

## OBJETIVOS DE DESARROLLO SOSTENIBLE



## BOLETÍN BIOENERGÍA Y BIOPRODUCTOS

### Proyectos europeos relacionados con el área de la biorrefinería

Hace aproximadamente veinte años se comenzó a hablar de las biorrefinerías. Hoy en día, desempeñan un papel crucial en la transición hacia una economía más sostenible y basada en recursos biológicos. Estas instalaciones convierten biomasa en una gran variedad de productos, como biocombustibles, bioplásticos y bioquímicos, contribuyendo así a reducir la dependencia de recursos fósiles y a mitigar el cambio climático.

Las políticas y normativas, especialmente las adoptadas desde 2018, han sido fundamentales para las decisiones de inversión de las empresas privadas en biorrefinerías. Según el informe *Biorefineries distribution in the EU*, de la Oficina de Publicaciones de la Unión Europea, en la Unión Europea existen más de 800 biorrefinerías. El 60% producen compuestos químicos de base biológica, el 45% produce biocombustibles y el 17% genera biomateriales y fibras. Desde la Unión Europea se está apoyando activamente el desarrollo de este sector a través de diferentes iniciativas. Cabe destacar el gran número de proyectos que están siendo financiados por *Circular Bio-based Europe Joint Undertaking* (CBE JU). CBE JU es una asociación entre la Unión Europea y el Consorcio de Bioindustrias (BIC) que financia proyectos innovadores en biorrefinerías para fortalecer la base industrial europea y promover procesos industriales en el marco de Horizonte Europa, el programa de investigación e innovación de la UE. En la Tabla 1 se recogen algunos de estos proyectos, con participación de entidades españolas, que se encuentran en activo o comenzarán a desarrollarse en los próximos meses.

**Tabla 1.** Proyectos europeos financiados por Circular BIO-based Europe Joint Undertaking en los que participan entidades españolas

**MANUREFINERY: Smart modular mobile biorefining of manure to zero-waste maximising resource and nutrient recovery for feed and fertiliser biorefining ingredients in rural areas (Sep 2024- Ago 2028)**

**Participantes españoles:**

- Instituto Tecnológico de Aragón (Coordinador)
- Universidad de Valladolid
- Universidad de Zaragoza
- Guascor Energy R&D SA
- Syspro Automation SL

**PROMOFER: Boosting upstream and downstream processes to maximize yield of PHB production and 2,3-butanediol (Jun 2024- May 2028)**

**Participantes españoles:**

- AIMPLAS - Asociación de Investigación de Materiales Plásticos y Conexas (Coordinador)
- Instituto Regional de Investigación y Desarrollo Agroalimentario y Forestal de Castilla-La Mancha

**TERRIFIC: Next generation circular biobased flagship packaging: a catalyst for the green transition (Jun 2024-May 2028)**

**Participantes españoles:**

- Instituto Tecnológico del Embalaje, Transporte y Logística
- Cellmat Technologies SL
- Moses Productos SL
- Nuevas Tecnologías para el Desarrollo de Packaging y Productos Agroalimentarios con Componente Plástica SL

**SUSTAINEXT: Next generation, zero-waste, dynamic, multivalORIZATION route biorefinery for sustainable botanical ingredients: showcasing a replicable and versatile model from extremadura to bio-based industry in EU (Jun 2023-Nov 2027)**

**Participantes españoles:**

- Natac Biotech SL (Coordinador)
- Agrosingularity SL
- Fundación FUNDECYT - Parque Científico y Tecnológico de Extremadura
- Iris Technology Solutions SL
- Nutraresearch 2011 SL
- Biomasa Peninsular SA

**PROMISEANG: Alternative PROteins from Microbial fermentation of non-conventional SEA sources for Next-Generation food, feed and non-food bio-based applications (Set 2023-31 Ago 2027)**

**Participantes españoles:**

- Universidad de Vigo (Coordinador)
- Moa Biotech SL
- Contactica SL
- CSIC
- Conservas Rianxeira SA

**VIQBOND: VIQBOND – sustainable binder: Upscaling new lignin-phenol-formaldehyde resin production with wood-based biorefinery lignin (Set 2021-Ago 2027)**

**Participantes españoles:**

- Fundacio Universitaria Balmes

**LUCRA: Sustainable sUCcinic acid production using an integRAted electrochemical bioreactor and renewable feedstock (Jul 2023-Jun 2027)**

**Participantes españoles:**

- FCC Medio Ambiente SAU

**ROBOCOOP-EU: circular bioeconomy Business models owned by agroCOOperatives (Jun 2023-May 2026)**

**Participantes españoles:**

- Universidad de Extremadura (Coordinador)
- Fundación Centro de Excelencia en Investigación de Medicamentos Innovadores en Andalucía
- Natac Biotech SL
- La Enológica Extremeña SA
- Fundación FUNDECYT - Parque Científico y Tecnológico de Extremadura
- SAT Satiba
- Troil Vegas Altas Sociedad Cooperativa de Ulterior Grado
- Agrupación de Cooperativas Valle del Jerte Sociedad Cooperativa Limitada

**BIORING: Engineering high performance biocoatings from renewable reactive building blocks (Jun 2023-May 2026)**

**Participantes españoles:**

- CSIC (Coordinador)
- Fundación Gaiker
- Export Blue Market SL
- Universidad Rey Juan Carlos
- Maier Scoop

**CIRCULAR BIOCARBON: Turning carbon of complex organic urban waste streams into value-added products (Jun 2021-May 2026)**

**Participantes españoles:**

- Urbaser SA (Coordinador)
- Socamex SA
- Graphenea Semiconductor SL
- Fundacio Universitaria Balmes
- Universidad de Valladolid

**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 (Jun 2021-Mar 2026)**

**Participantes españoles:**

- AIMPLAS - Asociación de Investigación de Materiales Plásticos y Conexas (Coordinador)
- Pasión del Duero SL
- IRIS Technology Solutions SL
- Sociedad Anónima Agricultores de Lavega de Valencia

**BeonNAT: Innovative value chains from tree & shrub species grown in marginal lands as a source of biomass for bio-based industries (Jul 2020-Jun 2025)**

**Participantes españoles:**

- CIEMAT (Coordinador)
- Fundación Centro de Servicios y Promoción Forestal y de su Industria de Castilla y León
- AIMPLAS - Asociación de Investigación de Materiales Plásticos y Conexas
- Contactica SL
- Idoasis 2002 SL
- El Jarpil SL
- Envirohemp SL
- Tolsa SA
- Laboratorios Maverick SL
- Asociación para la Certificación Española Forestal - PEFC España

**REDWine: increasing microalgae biomass feedstock by valorizing wine gaseous and liquid residues (May 2021-Abr 2025)**

**Participantes españoles:**

- Acondicionamiento Tarrasense Associacion
- Lipotec SA
- IDENER Research & Development Agrupación de Interés Económico

**UNLOCK: Unlocking a feather bioeconomy for keratin-based agricultural products (May 2021-Abr 2025)**

**Participantes españoles:**

- Fundación CIDETEC (Coordinador)
- Nuevas Tecnologías para el Desarrollo de Packaging y Productos Agroalimentarios con Componente Plástica SL
- Inkoa Sistemas SL
- AIMPLAS - Asociación de Investigación de Materiales Plásticos y Conexas
- Associacio Comarcal Urgell D'ajuda al Minusvalid

**MULTI-STR3AM: A sustainable multi-strain, multi-method, multi-product microalgae biorefinery integrating industrial side streams to create high-value products for food, feed and fragrance (May 2020-Abr 2025)**

**Participantes españoles:**

- Nutrafur SA
- IFF Benicarlo SL

**ALEHOOP: Biorefineries for the valorisation of macroalgal residual biomass and legume processing by-products to obtain new protein value chains for high-value food and feed applications (Jun 2020-Feb 2025)**

**Participantes españoles:**

- Contactica SL (Coordinador)
- Isanatur Spain SL
- Biosurya SL
- Garlan, S.Coop
- Vidara Life Ingredients SAU
- Asociación Nacional de Fabricantes de Conservas de Pescados y Mariscos-Centro Técnico Nacional de Conservación de Productos de la Pesca
- Fundación Tecnalia Research & Innovation
- Universidad de Cádiz
- Universidad de Vigo

# PATENTES BIOENERGÍA

Biocombustibles sólidos (pellets, biochars, bio RDFs, bio SRFs, etc.)		
Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024073625A1</a>	Aprovecho Res Center (US)	<b>Air supply systems for combustion of granular biomass fuels.</b> An air supply system for a pellet stove has an air supply system providing primary and secondary combustion air, the secondary combustion air being introduced into a burn pot above, and orthogonal to, the primary air. The system and methods for the use thereof improve the emissions performance of stoves burning solid fuel in granular form, including solid biomass fuel. Stoves incorporating such air supply systems have reduced emissions, including reduced emissions of one or more of carbon monoxide, particulate matter (PM2.5), and black carbon.
<a href="#">EP4353802A1</a>	Denesakis Ioannis Anastasios (GR)	<b>Method of the implementation in the production process of the technology for the conversion of solid biomass into solid biofuel pellets or briquettes.</b> Method of continuous and gradually regulated thermal process of conversion of the biochemical with plasticizing and adhesive properties of a solid substance - lignin- contained in the raw material of solid biomass of all kinds and at a rate of approximately 15% to 35% of the specific weight of the raw material in continuous and gradually adjustable liquefied (plasticized) form Fig.1 (14), final creation of continuous and gradually adjustable, given the welding of the raw material, applicable to the production process of conversion of solid biomass of all kinds into solid biofuel pellets - briquettes etc. and system (method application mechanism consisting of Scheme 1 integrated internally in the central core of the thermal hearth and parallel to the length protruding from both sides about ten centimeters from the thermal hearth (10, supply system fig.1 (21), (22), (4), (6), (5) with (1), being a connection point with raw material supply silo (2) and point (7 ) being a connection point with the compression chambers of the raw material of the technology of the pellet presses - briquette presses as well as presses of any other shape and volume as a solid biofuel.
<a href="#">WO2024096150A1</a>	Gyuwon Tech Co Ltd (KR)	<b>Solid fuel drying and supplying device, and heat generation system comprising same.</b> The present invention relates to a solid fuel drying and supplying device, and a heat generation system comprising same, and more specifically, to a solid fuel drying and supplying device that can easily supply solid fuel having a high moisture content, and a heat generation system comprising same. The present invention provides a solid fuel drying and supplying device comprising: a first housing which forms an internal space in which solid fuel is stored, and has a first solid fuel inlet formed on one side of the upper part and a first solid fuel outlet formed on the opposite side of the lower part; and at least one first dryer including a rotary drying device installed inside the first housing so as to be rotatable with respect to the first housing.
<a href="#">WO2024117454A1</a>	Kpower Energy Co Ltd (KR)	<b>Livestock manure solid fuel combustion device and biomass cogeneration system.</b> A livestock manure solid fuel combustion device is disclosed. The livestock manure solid fuel combustion device comprises: a base housing; a combustion chamber disposed over the base housing, communicating with the base housing, and including a fuel supply pipe through which biomass is supplied; a grate module having at least a part disposed inside the base housing, the grate module including a first sprocket, a second sprocket located in a first direction of the first sprocket, a first driver for rotating either the first sprocket or the second sprocket, a chain fastened to the first sprocket and the second sprocket, and a grate coupled to the chain to be driven along the chain; a grate cleaning module including a brush including metal bristles in contact with at least a part of the grate and disposed adjacent to the second sprocket, and a second driver for rotating the brush; and a control module configured to control the grate module and the grate cleaning module.
<a href="#">EP4375033A1</a>	Labek Michael (AT)	<b>Tool, device and method for the production of solid wood pellets.</b> The present invention relates to a cutting tool, a cutting device and a method for the production of solid wood pellets, as well as to solid wood pellets obtained by said method. The cutting tool is adapted to be mounted on a cutter block of a cutting device and includes a two-sided cutting edge having an upper cutting edge side and a lower cutting edge side. The lower cutting edge side including multiple pellet forming ribs sandwiching a respective pellet forming groove. The upper cutting edge side and the lower cutting edge side are formed, so that upon cutting a solid wood part, the upper cutting edge side pre-forms the solid wood part and the lower cutting edge side cuts multiple solid wood pellets.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024116616A1</a>	Nippon Steel Corp (JP)	<b>Sintered ore manufacturing method.</b> In the present invention, a sintering raw material contains: a pulverized product of a compression molded article obtained following a pulverization step (S112) in which a compression molded article, formed by compressing an aggregate of carbonized wood, is pulverized; and a powdered coke and/or anthracite. The apparent density of the compression molded article is 0.6 g/cm <sup>3</sup> .
<a href="#">WO2024128715A1</a>	Okadora Korea Co Ltd (KR)	<b>Energy-saving biochar production system using organic matter.</b> The present invention relates to an energy-saving biochar production system using organic matter. According to an embodiment of the present invention, an energy-saving biochar production system using organic matter is disclosed, wherein when biochar is produced by drying and carbonizing the organic matter containing moisture, dried pellets which are the dried organic matter are used as fuel for a heat source supply device for drying and carbonization, thus reducing energy use for heat source supply during drying and carbonization.
<a href="#">WO2024131072A1</a>	Shandong Mawang Fangfeng New Energy Tech Co Ltd (CN)	<b>Biomass pellet stove and using method therefor.</b> Disclosed in the present invention is a biomass pellet stove, comprising a casing. A combustion apparatus is provided in the casing; a combustion chamber is formed in the combustion apparatus; biomass pellets are combusted in the combustion chamber; an oxygen supply channel is formed in the combustion apparatus; a material bin is provided on one side of the combustion apparatus in the casing; a feeding assembly is provided between the material bin and the combustion chamber; and a combustion slag discharge apparatus used for conveniently discharging combustion ash and slag is provided in the combustion chamber. The present invention has a simple overall structure and is easy to use, can conveniently discharge the ash and slag in the combustion chamber, and can provide sufficient oxygen to the combustion chamber to enable fuel to be fully combusted.
<a href="#">WO2024089251A1</a>	Torrgreen BV (NL)	<b>Torrefaction reactor system.</b> The invention is directed to a torrefaction reactor system comprising three or more reactors and a sequence of stations comprising a discharge and loading station, a torrefaction station and a cooling station wherein each station is connected to a different reactor all connected to a reactor. The reactors are configured to disconnect from the discharge and loading station and torrefaction station and physically move to and connect to a next station in the sequence of stations and configured to disconnect from the cooling station and physically move to the discharge and loading station.
<a href="#">EP4368360A1</a>	Univ Degli Studi di Firenze (IT)	<b>Screening device for the production of calibrated wood chips for use in pellet-fuelled boilers and stoves.</b> A device is described for screening raw wood chips, to obtain calibrated wood chips to be used as fuel in pellet-fuelled boilers and stoves, of the type which involves the passage of flakes of these raw wood chips to be screened on elongated vibrating grates/sieves subjected to vibrations and inclined to the horizontal; this device includes: a first grid/sieve, provided with holes; and a second grate/sieve, having a plurality of parallel channels on the bottom of which discharge openings are obtained.

## Syngas

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024084020A1</a>	Clean Thermodynamic Energy Conv Ltd (GB)	<b>Waste processing system and method.</b> A waste processing system and method, the waste processing system comprising: a drying chamber which includes a cavity which is supplied with waste product and heated to dry the waste product and generate steam, optionally flash steam, optionally the drying chamber is supplied with a heated gas, optionally recirculated exhaust gas, to heat the waste product; a gasification chamber which includes a cavity which receives the waste product from the drying chamber and in which the waste product is heated to generate synthetic gas or syngas within a gasification zone, optionally the gasification chamber is supplied with a heated gas, optionally recirculated exhaust gas, to heat the waste product; and a thermal converter which receives the steam and the syngas or residual or tail gas from the syngas, and is configured to cause supercritical oxidation or combustion of the syngas or tail gas to provide a stream of heated gas.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024122503A1</a>	Neonite Co Ltd (JP)	<b>Biomass gasification method, biomass gasification system, and biomass power generation system.</b> To provide a biomass gasification method that is capable of enhancing the combustible-gas utilization efficiency in a highly productive manner. [Solution] The present invention provides a biomass gasification method including: an introducing step for introducing wood chips A; a heating step for heating the introduced wood chips A until pyrolysis thereof is possible; a gasifying step for generating a combustible gas G by pyrolyzing the heated wood chips A in a reducing atmosphere; a tar modifying step for modifying tar remaining in the combustible gas G by retaining the generated combustible gas G to turn the tar into the combustible gas G; and an extracting step for extracting the generated combustible gas G.
<a href="#">WO2024085796A1</a>	Plagazi AB (SE)	<b>Method and system for elimination of formation of dioxins and furans upon extraction of syngas.</b> The disclosure relates to a method for elimination of formation of dioxins and furans upon extraction of syngas, which comprises the steps of: providing a feedstock comprising organic materials, gasification of the feedstock, thereby forming a process gas flow of gaseous elements comprising carbon monoxide and hydrogen, cooling of the gaseous elements in at least two cooling steps. In the first cooling step, the gaseous elements are cooled from a starting temperature to a first predetermined temperature, and in the second cooling step (204), the gaseous elements are cooled to a second predetermined temperature that is lower than the first predetermined temperature. In the first cooling step, water is provided as cooling medium, wherein in the second cooling step, liquid carbon dioxide and/or water is provided as cooling medium, wherein the liquid carbon and/or water being used as cooling medium is fed directly into the process gas flow. The disclosure further relates to a system.
<a href="#">WO2024095189A1</a>	Remosa Srl (IT)	<b>Double fluid bed plant with pressure differential.</b> Solid-gas reaction plant, comprising: - a first fluid bed reactor and a second fluid bed reactor operating at different pressures, where the pressure of the second reactor is higher than the pressure of the first reactor, thereby defining a pressure differential between reactors, said first reactor and said second reactor extending between a respective tail and a respective head along an extension direction (X-X); - a first and second connection pipe configured to place the reactors in solid material communication, said first connection pipe being configured to transfer solid material from the first reactor to the second reactor, said second connection pipe being configured to transfer solid material from the second reactor to the first reactor, wherein: - a first mechanical adjusting system associated to the first connection pipe and configured to transfer the flow of solids from the first lower pressure reactor to the second higher pressure reactor maintaining the aforementioned differential between the aforementioned reactors by accumulation of solids in the pipe - a mechanical second pressure adjusting system associated to the second pipe and configured to transfer the flow of solids from the second reactor to the first reactor by pressure dissipation in the pipe.
<a href="#">EP4361233A1</a>	SK Innovation Co Ltd (KR)	<b>Manufacturing method and manufacturing apparatus of syngas, and manufacturing method of liquid hydrocarbon using the same.</b> The invention relates to a method for manufacturing syngas, the method including: (S1) heat-treating organic wastes under a catalyst in a first reactor to produce a first mixed gas; (S2) separating the catalyst and carbon dioxide (CO <sub>2</sub> ) from the first mixed gas, and recovering a mixed gas from which the catalyst and the carbon dioxide (CO <sub>2</sub> ) have been removed; (S3) converting the carbon dioxide (CO <sub>2</sub> ) separated in (S2) into carbon monoxide (CO) by a reverse Boudouard reaction in a second reactor; and (S4) mixing the mixed gas recovered in (S2) and the carbon monoxide (CO) converted in (S3) to produce syngas.
<a href="#">WO2024107792A1</a>	Sungas Renewables Inc (US)	<b>Increased processing flexibility in gasification.</b> Gasification processes utilizing carbonaceous feeds and preferably biomass are disclosed, which can implement one or more strategies for tar and ash management, heat and/or steam integration, as well as byproduct utilization, to address a number of challenges that can often involve conflicting requirements in terms of conditions (particularly temperature) and compositions. For example, a combination of direct and indirect cooling, together with other equipment, can avoid the need for a radiant syngas cooler to mitigate ash deposition. Alternatively, or in combination, available process heat and process steam may be exploited to attain acceptable temperature and moisture levels in the syngas being subjected to water-gas shift. Yet other advantages arise from the direct processing of material from a gaseous or liquid byproduct of downstream conversion or separation, via combustion and/or conversion, to improve heat integration and/or carbon utilization. Specific approaches utilize residence time variation, integration of generated steam, cross-exchanging of heat, utilization of byproducts, and/or recycle of treated water, in the production of synthesis gas or its downstream conversion products (e.g., hydrocarbons or methanol), for improved processing flexibility and/or economics.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024076286A1</a>	Teknikcentrum i Gnosjoe AB (SE)	<b>A method and gasifier for generating synthesis gas.</b> According to one aspect of the present invention there is provided a gasifier for generating synthesis gas. The gasifier comprises a gasification chamber comprising a biomass inlet and an oxidation zone wherein the biomass inlet is arranged axially above the oxidation zone so that the biomass is moved towards the oxidation zone by means of gravity when in use. The gasifier further comprises a rotating shaft which extends within the gasification chamber. The rotating shaft comprises first biomass engaging means configured to transport engaged biomass upwards in the pyrolysis zone, away from the oxidation zone, upon rotation of the rotating shaft so as to mix the biomass.

## Biogás

<a href="#">EP4349453A1</a>	Air Liquide (FR)	<b>Installation and process for producing biomethane.</b> The present invention relates to an installation for producing biomethane from organic waste feedstock comprising a biogas production system comprising at least one production vessel configured for containing digestate, and a biogas upgrading system comprising a device for increasing the pressure of biogas and a membrane separation unit, the membrane separation unit comprising i) a first membrane separation stage configured to produce a first permeate and a first retentate, the first membrane separation stage comprising a first stage gas separation membrane more permeable to carbon dioxide than to methane, a first feed inlet, a first permeate outlet, and a first retentate outlet, and ii) a second membrane separation stage configured to produce a second permeate and a second retentate, the second membrane stage comprising a second stage gas separation membrane more permeable to carbon dioxide than to methane, a second feed inlet, a second permeate outlet, and a second retentate outlet, the second feed inlet being in fluid communication with the first retentate outlet, the installation further comprising a feed conduit connecting the biogas production system to the biogas upgrading system for directing biogas produced by the biogas production system to the biogas upgrading system and a recirculation conduit connecting the second permeate outlet to the at least one production vessel of the biogas production system for injecting the second permeate into the digestate.
<a href="#">EP4349455A1</a>	Air Liquide (FR)	<b>Improved integrated system and method for methane production using off gas recycling to anaerobic digester from a gas separation membrane unit.</b> Raw biogas from an anaerobic digester is fed to a membrane separation unit that produces methane rich biomethane and a CO <sub>2</sub> rich permeate that is recycled to the anaerobic digester where it is mixed with the digestate.
<a href="#">WO2024084940A1</a>	Air Water Inc (JP)	<b>Biogas storage apparatus, and biogas discharging method.</b> Provided is a biogas storage apparatus provided with: a tank which contains an adsorbent capable of adsorbing a biogas and in which the biogas is stored; a biogas introduction/discharge piping which is connected to the tank and through which the biogas is introduced into the tank and the biogas is discharged from the tank; and a biogas return piping which connects the tank and the biogas introduction/discharge piping and through which at least a portion of the biogas discharged from the tank is returned to the tank.
<a href="#">WO2024110895A1</a>	Biogas Eng Srl (IT)	<b>A mixer for biogas fermenters, and method for the assembly thereof.</b> A mixer for biogas fermenters, suitable for stirring a fermenting material, comprises a shaft, rotatable about an axis of rotation (x), a stirring element, comprising an attachment portion welded to the shaft; and a pair of attachment plates, radially protruding from the shaft comprising respective connection surfaces mutually facing each other and spaced apart along the axial direction of the shaft, to which the attachment portion of the stirring element is fixed.
<a href="#">WO2024126883A1</a>	Genia Bioenergy SL (ES)	<b>Method and system for obtaining biogas from rice straw.</b> The invention relates to a method and system for obtaining biogas from rice straw, which comprises the following steps: applying a biological pretreatment by ensiling rice straw; applying a physical-mechanical, chemical or biological pre-treatment to break down the lignin walls of the previously ensiled rice straw; mixing the pretreated rice straw with a diluent liquid; carrying out psychrophilic acidification digestion of the rice straw mixture; and carrying out acetogenic and methanogenic digestion of the psychrophilic acidification digestate to obtain biogas.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024115429A1</a>	Hitachi Zosen Inova AG (CH)	<b>Method for process state classification of a biogas digester based on process variables of a biogas plant.</b> Method for classifying a process state of a biogas digester based on at least one process variable of a biogas plant, the method comprising the steps of: a) Measuring a set of values of at least one process variable of a biogas digester; b) Providing a model that monitors the stability of the biogas digester, wherein the model is trained with a dataset comprising historical data of the digester of the biogas plant, the historical data including the at least one process variable; c) Implementing the measured set of values of the process variable of step a) into the model of step b) with the aid of a data processing unit; d) Identifying whether an outlier occurs in the set of values of step a), after implementing the at least one process variable into the model; e) Classifying a process state indicative of the stability of the biogas digester based on the presence or absence of the identified outlier of step d) with the aid of the data processing unit.
<a href="#">WO2024126959A1</a>	Timab Magnesium (FR)	<b>Use of magnesium hydroxide in an anaerobic digester.</b> The present invention relates to the use of magnesium hydroxide to improve the conversion of organic carbon from an incoming organic material to biomethane in an anaerobic digester.
<a href="#">WO2024069599A1</a>	Qube Renewables Ltd (GB)	<b>A system and method for anaerobic dry digestion of lignocellulosic biomass.</b> The present invention is directed to a system for anaerobic dry digestion of lignocellulosic biomass comprising: a dry digester comprising a ground sheet and a cover for the lignocellulosic biomass. The digester generates leachate and biogas from anaerobic digestion. The system includes an irrigation/port system for wetting of the lignocellulosic biomass under the cover; a sump system for monitoring the leachate; a rotary valve connected at least to the pump and the dry digester; a gas storage bladder for collecting the biogas, the gas storage bladder connected at least to a gas treatment unit and a gas booster pump; and a hi-rate digester tank connected at least to the rotary valve for receiving the leachate therefrom.
<a href="#">WO2024115589A1</a>	Univ Aarhus (DK)	<b>System and method for optimizing bacterial methanotrophy in manure tanks.</b> The disclosure relates to a system and a method for optimizing the bacterial methanotrophy conditions inside covered manure tanks. One embodiment relates to a method for automatically controlling aerobic microbial methanotrophy in an upper crust of a ventilated livestock manure storage tank (A) having an airtight cover above the upper crust defining a headspace between the upper crust and the airtight cover, the method comprising the steps of continuously measuring a concentration of methane representing a concentration of methane in the headspace of the livestock manure tank, continuously monitoring a rate of change in the concentration of methane in the headspace of the livestock manure tank, and automatically adjusting a flow of ventilating air to the manure tank based on said monitored rate of change, said flow of ventilating air fluidly connecting the headspace of the livestock manure tank with outside atmospheric conditions, thereby optimizing conditions for aerobic microbial methanotrophy in the upper crust to reduce emission of methane from the manure storage tank.
<a href="#">ES2968496A1</a>	Univ Valladolid (ES)	<b>Biogas production system.</b> Biogas production system from a biological substrate that comprises an anaerobic digester, a first circuit for supplying electrical energy to the anaerobic digester, a second circuit of thermal energy supply to the anaerobic digester, where the first circuit and the second circuit are connected to at least one hybrid solar panel, all for the production of biogas in environments isolated with solar energy support.

## Bioalcoholes (bioetanol, biometanol, etc.)

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024097243A1</a>	AB Mauri Food Inc (US)	<b>Yeast strain development for ethanol production.</b> Disclosed herein are yeast strains and derivatives thereof, as well as compositions comprising the yeast strains for use in ethanol manufacture. The disclosure also relates to processes for producing ethanol from biomass using the yeast strains and compositions. In particular, the yeast strains produce lower glycerol and higher ethanol, and have a higher temperature tolerance and higher fermentation rate than strains and products currently used in ethanol production processes.
<a href="#">WO2024123691A1</a>	Danisco US Inc (US)	<b>Increased ethanol production by yeast in high dissolved solids.</b> Described are compositions and methods relating to modified yeast with disrupted genes that produces an increased amount of ethanol and, in some cases, a decreased amount of acetate compared to otherwise identical parental cells. Such yeast is particularly useful for large-scale ethanol production from starch substrates with high dissolved solids.



Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024108288A1</a>	E101 Empresa de Techs para Etanol Ltda (BR)	<b>Process for producing ethanol on industrial scale.</b> The invention refers to a process for producing ethanol on industrial scale, comprising the provision of a source of carbon comprising hydrolyzed sucrose as the carbon source for the alcoholic fermentation step by leaven. The present invention also refers to a system to perform said process, comprising at least one alcoholic fermentation unit, to which a source of carbon comprising hydrolyzed sucrose is provided as a carbon source for leaven. In a preferred embodiment of the present invention, sucrose hydrolysis is performed by enzymatic inversion as obtained from leaven produced by the industrial productive chain of ethanol itself. The invention also refers to the use of a source of carbon comprising hydrolyzed sucrose as the carbon source for the alcoholic fermentation step by leaven. The embodiments of the present invention allow to reach an increase in the conversion rate of sucrose reducing sugars into ethanol, which is observed at the end of the alcoholic fermentation step.
<a href="#">WO2024121702A1</a>	Eni Spa (IT)	<b>Separation process of alcohol mixtures with high water content by liquid-liquid extraction.</b> The present invention relates to a process for separating alcohol mixtures with high water content using naphtha as an extraction solvent. In particular, the present invention is directed to a process for producing a biofuel comprising or consisting of a step of liquid-liquid extraction of a mixture of C2- C3/C2-C4 alcohols from a mixture of C2-C3/C2-C4 alcohols and water with an extraction solvent, where the extraction solvent is a naphtha.
<a href="#">WO2024105280A1</a>	West Cork Distillers Ltd (IE)	<b>A method of making an ethanol composition and a separate galactose composition by fermentation.</b> A method of making an ethanol composition and a separate galactose composition by fermentation is described. The method does not require wheat substrates and does not require a distillation step to separate out the ethanol. The methods comprises treating the lactose containing substrate with a beta-galactosidase enzyme to provide an enzyme treated substrate in which at least some of the lactose in the substrate has been enzymatically converted into glucose and galactose, fermenting in a fermentation medium comprising the enzyme-treated substrate a glucose fermenting yeast to provide a fermentation broth containing ethanol and galactose, and separating the fermentation broth into an ethanol composition and a separate galactose composition. The fermentation broth is generally separated by reverse osmosis into a retentate and a permeate, in which the permeate is the ethanol composition and the retentate is the galactose composition.
<a href="#">EP4370673A1</a>	Xylogenics Inc (US)	<b>Strains of saccharomyces cerevisiae that exhibit an increased ability to ferment oligosaccharides into ethanol without supplemental glucoamylase and methods of making and using the same.</b> 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.

Biodiésel/ hidrobiodiésel		
Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4382588A1</a>	BASF SE (DE)	<b>Additives for improving thermal stability of fuels.</b> The present invention relates to the use of certain polymers as fuel or lubricant additives for improving the stability of fuels, as well as to fuels and lubricants added therewith, in particular diesel fuels and especially those containing biofuel oils.
<a href="#">WO2024132853A1</a>	BASF SE (DE)	<b>Cost and energy efficient biodiesel production from natural or industrial waste oil with low CO2 footprint.</b> The invention relates to method of producing fatty acid alkyl ester from an organic oil source containing at least one free fatty acid, wherein the vegetable and/or animal waste oil has an acid number of at least 30 mg KOH/g and wherein the method comprises the steps of c) reacting the oil source with glycerol at a temperature, which is at least 110°C and does not exceed 180°C during the reaction, in the presence of a catalyst comprising at least methane sulfonic acid or the homo anhydride thereof; and b) acidic transesterification at a temperature, which is at least 110°C and does not exceed 160°C during the reaction of the reaction product from step a) with an alkanol, wherein the reaction product from step a) comprises the at least one free fatty acid reacted with glycerol, glycerol and the catalyst; and c) isolating the fatty acid alkyl ester from the reaction product from step b), wherein the reaction product from step b) comprises the fatty acid alkyl ester, glycerol, the catalyst and the alkanol and d) isolating a mixture of glycerol and catalyst from the reaction product after step c) and e) repeating steps a) to c) provided that at least part of the glycerol and the catalyst used in step a) results from the mixture of step d).

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024137793A1</a>	Ecolab USA Inc (US)	<b>Compositions and methods for inhibiting oxidation of natural oil based composition using aminophenol antioxidant.</b> Compositions including a vegetable- or animal-derived oil, such as fatty acid alkyl esters, are stabilized against oxidation using an oxygenated aminophenol antioxidant. The aminophenol includes one or two carbon-containing group(s) including a hydroxyl group and/or ether group separated from the N atom by one or more carbon atoms. The oxygenated aminophenol antioxidants effective at controlling oxidation at moderate and even low amounts, useful in a variety of different oil and methyl ester fatty acid preparations, and were effective at elevated temperatures, and performed significantly better than convention antioxidants.
<a href="#">WO2024132882A1</a>	Hutanbio Ltd (GB)	<b>Lipid producing marine microalga.</b> The invention provides marine microalgal strain of the Ulvales order of the Ulvophyceae class which have utility in the efficient and environmentally beneficial preparation of triacylglycerides and polyunsaturated fatty acids, which can in turn be used for fuels or feeds.
<a href="#">WO2024069020A1</a>	Rec Reliable Eng Concepts GmbH et al. (DE)	<b>Fuel and manufacture of the same.</b> The present invention provides fuels for combustion engines of the diesel type and petrol type and especially to fuels having an increased content of fuel components originating from renewable sources. In particular, diesel type fuels are provided, which contain at least solketal, renewable alkane fuel and biodiesel. Petrol fuels are also provided, wherein solketal is provided as a substitute for fossil petrol or other petrol fuel components. The present invention further provides methods for manufacturing the fuels of the invention as well as uses thereof.
<a href="#">WO2024107490A2</a>	Renewable Energy Group Inc (US)	<b>Hydrodeoxygenation of phenolic lipids and renewable hydrocarbon fuels produced therefrom.</b> The invention relates to renewable hydrocarbons, and more particularly to biomass-based diesel fuel produced in a process including hydrodeoxygenation (HDO) of phenolic lipids. The process may generally include combining a phenolic lipid and a hydrocarbon diluent to provide a hydrocarbon-diluted phenolic lipid then subjecting the hydrocarbon-diluted phenolic lipid to hydrodeoxygenation in a reactor to provide a reactor effluent including a hydrodeoxygenated phenolic lipid. The hydrodeoxygenated phenolic lipid is separated from the reactor effluent.
<a href="#">WO2024076902A1</a>	Renewable Energy Group Inc (US)	<b>Method for manufacture of a biomass-based diesel from feedstock from olefin oligomers.</b> The present technology relates to biofuels, and more particularly, to biomass-based diesel from olefin oligomers. Diesel fuels with cetane number of 49 or greater are prepared by blending hydrocarbons produced by olefin oligomerization with renewable diesel, resulting in a blended fuel that has a lower cloud point than the cloud point of the renewable diesel. A different aspect relates to an integrated process for lipid HDO and olefin oligomerization wherein the propane coproduct of lipid HDO is subjected to dehydrogenation to produce a vapor stream having propylene and hydrogen. The propylene is subsequently oligomerized to iso-olefins and the iso-olefins are combined with the lipid feed for hydrogenation in the HDO reactor.
<a href="#">WO2024072846A1</a>	Strata Sustainability LLC (US)	<b>Waste management and resource recovery systems and methods.</b> A system for managing and recovering resources from waste materials is provided. The system includes a waste material receiving and sorting area for receiving and sorting of waste materials. The waste materials include organic waste, recyclable waste, hazardous waste, non-toxic combustible waste, or combinations thereof. A composting area is included for processing a first portion of the organic waste into compost. A biodiesel processor is included for converting a second portion of the organic waste into biofuel. A material processing area is included for processing the recyclable waste into recycled materials. A material management area is included for storing the hazardous waste. An incinerator is included for incinerating the non-toxic combustible waste. In some embodiments, at least one bioswale area is included for collecting and filtering polluted stormwater runoff.
<a href="#">WO2024134057A1</a>	TotalEnergies OneTech (FR)	<b>Fuel composition comprising a renewable base, a fatty acid ester and a polysiloxane additive.</b> The present invention relates to a fuel composition comprising one or more bases consisting of fatty acids and/or hydrogenated fatty acid esters in combination with at least one compound selected from among fatty acid methyl esters and ethyl esters, and at least one additive selected from among polysiloxanes and oxyalkylenated polysiloxanes. The present invention also relates to the use of such a fuel composition for powering an engine, in particular a diesel engine.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024119202A1</a>	Vaal Univ of Technology (ZA)	<b>Immobilised lipase and method of producing biodiesel using the same.</b> The invention relates to a lipase isolated from the goat gut rumen metagenome having protein SEQ ID 1 of 298 amino acids and being encoded for by gene SEQ ID1. The invention relates more specifically to this lipase being engineered to be an immobilised lipase, the same being immobilised on Polyethylene glycol (PEG) coated iron Magnetic Nanoparticles (MNPs). The immobilised lipase is indicated for use in a method of converting a waste oil to biodiesel, the method comprising utilizing the immobilised lipase to catalyse the conversion of said waste oils to biodiesel in the presence of a short-chain alcohol. The triacylglycerol in the waste oils being converted to alkyl esters (biodiesel) and glycerin in a reaction with an alcohol which is catalysed by said lipases.
<a href="#">WO2024097990A1</a>	Xylome Corp (US)	<b>Carbohydrolytic and lipogenic recombinant yeasts.</b> Recombinant yeasts bioengineered to overexpress genes for utilization of cellulosic and hemicellulosic fibers and/or produce lipid, and methods of use thereof. The yeasts are modified to express, constitutively express, or overexpress an exo-cellobiohydrolase I, an exo-cellobiohydrolase II, an endoglucanase, an endoxylanase, or any combination thereof. The yeasts may also be modified to express, constitutively express, or overexpress a lytic polysaccharide monoxygenase, an arabionofuranosidase, a xylanases, an acetylxyln esterase, or any combination thereof. The methods include cultivating the recombinant yeasts to convert low value organic stillage byproducts such as cellulose and hemicellulose into lipids suitable for biodiesel production and other higher value uses.

## Bio-jet fuels

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024071264A1</a>	National Univ Corporation Tokyo Univ of Agriculture and Technology et al. (JP)	<b>Bio jet fuel production catalyst, and method for producing bio jet fuel using bio jet fuel production catalyst.</b> For the purpose of providing a bio jet fuel production catalyst to be used in a bio jet fuel production method capable of readily producing a high-quality bio jet fuel having high energy-saving performance, a bio jet fuel production catalyst is provided, which is used in a bio jet fuel production method in which a biomass-derived oil containing triacylglycerol is modified to produce a bio jet fuel, the catalyst comprising a solid base catalyst supported on a solid acid catalyst, in which zeolite is used as the solid acid catalyst, an oxide of a metal belonging to Group-2 is used as the solid base catalyst, and a noble metal is further supported.
<a href="#">WO2024079387A1</a>	Neste Oyj (FI)	<b>A process for producing an aviation fuel component.</b> A process for producing a renewable aviation fuel component is described, wherein the process comprises providing a renewable feedstock and subjecting the feedstock to a decarboxylation and/or decarbonylation (DCO) reaction (20) in a DCO zone, thereby obtaining a DCO effluent (21); subjecting at least a portion of the DCO effluent to a hydrotreatment (HT) reaction (30) in a HT zone, to obtain a hydrotreated effluent (31); subjecting the hydrotreated effluent to a gas-liquid separation (40) to obtain a degassed hydrotreated effluent (41); subjecting at least a portion of the degassed hydrotreated effluent to hydroisomerisation (H-ISO) (50), thereby obtaining a hydroisomerised effluent (51); and subjecting at least a portion of the hydroisomerised effluent (51) to a fractionation (60), and recovering at least the renewable aviation fuel component.
<a href="#">WO2024134021A1</a>	Neste Oyj (FI)	<b>Process for producing renewable hydrocarbons from renewable feedstock comprising phosphorus as impurity.</b> Herein is provided process for producing renewable hydrocarbons suitable for use in fuel applications from a renewable feedstock. Said feedstock comprises at least one lipophilic phosphorus compound, which is difficult to remove therefrom by conventional purification methods. The amount of this "difficult to remove" phosphorus is determined and the result thereof is used for selecting a suitable purification to which the feedstock is then subjected. The purified renewable feedstock can then be hydrotreated catalytically.
<a href="#">WO2024086637A1</a>	UOP LLC (US)	<b>Process for producing jet fuel with heat integration.</b> A process isolates a liquid hydrocracked stream from a liquid hydroisomerized stream, so heat in the hydrocracked stream can be preserved. Preserving heat in the hydrocracked stream avoids having to reheat the hydrocracked stream before product fractionation. Particularly, kerosene in the hydrocracked stream is not cooled with the hydroisomerized stream and then reheated in fractionation to distill the kerosene range hydrocarbons from the diesel range hydrocarbons.

## Biohidrógeno

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024076772A1</a>	Clean Energy Entpr Inc (US)	<b>Method and device for making hydrogen from heterogenous waste.</b> The invention pertains to a system for extracting hydrogen from a chemically organic feedstock, comprising: a thermo-gasifier supplied with the chemically organic feedstock and adapted to heat it up the feedstock to a temperature of at least 800°C while conveying it inside a gasification chamber by an auger and to collect a thermogas, a duct line to convey the thermogas to a high temperature reformer exposing it to a temperature comprised between 1200°C and 1,400°C and releasing a high temperature reformed gas, a duct line conveying the high temperature reformed gas to a heat chamber of the thermo-gasifier, the heat chamber comprising a chamber outlet to release the reformed gas after circulation in the heat chamber, a duct line conveying the reformed gas from the chamber outlet to an installation adapted to separate hydrogen from the reformed gas, and a hydrogen storage for the hydrogen produced by the installation.
<a href="#">WO2024087097A1</a>	Harbin Inst Technology (CN)	<b>Method for simultaneously treating wastewater and producing clean energy by means of sludge fermentation and microalgal culture.</b> A method for simultaneously treating wastewater and producing clean energy by means of sludge fermentation and microalgal culture. The method comprises the following steps: 1, pre-treating sludge to obtain a treatment liquid A; 2, introducing the treatment liquid A into wastewater B, and subjecting same to anaerobic fermentation to generate hydrogen and a fermentation liquid C; 3, after the fermentation is stable, discharging a certain amount of the fermentation liquid C, and replenishing fresh wastewater B; 4, treating the fermentation liquid C to obtain a fermentation liquid D; 5, introducing the fermentation liquid D into a microalgal seed solution E; 6, discharging a certain amount of a microalgal fermentation liquid F, and replenishing the fermentation liquid D; and 7, collecting microalgal biomass in the microalgal fermentation liquid F, and extracting grease contained in the microalgae. By means of the method, clean energy can be recovered, thereby achieving recycling of wastewater.
<a href="#">WO2024108186A2</a>	Watt Power Inc (US)	<b>Production of hydrogen from carbohydrates using viologen catalysts.</b> The processes and apparatus described herein are directed to methods of making hydrogen utilizing a renewable energy source and catalysts in a dual chamber apparatus. A reaction carried out in one chamber of the apparatus produces electrons that move through a selectively permeable barrier where they reduce hydrogen ions in a second reaction resulting in hydrogen gas (H <sub>2</sub> ).

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

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024076524A2</a>	Bioaccelergy Ventures Corp (US)	<b>Integrated process for converting camelina and carinata to fuels and lubricant base stocks.</b> An integrated process having an ultra-low GHG footprint for converting Camelina based biomass to liquid fuels and lubricant base stocks in which a Camelina based biomass feed is converted to liquids by a multistep hydroprocessing method and the liquids are upgraded to produce premium hydrocarbon fuels and lubricants.
<a href="#">WO2024085921A1</a>	Chevron USA Inc (US)	<b>Fluid bed lipid conversion.</b> A process involves (a) processing a lipid feedstock over a fluidized particulate catalyst in a gas-based stream in a fluid bed reactor to obtain a processed stream and spent catalyst comprising coke deposits, (b) continuously introducing the spent catalyst comprising the coke deposits to a catalyst regeneration unit, (c) continuously operating the catalyst regeneration unit to burn off the coke deposits from the spent catalyst to obtain a regenerated particulate catalyst, and (d) continuously introducing the regenerated, particulate catalyst from the catalyst regeneration unit to the fluid bed reactor.
<a href="#">EP4355881A1</a>	Danisco US INC (US)	<b>Solvothermal liquefaction process for producing bio-crude from biomas.</b> The present disclosure refers to a process of obtaining a biocrude from biomass, where said process comprises the solvothermal liquefaction of the biomass in the presence of a mixture of solvents, until obtaining a gaseous phase, a solid phase, an aqueous liquid phase and an organic liquid phase comprising the biocrude. Wherein the mixture of solvents comprises between 0.5% w/w to 99.5% w/w of water and at least one solvent; and wherein the solvent is selected from alcohols, ketones, aldehydes, or precursors thereof under the processing conditions. The process described herein allows the use of biomass for the production of renewable fuels, as well as obtaining a biocrude with a yield greater than or equal to 30%, with a calorific value between 20 and 35 MJ/Kg and with a sulfur percentage lower than 1% w/w.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4370489A1</a>	Exxonmobil Technology & Engineering Company (US)	<b>Integrated conversion and oligomerization of bio-derived alcohols.</b> 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.
<a href="#">WO2024069637A1</a>	Hindustan Petroleum Corp Ltd (IN)	<b>A process for production of naphtha and light olefins.</b> An aspect of the present disclosure provides a process for production of naphtha and light olefins comprising: (a) feeding a pyrolysis oil or fractionated heavy product thereof, and at least one of: used cooking oil (UCO) and vacuum gas oil (VGO) to a fluid catalytic cracking (FCC) reactor; (b) catalytically cracking said pyrolysis oil or fractionated heavy product thereof, and the at least one of: used cooking oil (UCO) and vacuum gas oil (VGO) in the fluid catalytic cracking (FCC) reactor to obtain a liquid stream of products, a gaseous stream of products comprising light olefins and a bottoms stream; and (c) subjecting the liquid stream of products to fractionation to obtain a naphtha stream. The advantageous, simple yet economical process of the present disclosure affords production of high quality hydrocarbon fuels such as LPG, naphtha and light olefins conserving energy and improving the overall productivity making the process technically and commercially feasible.
<a href="#">WO2024089298A1</a>	Selabtec Sciences SL (ES)	<b>Method for preparing a biofuel composition.</b> The present invention relates to a process for producing a FAGE-based biofuel composition, the process being characterized by an enzymatic transesterification of fatty acid alkyl esters with glycerol formal. The invention is also directed to the biofuel composition obtained by said process as well as to the uses thereof.
<a href="#">WO2024115863A1</a>	TotalEnergies OneTech (FR)	<b>Fuel composition comprising a renewable base and a nitrogen-containing heterocyclic aromatic compound.</b> The present invention relates to a fuel composition comprising at least 50% by weight, based on the total weight of the composition, of one or more paraffinic hydrocarbon cuts consisting of fatty acids and/or hydrogenated fatty acid esters (HEFA) having a distillation range within the range from 120 to 350°C, and at least 0.05% by weight, based on the total weight of the composition, of one or more nitrogen-containing heterocyclic aromatic compounds of formula (I): the content of aromatic hydrocarbons being less than 5% by weight based on the total weight of the composition. The compounds of formula (I) make it possible to increase the self-ignition temperature of the composition. This composition is useful for fuelling any internal combustion engine of a land, marine, aerial or space craft and in particular an aircraft or rocket engine.
<a href="#">EP4372069A1</a>	Varo Energy Marketing AG (CH)	<b>Cashew Nut Shell Liquid For Biofuel Applications.</b> The present invention is directed to a process of treating cashew nut shell liquid comprising the steps of (A) providing a cashew nut shell liquid; (B) heating the cashew nut shell liquid at a temperature in the range of from 120 to 250 °C; (C) contacting the cashew nut shell liquid with at least one adsorbent material and/or at least one filter aid and removing the at least one adsorbent material and/or the at least one filter aid; wherein step (C) is performed after, concurrently with and/or before step (B). The present invention is also directed to a treated cashew nut shell liquid obtainable by the process, as well as a biofuel comprising the treated cashew nut shell liquid. Further, the present invention is directed to the use of the treated cashew nut shell liquid as a biofuel.
<a href="#">WO2024132815A1</a>	Votion Biorefineries AB (SE)	<b>A method for the preparation of chemicals and fuels from biomass.</b> The present invention relates to a method for the preparation of chemicals or fuels from biomass and/or lignin, wherein the method comprises the steps of - base-catalyzed liquefaction of the biomass and/or lignin in a non-aqueous fluid comprising ethanol, wherein the base-catalyzed liquefaction comprises subjecting the biomass and/or lignin to thermal treatment at a temperature of at most 240 ° in the presence of ethanol and at least one base selected from potassium hydroxide, potassium methoxide, potassium ethoxide, potassium tert-butoxide and potassium hydride, to obtain a liquid comprising a bio-oil; - adding an acid to precipitate potassium salts, and removing the precipitated salts; - demetallization of the bio-oil to obtain a demetallized bio-oil having a total metal content of less than 200 ppm and a total phosphorus content less than 10 ppm; followed by - hydroprocessing and fractionation of the bio-oil.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024132816A1</a>	Votion Biorefineries AB (SE)	<b>A method for the production of a bark oil.</b> The present invention relates to a method for the preparation of a bark oil derived from a biomass comprising at least 50 wt% bark, wherein the method comprises the steps of: - adding a biomass comprising at least 50 wt% bark, calculated as dry bark on the total dry weight of the biomass, wherein the biomass contains from 0.1 to 65 wt% water; - adding a base comprising potassium hydroxide, potassium alkoxide or potassium hydride, and a non-aqueous fluid comprising methanol, ethanol, propanol, or a bio-oil; - obtaining a mixture and subjecting said mixture to thermal treatment at a temperature of from 100 to 350 °C to obtain a bark oil; - adding an acid to the bark oil to precipitate salt; and - removing inorganic compounds from the bark oil. The invention further relates to a bark oil obtainable by the method.

## PATENTES BIOPRODUCTOS

Biomateriales (de construcción, medicina, embalaje, etc.)		
Biocomposites y biofibras		
Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024100420A1</a>	Arda Biomaterials Ltd (GB)	<b>A bio-based leather substitute material.</b> The present invention is directed towards a bio-based leather substitute material comprising a reaction product of a protein extract derived from Brewer's Spent Grain or Distiller's Spent Grain and a crosslinker. The present invention also encompasses constructs and articles formed therefrom.
<a href="#">WO2024094791A1</a>	Gate Gourmet Switzerland GmbH (CH)	<b>Method for producing cellulose fiber-based fluffboard products.</b> The present invention relates to a method of producing cellulose fiber-based products, the method comprising the steps of: • (ia) providing at least two layers including one first and one second layer, and wherein said first and second layer each comprise cellulose fibers, and wherein at least one side of said first and said second layer is pre-treated with a first heat curing mixture; • (ib) curing said pre-treated at least two layers by exposure to elevated temperatures; • (iia) wetting said at least two cured layers; • (iib) arranging said at least two wetted layers in a superimposed relationship to each other in a forming mold of a form press; • (iii) form pressing said stack in a forming mold, wherein in said step (iii) said at least two layers including said one first and said one second layer are moveable with respect to each other and wherein the cellulose fibers are derived from fluffboard or fluff pulp.
<a href="#">WO2024091560A1</a>	Hanwha Azdel Inc (US)	<b>Fiber reinforced thermoplastic composite articles including biomaterials.</b> Thermoplastic composite articles are described that comprise biomaterials in one or more of a core layer and a skin layer. In certain arrangements, the thermoplastic composite article can include a porous core layer comprising a web of open celled structures comprising random crossing over of a plurality of reinforcing fibers held together by a thermoplastic material. The thermoplastic material can include virgin and recycled thermoplastic materials if desired. The web may also comprise biomaterials that can be bioparticles, biofibers or both. Exterior and interior components including the thermoplastic composite articles are also described.
<a href="#">WO2024085559A1</a>	Hansol Paper Co Ltd (KR)	<b>Cellulose composite and rubber composition containing same.</b> The present invention relates to a cellulose composite, a manufacturing method therefor, and a rubber composition including same, wherein the cellulose composite comprises cellulose fibers and first and second spacers distributed among the cellulose fibers, the first spacer including an organic monomer or polymer with a hydrophilic-lipophilic balance (HLB) of 8 to 18, the second spacer including an organic monomer or polymer with an HLB of 1 to less than 8. In the cellulose composite according to the present invention, the first spacer distributed among the cellulose fibers inhibits inter-fiber hydrogen bonding by binding to the hydroxyl groups on the surface of the cellulose fibers and the second spacer improves compatibility with resins. Thus, when used as a reinforcement agent in resins, the cellulose composite enhances the dispersibility of cellulose fibers, thereby preventing the degradation of the mechanical properties of the resin.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024101192A1</a>	Hitachi Ltd (JP)	<b>Composite resin composition, method for producing same, insulating resin complex and power apparatus using same.</b> Provided are: a composite resin composition which contains a plant-based phenolic polymer, exhibits excellent insulation performance and mechanical strength, and has little adverse effect on the environment if discarded; a method for producing same; an insulating resin complex; and a power apparatus using same. The composite resin composition is obtained by curing, by means of a thermosetting resin monomer, a mixture containing the monomer, a plant-based phenolic polymer, a polymerization accelerator and, optionally, a curing agent, and is characterized in that the mixture further contains a dispersing agent, and the plant-based phenolic polymer has a surface treatment functional group that exhibits reactivity with the thermosetting resin monomer.
<a href="#">WO2024128989A1</a>	Isik Goekce Aydan (TR)	<b>Mycelium composite production method.</b> The invention relates to a fully biodegradable carbon-negative alternative sustainable biocomposite material and its production method for use in all areas of industry, the packaging, automotive and construction sectors. In particular, the invention is pertinent to a biotechnological production method that involves the use of the symbiotic relationship of the mycelium, which is the root system of fungi, and algae, from industrial and agricultural waste.
<a href="#">EP4349918A1</a>	Sika Tech AG (CH)	<b>Method for producing batch material comprising renewable raw materials and bitumen for acoustic damping compositions.</b> The invention is directed to a method of mixing at least one bitumen component B and at least one solid particulate cellulose-containing filler FW for a mixing time of $\geq 10$ min at a mixing temperature of 100 - 180 °C, wherein the weight ratio of solid particulate cellulose-containing filler FW to bitumen B (FW / B) is between 6 : 1 and 1 : 1. The mixture has a low potential for absorbing humidity during storage and safeguards the ability of the cellulose-containing particles to contribute to a high loss factor in an acoustic damping material. The invention is also directed to use of the mixture in an acoustic damping material for damping of vibrations and noise in transportation vehicles and white goods, to a vibration and noise damping element comprising a damping layer composed of the acoustic damping material, to a method for applying a vibration and noise damping element to a noise emitting surface of a substrate, and to a vibration damped system comprising a substrate and the vibration and noise damping element bonded to a noise emitting surface of the substrate.
<a href="#">WO2024074761A1</a>	UPM Kymmene Corp (FI)	<b>A bio-based composite material and a bio-based composite.</b> A bio-based composite material is disclosed. The bio-based composite material comprises of sawdust and a resin matrix based on lignin and tannin, wherein the bio-based composite material comprises sawdust in a total amount of 25 – 90 weight-% based on the total weight of the bio-based composite material. Further is disclosed a method for producing a bio-based composite material, a bio-based composite, and a method for producing a bio-based composite.
<a href="#">WO2024079579A1</a>	Unilin BV (BE)	<b>Glue for boards.</b> A board comprising cellulose-containing materials, such as vegetable fibres and/or wood chips and/or wood pieces, and a cured glue that bonds these cellulose-containing materials to one another, wherein the cured glue is obtained by the curing of a glue that is a combination of at least one protein-containing fraction and a second fraction, wherein the second fraction comprises molecules selected from the list of: amino acids, peptides, polyamines comprising amino acids, polyamides comprising amino acids and polyimines, a method for making such boards, and a glue for such boards.
<a href="#">WO2024069016A1</a>	Westfiber GmbH (DE)	<b>Cereal composite article, in particular oat composite article, corresponding uses, method and kit.</b> A cereal composite article, in particular oat composite article comprising - polymer material and - cereal fibers, in particular oat fibers.

## Bioplásticos

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024110684A1</a>	Agrointec Solutions SL (ES)	<b>Composition obtained from red algae.</b> The present invention relates to a composition based on a polymer derived from agar originating from red alga, an active component that can be an antioxidant, a plant extract, fertilising compounds, etc., and optionally certain additives. This composition can be used as a leaf and soil fertiliser and plant protection product and also to obtain bioplastics that can be used in several applications.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024086701A1</a>	Gore & Ass (US)	<b>PHA based microporous articles and methods of forming the same.</b> PHA-based microporous and tough articles having node and fibril structures, and processes to create these articles using a below the melt processing approach are provided. A method of forming a porous expanded PHA composite comprising a porous PHA material may include depositing a partially crystallized polyhydroxyalkanoate (PHA) polymer on a substrate at a deposition temperature below a melting temperature of the PHA polymer to form a PHA-substrate composite, and expanding the PHA-substrate composite at a temperature between the glass transition temperature of the PHA polymer and the melting temperature of the PHA polymer.
<a href="#">WO2024072947A1</a>	Kimberly Clark Co (US)	<b>In vitro bioproduction of polyalkanoates from polypropylene and polyethylene.</b> An enzymatic process and system are disclosed for producing bioplastic polymers from a thermoplastic polymer-containing post-use product. The thermoplastic polymer-containing post-use product can be pyrolyzed to obtain a pool of depolymerized alkanes. The pool of alkanes can be contacted in vitro with an enzyme or a mixture of enzymes to produce a bioplastic polymer.
<a href="#">WO2024083888A2</a>	Nestle SA (CH)	<b>Bio-Recycling of polyesters into PHA.</b> The present invention provides a method for producing polyhydroxyalkanoate (PHA) from polyester waste, the method comprising the steps of: (a) providing a culture broth comprising polyester waste; and (b) cultivating a microbe in the culture broth to produce PHA.
<a href="#">WO2024115238A1</a>	Qinetiq Ltd (GB)	<b>Composite bioplastic material.</b> A composite material comprising a bioplastic film, the bioplastic film including a first surface and a second surface, wherein the first surface denotes an inner facing surface and the second surface denotes an exterior facing surface, wherein the bioplastic film is comprised of a polypeptide-based or polysaccharide-based biopolymer, or a mixture of polypeptide-based and polysaccharide based biopolymer, and a bioplasticiser substance; and wherein the inner product-facing surface of the bioplastic film comprises a coating that includes alpha-eleostearic acid as a major component. Further provided are products containing the material and their uses in the fields of packaging, coatings and ink-printable substrates.
<a href="#">EP4389884A1</a>	Schwab Helmut (AT)	<b>Efficient production of enantiopure d-3-hydroxybutyrate.</b> The present invention relates to a polyhydroxybutyrate depolymerase for producing enantiopure (R)-3-hydroxybutyrate acid or a salt thereof comprising an amino acid sequence having at least 80% identity to SEQ ID No. 2 and a motif comprising amino acid sequence ANLQXSKVYL (SEQ ID No. 5), wherein X is threonine, serine, glycine, glutamic acid, glutamine or aspartic acid.
<a href="#">WO2024134456A1</a>	Stora Enso OYJ (FI)	<b>A method for manufacturing a PHA coated fiber-based substrate with a first and a second pha aqueous coating compositions and a fiber-based substrate coated with the method.</b> The present invention relates to a method for manufacturing a PHA (polyhydroxyalkanoate) coated fiber-based substrate, said method comprising the steps of: a) providing a fiber-based substrate having a first main surface and a second main surface; b) forming a first PHA layer by applying a foamed first aqueous coating composition comprising a first PHA and a foaming agent on the first main surface and drying the foamed first aqueous coating composition, wherein the foamed first aqueous coating composition is a foam having a foam density of 0.75 g/cm <sup>3</sup> or less; c) forming a second PHA layer by applying a second aqueous coating composition comprising a second PHA on the first PHA layer and drying the second aqueous coating composition. The present invention further relates to a PHA coated fiber-based substrate and a packaging container comprising a PHA coated fiber-based substrate.
<a href="#">WO2024101063A1</a>	Tokyo Inst Tech et al. (JP)	<b>Production method for polyhydroxyalkanoate.</b> Provided is a PHA polymerization enzyme that has high substrate specificity and makes it possible to synthesize a PHA that has a comparatively high molecular weight. A production method for a polyhydroxyalkanoate according to the present invention includes a step for introducing a gene for a class I polyhydroxyalkanoate polymerization enzyme (excluding polyhydroxyalkanoate polymerization enzymes derived from <i>Aeromonas caviae</i> ) into a microorganism and culturing the microorganism into which the gene was introduced in the presence of a carbon source. A mutant polyhydroxyalkanoate polymerization enzyme according to the present invention is derived from <i>Plesiomonas shigelloides</i> and is coded for by the base sequence of SEQ ID NO:4.



Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024074459A1</a>	Totalenergies Corbion BV (NL)	<b>Process for preparing crystallized polylactide.</b> The present invention relates to a process for improving the crystallization of polylactide, and in particular for increasing crystallization speed of a PLA polymer. The present invention relates to a process for the preparation of crystallized PLA pellets, which in particular comprises the steps of: a) providing a PLA polymer melt, wherein the PLA polymer has a content of D-lactide isomer of between 1.0 and 10.0 wt% of said PLA polymer; b) pelletizing the PLA polymer melt into PLA pellets, and c) crystallizing said PLA pellets, thereby obtaining a crystallized PLA pellets, wherein said process is characterised in that amide, preferably a fatty acid amide, is added to said PLA polymer melt prior to pelletization, to form a PLA polymer melt comprising amide in a total amount of between 10 and 2000 ppm of the PLA polymer melt. The present invention also relates to a crystallised PLA, in particular crystallized PLA pellets, obtainable or obtained by carrying out a process of the invention.
<a href="#">WO2024133381A1</a>	Truelsen Henrik (DK)	<b>Method for preparing a bioplastic unit and a bioplastic product.</b> The present invention relates to a method for preparing a bioplastic unit comprising the following steps: a) preparing a feed material of a polysaccharide originating from algae by adapting the viscosity of the feed material by removing or adding solvent during mixing or drying or squeezing or wetting or soaking, or by adapting size of the feed by grinding or downsizing into gravel-sized blocks or lumps, and optionally by adding additives, b) subjecting feed material(s) or the prepared feed material to a temperature above 20°C below the boiling point of the solvent, preferably to a temperature above 10°C below the boiling point of the solvent, c) while maintaining the increased temperature of step b), the pretreated material is shaped into a bioplastic unit by subjecting the pretreated material to an increased pressure e.g. during 3D printing, or extruding, or by pouring or injecting the pretreated material into a mould.

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

### Biofertilizantes, bioadhesivos, etc.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024134388A1</a>	Aladdin Mfg Corp (US)	<b>Latex additive from recycled plastic.</b> Undesirable materials that are frequently discarded from recycling desirable polymer-containing materials may be processed and used in the production of soft surfaces to produce soft surfaces with improved properties.
<a href="#">WO2024101183A1</a>	Dainippon Ink & Chemicals (JP)	<b>Quinacridone compound.</b> Provided are: a bio-derived quinacridone compound that can be used as a bio-red pigment and that is obtained by a safe, clean, green, and carbon-neutral approach; and a composition containing said compound. The present invention provides a quinacridone compound that contains radioactive carbon atoms <sup>14</sup> C and that has a structure represented by formula (B). (In formula (B), each X independently represents -Cl, -F, -Br, -I, -OH, -NO <sub>2</sub> , a C1 to C12 alkyl group, a C1 to C12 alkoxy group, a phenyl group, -COOH, -COO-C1 to C12 alkyl, or -CO-NR. Each R independently represents a hydrogen atom, an alkyl group, an alkenyl group, or a phenyl group. Each n independently represents 1 or 2.)
<a href="#">WO2024100602A1</a>	Landin Garza Luis Alejandro (MX)	<b>Process for the production of biofertilizers obtained from organic waste.</b> The present invention relates to the production of biofertilizers containing mineral nutrients and active compounds present in organic food waste. The process disclosed herein is intended to transform the mineral nutrients and active compounds present in organic food waste, rendering them suitable for use as soil conditioners or biofertilizers in agricultural crops of importance.
<a href="#">WO2024102066A1</a>	Nutrition Tech Research Pte Ltd (SG)	<b>Biofertilizer compositions and methods for their use.</b> Biofertilizer compositions are described made from insect frass and bacteria. The compositions can be wet or dry. Application of the compositions can reduce or eliminate plant pathogens on crops.
<a href="#">WO2024096808A1</a>	Organoclick AB (SE)	<b>Biobased binder compositions for nonwoven materials.</b> The present invention relates to biobased binder compositions which are environmentally benign, renewable, compostable and/or biodegradable. The biobased compositions comprise chitosan, an acid and a plasticizer. By treating a nonwoven material with a biobased binder according to the present invention, it is possible to provide a nonwoven material exhibiting excellent mechanical properties. The binder composition according to the present invention is easy to use for treatment of different types of nonwoven materials and can be adapted to provide specific properties to certain nonwoven materials and applications.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024119253A1</a>	Pinto Keller Rodolfo Oliveira (BR)	<b>Biofertiliser composition comprising thermophosphate dispersed in emulsified oil or in humic and fulvic acids.</b> The invention comprises a set of chemical components, especially used oil from domestic or industrial fryers, as well as humic and fulvic acids, with micro and nano particles of thermophosphate (fused phosphate) in dispersion. This dispersion will then be diluted in water for application by spraying in planting furrows or directly on plants as a foliar fertiliser. The composition of this invention also contains microbial inoculants because it is not harmful to same and even serves as a nutrient therefor. This invention therefore pertains to the field of chemicals and fertilisers. In one embodiment, the fertiliser composition is characterised in that it comprises, in percentage by weight (wt%): a) from 40 to 60 wt% micro and nano comminuted thermophosphate; b) from 30 to 40 wt% vegetable oil from domestic or industrial fryers; c) from 2 to 5 wt% emulsifier: polysorbate 80; d) from 2 to 5 wt% thickener: fumed silica or organophilic bentonites; e) from 2 to 5 wt% microbial inoculants (fungi and bacteria). In another embodiment, the fertiliser composition is characterised in that it comprises, in percentage by weight (wt%): a) from 40 to 60 wt% micro and nano comminuted thermophosphate; b) from 30 to 40 wt% humic and fulvic acids ; c) from 2 to 5 wt% emulsifier: polysorbate 80; d) from 2 to 5 wt% thickener: fumed silica or organophilic bentonites; e) from 2 to 5 wt% microbial inoculants (fungi and bacteria).
<a href="#">WO2024134092A1</a>	Saint Gobain Isover (FR)	<b>Method for preparing a thermosetting binder composition based on water-soluble or water-dispersible lignin ester, for binding fibres.</b> The present invention relates to a method for preparing a thermosetting binder composition, comprising the following steps: - mixing at least one lignin, at least one organic monocarboxylic or sulfonic acid, and at least one organic non-polymeric polycarboxylic acid; and - heating said mixture at a temperature of between 90°C and 170°C, preferably between 110°C and 150°C, for a duration of between 5 seconds and 5 minutes, preferably between 15 seconds and 1 minute, so as to form at least one water-soluble or water-dispersible lignin ester. The present invention also relates to a thermosetting binder composition that can be obtained by such a method, said binder composition containing at least one water-soluble or water-dispersible lignin ester, at least one residual lignin, at least one free residual organic non-polymeric polycarboxylic acid, and at least one free residual organic monocarboxylic or sulfonic acid. The present invention also relates to a method for manufacturing an insulation product comprising mineral fibres or natural organic fibres using a thermosetting binder composition as obtained previously, but diluted in water, and to an insulation product that can be obtained by the above-mentioned manufacturing method.
<a href="#">WO2024114863A1</a>	Schierbecker Handels GmbH & Co KG (DE)	<b>Fertilisers for nutrient introduction and soil improvement from charcoal, especially plant charcoal, and loaded microalgae.</b> The invention relates to a fertiliser for nutrient introduction and soil improvement comprising - charcoal selected from activated charcoal, biochar or plant charcoal, and - a microalgae mixture containing at least microalgae from at least one microalgae strain and cyanobacteria from at least one cyanobacteria strain, and - optionally containing yeasts and/or fungi. Secondly, the invention comprises methods for producing the fertiliser and methods for purifying an environmental medium or for disposing of microalgae.
<a href="#">WO2024133602A1</a>	Straumann Inst AG (CH) et al.	<b>Bioadhesive composition.</b> The present invention relates to a two-component composition comprising a first component A comprising water or an aqueous solution, and a second component B comprising a self-setting adhesive powder comprising at least a multivalent metal salt and phosphoserine, and at least one monocarbonate selected from the group consisting of sodium carbonate, ammonium carbonate and potassium carbonate, characterized in that the monocarbonate is present in a concentration between 4 and 12% by weight of component B.
<a href="#">EP4386061A1</a>	Tesa SE (DE)	<b>Polyhydroxyalkanoate - based pressure-sensitive adhesive.</b> The intention was to provide a substantially biodegradable pressure-sensitive adhesive being to a large extent based on materials of biological origin which combines sustainability features with good tack and good adhesion properties on a variety of substrates. This was accomplished by a pressure-sensitive adhesive comprising a polyhydroxyalkanoate, characterized in that the polyhydroxyalkanoate features 1 to 20 weight-% of structural units having a side chain functionalization moiety comprising at least 10 C-atoms.

## Biosméticos, Biofarmacéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024088808A1</a>	AGS Therapeutics SAS (FR)	<b>Extracellular vesicles from microalgae, their biodistribution upon intranasal administration, and uses thereof.</b> Provided are compositions containing microalgae extracellular vesicles (MEVs) formulated for intranasal delivery, whereby, upon intranasal administration the MEVs traffic through specific routes following intranasal administration to specific regions in the brain via the olfactory nerve and throughout the lateral olfactory tract (LOT) to interconnected brain regions. The MEVs traffic via neuronal axonal transport. The MEVs have the ability to cross-over synapses including: (i) the synapses between the olfactory sensory neurons (OSN) and the mitral/tufted neurons; (ii) the synapses between the mitral/tufted neurons and the local neurons in the various brain regions colonized by the lateral olfactory tract (LOT); and (iii) the synapses between the neurons in the brain regions colonized by the LOT and neurons from the frontal cortex, the hippocampus, the thalamus, and the hypothalamus. The compositions contain extracellular vesicles from microalgae (MEVs) that are loaded with bioactive cargo for treating, detecting, diagnosing, or monitoring a disease, disorder, or condition of the brain or involving the brain, particularly providing neuronal delivery of the cargo. The compositions and methods have a variety of applications as therapeutics and diagnostics for treating, diagnosing, and monitoring a disease, disorder, or condition of the brain or involving the brain. The compositions can be used in methods and uses for treating cancers involving the brain, and can be used, for example, to deliver therapeutics for psychiatric diseases, disorders, conditions, and to deliver therapeutics for neurodegenerative diseases, disorders, and conditions.
<a href="#">WO2024115646A1</a>	Bioactor BV (NL)	<b>Non-therapeutic use of an aronia berry extract.</b> The present invention relates to the field of food supplementation, in particular to the field of nutraceuticals, more in particular to the use of an Aronia berry extracts and compositions thereof. More specifically, the present invention relates to the non-therapeutic use of an Aronia berry extract or composition comprising such extract for improving ocular blood flow, improving symptoms of dry eyes, and/or improving symptoms of subjective eye fatigue in a human subject.
<a href="#">WO2024114951A1</a>	Biowell SL (ES)	<b>Sunscreen composition.</b> The present invention is directed to a biologic composition for providing sunscreen protection. More particularly, the invention is directed to a composition comprising a green seaweed from the genus <i>Chlorella</i> or a composition derived thereof and a cyanobacteria from the species <i>Arthrospira maxima</i> or a composition derived thereof. The invention particularly relates to the field of cosmetics and/or beauty products.
<a href="#">EP4349806A1</a>	Clariant Int Ltd (CH)	<b>Bio-based antimicrobial compounds.</b> The present invention relates to a compound of Formula (I) wherein n is an integer from 1 to 10; and wherein the compound of Formula (I) has at least 10 wt-%, preferably at least 25 wt-%, more preferably at least 50 wt-%, even more preferably at least 75 wt-%, particularly preferably 100 wt-%, bio-based carbon content, relative to the total mass of carbon in the compound.
<a href="#">WO2024137640A2</a>	Mielke Randall E (US)	<b>Extraction of compounds with beta-caryophyllene, compositions and uses thereof.</b> Provided are methods for extracting one or more target compounds, such as diterpenes, diterpenoids, triterpenes, and triterpenoids, from a natural biomass using beta-caryophyllene as an extraction solvent. Also provided are compositions comprising beta-caryophyllene, and optionally black cumin seed oil, each independently as a carrier, a delivery adjuvant, a pharmaceutical active ingredient, or any combination thereof; and a diterpene, a diterpenoid, a triterpene, a triterpenoid, or any combination thereof terpenes or triterpenes, including such compositions prepared by the methods herein. Optionally, the compositions further comprise a flavouring agent and/or one or more cannabinoids. Also provided are uses of the pharmaceutical compositions in the treatment of a disease, a disorder or a condition.
<a href="#">WO2024126621A1</a>	Oreal (FR)	<b>Use of an aureobasidium pullulans extract alone or in combination with a c-glycoside as a cosmetic active principle.</b> The present invention relates to the use of a cosmetic active principle comprising at least one extract of the biomass of yeast of the species <i>Aureobasidium pullulans</i> , characterized in that the extract comprises at least 25% sugars, by weight of dry matter of the extract, or in a composition comprising same, as a cosmetic active principle.

## Biocosméticos, Biofarmacéuticos

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4349356A1</a>	Phytoitalia Srl (IT)	<b>Method for the preparation of extracts enriched with saturated, monounsaturated and polyunsaturated long-chain fatty acids from tabebuia impetiginosa (lapacho).</b> The invention refers to extracts, compositions and formulations rich in longchain fatty acids, in particular unsaturated ones, isolated from the bark and inner parts of the bark, from the leaves, the flowers, the buds and other parts of Tabebuia impetiginosa (Lapacho or Pau d'arco) and their structural characterization for food, nutraceutical, dietary use. More particularly, the invention refers to compositions comprising fractions isolated and purified from the bark and inner parts thereof of Tabebuia impetiginosa by a specific process of extraction and particularly rich in monounsaturated and polyunsaturated fatty acids defined omega and essential.
<a href="#">EP4353088A1</a>	Servicio Andaluz de Salud et al. (ES)	<b>Compositions or combined preparations of essential oils and L-carnitine.</b> The present invention relates to a composition or combined preparation which comprises L-carnitine and essential oils, specially essential oils from savory (Satureja hortensis), parsley (Petroselinum crispum) and/or rosemary (Rosmarinus officinalis) and uses in the treatment, relief or prevention of diseases, as nutraceutical and / or prebiotic.
<a href="#">EP4350063A1</a>	Swedish Match North Europe AB (SE)	<b>An oral pouched product comprising a liquid permeable pouch of fibrous nonwoven material.</b> An oral pouched product comprising a filling material contained in a liquid permeable pouch of fibrous nonwoven material. The fibrous nonwoven material comprises a mixture of regenerated cellulose fibers and polyhydroxyalcanoate (PHA) fibers with a weight ratio of regenerated cellulose fibers to polyhydroxyalcanoate (PHA) fibers being in the range of from 20:80 to 50:50.
<a href="#">WO2024121525A1</a>	Univ Bordeaux et al. (FR)	<b>Extract of algae of the genus ulva for the treatment of disorders caused by a metabolic syndrome.</b> The present invention relates to an extract of algae of the genus Ulva and the use thereof in human and animal nutrition for the treatment of inflammation, preferably inflammation associated with a metabolic syndrome, and for the treatment of cognitive and/or emotional disorders caused by a metabolic syndrome. The present invention also relates to dietary supplements and food compositions comprising an extract of algae of the genus Ulva.

## Bioaditivos alimentarios

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024071243A1</a>	Ajinomoto KK (JP)	<b>Composition for foods.</b> The purpose of the present invention is to provide, inter alia, a novel composition for foods that can be favorably used to improve the quality of foods. The present invention relates to, inter alia, a composition for foods, that contains (A) an oil and/or fat and (B) a gelling agent and a flavorant material, and contains aqueous particles dispersed in the oil and/or fat.
<a href="#">WO2024137238A1</a>	Cargill Inc (US)	<b>Food colourant replacer composition, food composition comprising it and method of preparation thereof.</b> The present disclosure provides a food colorant replacer composition. The food replacer composition can include from 0.5 wt. % to 2.5 wt. % modified food starch obtained by n-octenyl succinic anhydride esterification of starch isolated from waxy maize; from 0.10 wt. % to 2.0 wt. % soluble rice flour obtained by enzymatic treatment of rice flour; and from 0.10 wt. % to 0.76 wt. % calcium carbonate. In various aspects, the food replacer composition can impart a whitening effect to a food product. Other aspects are also provided herein.
<a href="#">WO2024100298A1</a>	Douwe Egberts BV (NL)	<b>Edible beads comprising a non-dairy creamer.</b> The present invention relates to an edible bead comprising an outer polysaccharide gel membrane and a filling, wherein the filling comprises a non-dairy creamer and at least one soluble dietary fibre and wherein the filling comprises less than 15 wt.% sugars by weight of the filling. The present invention also relates to a process for preparing an edible bead, the process comprising the steps of: a) preparing a first solution comprising a metal salt, a non-dairy creamer and at least one soluble dietary fibre; b) preparing a second solution comprising at least one polysaccharide; and c) contacting the first solution with the second solution to form a polysaccharide gel membrane and encapsulating the first solution in the polysaccharide gel membrane.
<a href="#">WO2024110655A1</a>	Fermentationexperts AS (DK)	<b>Ingredient for improving shelf life.</b> The present invention relates to the use of an ingredient for improving the shelf life of a food product, wherein the food product comprising a basic food component and the ingredient, and the food product comprises within the range of 5-75% (w/w) of the ingredient and wherein the ingredient comprises a fermented vegetable material.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">EP4385331A1</a>	Inleit Ingredients SL (ES)	<b>Process for manufacturing a culinary cream and a creamer.</b> A (first) volume of a compound, of a group (15) comprising cream from milk, a vegetable fat in the liquid state and water, is mixed (4) with emulsifying micellar caseins (3), obtained from a (second) volume of skimmed milk (5), with caseins, which has been subjected to a chemical treatment (11) to solubilize the mineral elements of the caseins and to a membrane filtration (8, 9), to obtain a culinary cream or a creamer.
<a href="#">WO2024076917A1</a>	Innovative Flours LLC (US)	<b>Protein-complexed MCT oil, method of manufacture, and food products made therefrom.</b> Protein-complexed MCT oil includes MCT droplets or particles encapsulated by and/or complexed with protein-based wall material. Protein-complexed MCT oil can be used as an additive for food products. The wall material includes protein, e.g., pea protein, emulsifier(s), optional co-emulsifier(s), and optional polysaccharide(s). Protein-complexed MCT oil may optionally include supplemental oil(s) that contain one or more essential omega-3 fatty acids (ALA, EPA and DHA) and/or one or more essential omega-6 fatty acids. The protein-complexed MCT oil may be consumed by users as desired, e.g., by adding the protein-complexed MCT oil to food or drink products, such as plant flour (e.g., to make blended plant-MCT flour), coffee creamer, smoothies, sports drinks, bubble tea, jelly, ice cream, yogurt, milkshakes, processed meats (e.g., lunch meat), gravy, pet foods, baked foods, vitamin supplements, energy bars, and drink mixes. The food and drink products have increased nutrition provided by the MCT oil, pea protein, and polysaccharide.
<a href="#">WO2024111472A1</a>	J Oil Mills Inc (JP)	<b>Composition for cheese-like food, stretchability-improving agent for cheese-like food, cheese-like food, method for manufacturing cheese-like food, and method for improving stretchability of cheese-like food.</b> Provided is a composition for a cheese-like food that is to be used in a cheese-like food and can improve the stretchability of the cheese-like food over a wide temperature range. This composition for a cheese-like food contains the following components (a), (b), and (c). Component (a): an edible starch composition containing a starch-lipid complex obtained by heat-treating potato starch and a polyglycerol fatty acid ester under a pressurized condition of 0-20 MPa inclusive. Component (b): an etherified starch. Component (c): a polysaccharide thickener.
<a href="#">WO2024133636A1</a>	Nestle SA (CH)	<b>Gelled connective tissue analogue for use in plant-based products.</b> The invention relates to a method of making a gelled connective tissue analogue for a food product, said method comprising preparing a dispersion of a konjac glucomannan source, a carrageenan source, and a monovalent cation salt in water; optionally adding lipid as oil and/or melted fat to the dispersion, for example sunflower oil, and emulsifying to create an emulsion; hydrating the konjac glucomannan source and carrageenan source by agitating, for example for at least 5 minutes; heating to functionalize the konjac glucomannan source and carrageenan source; and cooling to form a gelled connective tissue analogue.
<a href="#">WO2024089059A1</a>	Nutricia NV (NL)	<b>Thickened formula for allergic infants.</b> The invention concerns formula for based on extensively hydrolysed protein and/or free amino acids for allergic infants that are thickened with a combination of xanthan gum and locust bean gum.
<a href="#">WO2024111666A1</a>	Sydecas Inc (JP)	<b>Binding ingredient comprising konjac paste and the like, shape-retained food product, and manufacturing method for shape-retained food product.</b> Provided are: a binding ingredient comprising konjac paste and the like, said binding ingredient containing no or reduced sugars and lipids and preventing the flavor and taste of a to-be-bound ingredient from being affected; a block-shaped food product; and a manufacturing method for the block-shaped food product. A manufacturing method 1 for a block-shaped food product 5 comprises: a preparation step for preparing a binding ingredient 2 and a to-be-mixed ingredient 3 that contains a particulate edible material; a shaping step for mixing the binding ingredient 2 with the to-be-mixed ingredient 3 and shaping the result thereof into a block shape; and a drying step for drying the block-shaped ingredient 4.

## Bioproductos alimenticios para animales

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024091091A1</a>	All Care Plus Corp (KR)	<b>Nutritional feed composition for animals and preparation method therefor.</b> According to a nutritional feed composition for animals and a preparation method therefor of the present invention, by enhancing palatability by adding coconut milk, and limiting protein, a nutritional liquid feed can be efficiently fed to animals whose kidney function has deteriorated due to aging or kidney disease.

Nº Publicación	Solicitante (País)	Contenido técnico
<a href="#">WO2024073579A1</a>	CH4 Global Inc (US)	<b>Red seaweed feed products and methods for processing red seaweed.</b> According to an embodiment, a feed product may comprise from about 10 wt. % to about 95 wt. % of a red seaweed material; from about 6 wt. % to about 40 wt. % of total oil; and about 10 wt. % or less of water, based on the total weight of the feed product. Further embodiments include methods of making and methods of using the feed products disclosed herein.
<a href="#">WO2024124013A1</a>	INT N&H Denmark APS (DK) et al.	<b>Feed formulations comprising a phytase for dairy ruminant animals.</b> Provided herein are diets for dairy ruminant animals containing phytase polypeptides or fragments thereof wherein the diet contains decreased or no added inorganic phosphate.
<a href="#">WO2024076759A1</a>	Mars Inc (US)	<b>Small dog food composition.</b> The present disclosure provides an animal food composition comprising hydrolyzed proteins, fructooligosaccharides (FOS), maize starch, omega-3 fatty acids, omega-6 fatty acids, and 0.26 g/Mcal or less of zeolite by weight relative to the total dry matter weight of the composition, and its use for preventing and/or treating cutaneous adverse food reaction in small dogs.
<a href="#">WO2024105525A1</a>	Nestle SA (CH)	<b>Dried animal digest compositions.</b> A dried animal digest composition can include dried animal digest particles having an animal fat content of about 16 wt % or less and a moisture content of about 3 wt % or less. The dried animal digest particles in this example have a volume diameter particle size distribution where D10 is from about 20 µm to about 50 µm, D50 is from about 60 µm to about 150 µm, and D90 is from about 160 µm to about 275 µm. Furthermore, the dried animal digest composition is substantially devoid of silicon dioxide flow aid.
<a href="#">WO2024074916A1</a>	Nestle SA (CH)	<b>Palatability enhancement of dry pet foods by fat modification.</b> A pet food product can include a dry pet food kibble; a modified fat which contains a first lipid and also contains a second lipid such that the modified fat has at least one property which is increased relative to the first lipid, the at least one increased property selected from the group consisting of hardness, crystallinity, viscosity, and solid fat content; a liquid digest on the dry pet food kibble and/or the modified fat; and a dried animal digest on at least one of the dry pet food kibble, the modified fat, and the liquid digest.
<a href="#">WO2024137252A1</a>	Novozymes AS (DK) et al.	<b>Process for reducing syrup viscosity in the backend of a process for producing a fermentation product.</b> The present invention relates to a process for reducing syrup viscosity at the backend of a process for producing a fermentation product (e.g., ethanol from corn), comprising adding an oxidoreductase after the fermenting step, before whole stillage is subject to separation, to decrease the quantity of particles in the thin stillage by increasing the size of 5 particles in the whole stillage, thereby reducing the viscosity of syrup produced by evaporating the thin stillage.
<a href="#">WO2024115560A1</a>	Saxo Siam Pte Ltd (SG)	<b>Animal feed composition and method for manufacture thereof.</b> Provided herein is a composition for animal feed comprising a fermented organic material, black soldier fly biomass, fermented black soldier fly frass and microbial biomass. Methods of producing the composition are also provided. The composition can be produced from food waste, and provides an environmentally-friendly alternative to existing protein sources for farmed animals, particularly fishmeal.
<a href="#">WO2024136814A1</a>	Selcuk Univ (TR)	<b>Up-cycled fermented food for carnivor and omnivor pet animals.</b> The invention relates to a fermented food for carnivorous and omnivorous animals, which regulates the digestive system of mono-gastric carnivorous and omnivorous animals living at home or on the street by providing healthier nutrition, prevents the transmission of infectious zoonotic diseases such as rabies, parvovirus and tuberculosis from animals to humans, has a sedative content, prevents the formation of internal and external parasites, and is prepared with natural ingredients, waste food and nutrients, and the production method thereof. The production of the fermented food that is the subject of the invention is carried out economically with high efficiency and the resulting food is easy to distribute and consume.
<a href="#">WO2024068532A1</a>	Veolia Environnement (FR)	<b>Composition for animal feed and associated production method.</b> The invention relates to a composition for animal feed comprising an insect meal and an insect oil.

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**Boletín elaborado con la colaboración de:**

**Agencia Estatal  
de Investigación**

C/ Torrelaguna, 58  
28071 Madrid

**Bioplat**

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

**CIEMAT**

Avda. Complutense, 40  
28040 Madrid  
Tel: 91 346 08 99  
E-mail: [uip@ciemat.es](mailto:uip@ciemat.es)  
[www.ciemat.es](http://www.ciemat.es)

**OEPM**

Paseo de la Castellana, 75  
28071 Madrid  
Tel: 91 349 53 00  
E-mail: [carmen.toledo@oepm.es](mailto:carmen.toledo@oepm.es)  
[www.oepm.es](http://www.oepm.es)



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