES)	Process for keratin conversion. The present invention relates to a process for converting keratin into a liquid mixture comprising peptides and/or amino acids comprising the following steps: a) decomposing a keratin containing material, preferably pig hair, in presence of at least one microorganism apt to decompose keratin, to obtain a decomposed keratin containing material; b) treating the decomposed keratin containing material to obtain a modified keratin containing material; c) treating said modified keratin containing material with at least a proteolytic enzyme to obtain a keratin hydrolysate; and d) treating said keratin hydrolysate to obtain a liquid mixture comprising peptides and/or amino acids. The present invention further relates to a liquid mixture obtained from said process and to uses thereof.

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VT BIOMASA PARA LA BIOECONOMÍA

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