

JORNADAS TÉCNICAS

**MANEJO DE LA JARA PRINGOSA PARA LA OBTENCIÓN
DE BIOPRODUCTOS**

PRINCIPIOS ACTIVOS DE LA JARA PRINGOSA

USOS ACTUALES Y POTENCIALES

Alba Ramos-IDOASIS

WHO WE ARE



Grupo Natac





ABOUT NATAC

A Spanish business group engaged in **researching, developing, manufacturing and marketing ingredients of natural origin**, mainly plant extracts, for the following markets:



Nutraceutical



Pharmaceutical



Food



Animal Nutrition



Cosmetics

Science to Market

Mission

“Transferring scientific knowledge to industrially viable and sustainable projects that create value and improve the lives of people”

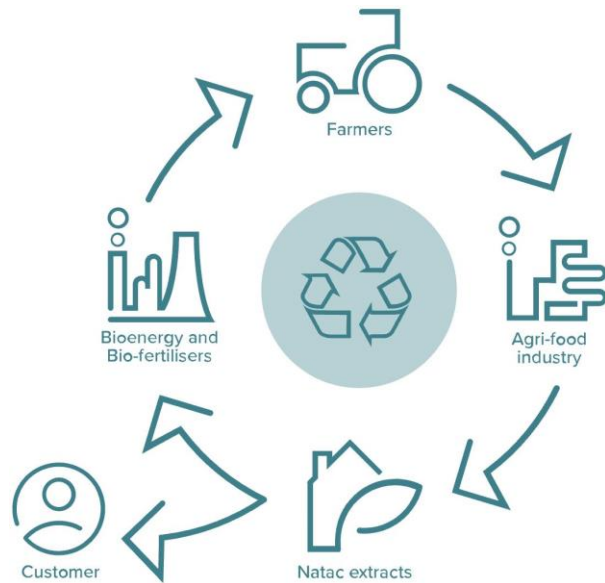
Where are we?

The strategic location of our production, R&D and Quality units in Spain guarantees European standards.



Business model

A sustainable business model based on the upcycling of agro-industrial and forestall biomass into high **value-added ingredients** and decrease environmental impact. The system ensures a **full use of botanical resources**.



Benefits of the model:

Specialisation in Mediterranean plants

Control from the farmer to your product

A wide variety and large quantity of raw materials

Products with various applications

Innovative ingredients with scientific support





R&D UNIT

- Functional ingredients developed based on scientific evidence
- Traditional and innovative extraction and purification technologies
- Analytical methods for ingredients and finished products
- Stability studies
- Pilot and industrial scaleup development
- Functional characterization (*in vitro* and *in vivo*)



R&D PROJECTS



COORDINATOR

SME Instrument
AQUOLIVE
BY NATAC
aquolive.com/

BBI JTI 2020
LEAF4VALUE

PARTNER

PATH  SENSE
pathsense.eu/


**Olive
NET**
olive-net.eu/


newcotiana
newcotiana.webs.upv.es/

BBI-JTI 2018-2019
MAGNIFICENT
magnificent-algae.eu/


PRO-ENRICH
pro-enrich.eu/

R&D PROJECTS SUPPLY A VARIETY OF INDUSTRIES



Human Health



Technological Ingredients for the Food Industry



Ingredients for the Pharmaceutical Industry



Animal Nutrition



Cosmetic Ingredients



Our Role in BeonNAT



What is our role in BeonNAT?



Support in the Chemical profile of the species selected per country



Essential oils and vegetal extracts

Extraction, fine chemical and functional characterisation of raw wild material, optimisation of extraction conditions and purification of chemical families/singles compounds of extracted wild and cultivated species, bioactivity assays



Support in the incorporation of BeonNat pure compounds to the polylactic acid



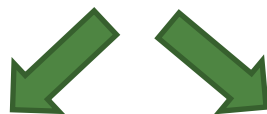
Absorbent pellet design using raw collected material



Horizon2020
European Union Funding
for Research & Innovation

Cistus ladanifer

Extraction and characterization fine chemical compounds



A. Fully chemical characterize high value-added compounds

B. Screening of bioactive properties: antioxidant and antimicrobial activity

- ❖ Applications: already present for direct implementation or awaiting a discovery aspect.
- ❖ Interesting chemistry (complex molecules, not chemical synthesis)
- ❖ Variability in content of some chemicals related with cultivation factors

Species code	Species	Country code	Sample Code	Sample received
BET	<i>Betula pendula</i>	DE	DE-BLUNO-BET	Bark
		RO	RO-PALTIN-BET	Conditioned biomass
CAR	<i>Carpinus betulus</i>	RO		Bark
CIS	<i>Cistus ladanifer</i>	ES	ES-BUSTARES-CIS	Fine fraction
				Before distillation
				Distilled biomass
				Essential oil
CYT	<i>Cytisus scoparius</i>	DE	DE-BLUNO-CYT	Hydrolate
JUN	<i>Juniperus communis</i>	ES	ES-BARRIOMARTIN-JUN	Conditioned biomass
				Bark
				Before distillation
				After distillation
				Essential Oil
POP	<i>Populus nigra</i>	RO	RO-ZAMOSTEA-POP	Hydrolate
				Bark
ROB	<i>Robinia pseudoacacia</i>	DE	DE-WELZOW-ROB	Fine fraction
		RO	RO-SUCEAVA-ROB	Bark
				Fine fraction
				Before distillation
ROS	<i>Rosmarinus officinalis</i>	ES	ES-BONETE-ROS	Before distillation (rosmarinic and carnosic)
				Distilled biomass
				Essential Oil
				Hydrolate
				Fine fraction
RUB	<i>Rubus fruticosus</i>	DE	DE-CBUNI-RUB	Bark
ULP	<i>Ulmus pumila</i>	ES	ES-CEDER-ULP	Conditioned biomass

Cistus ladanifer

Extraction methodologies:

- ✓ Maceration
- ✓ Ultrasound assisted extraction
- ✓ Microwave assisted extraction



Species code	Species	Country code	Sample received	Analysis started	EXTRACTION METHODOLOGIES			IDOASIS		IPB	
					MAC	UAE	MAE	Analyses	Results	Analyses	Results
CIS	<i>Cistus ladanifer</i>	ES	ES-BUSTARES-CIS	Before distillation	IPB: 1g/30mL (Ethanol 80%) _1h+1h IDS: ratio 1:10 (MeOH 60%, MeOH 100%)	IPB (Ethanol 80%) 3 different operating conditions: 1- 1.5g/50mL_10min_125W 2- 1.5g/50mL_5min_250W 3- 1.5g/50mL_10min_500W	IPB (Ethanol 80%) 3 different operating conditions: 1- 1g/30mL_10min_200 W_70°C 2- 1g/30mL_10min_400 W_70°C 1g/30mL_10min_800 W_65°C	HPLC-DAD: flavonoids	The preliminary analysis of total flavonoids by HPLC-DAD did not revealed an interesting composition. Based on literature research, it has been found a potential interest in its composition in polyunsaturated fatty acids. Further work could include FAMES analysis by GC-FID	Phenolic compounds	Dihydroxypropiofenone-3-glucoside
				Distilled biomass						Phenolic compounds	Dihydroxypropiofenone-3-glucoside
				Essential oil	CIEMAT : steam distillation (0.5 barg, 25 kg h-1 / 2 batch of 400kg/ 6h)					Terpenoids	a-pinene (54%), bornyl acetate=viridiflorol=camphene=4%
				Hydrolate	Liquid-Liquid Extraction (2 diethyl ether + 3 hexane cycles)					Terpenoids	0.07% EO trans-pinocarveol (24%), terpinen-4-ol (15%), endo borneol (8%), verbenone (8%), myrtenol (6%)

Cistus ladanifer

Screening of bioactive properties



IPB

Antimicrobial Activity

- Broth microdilution method
- Gram-negative/gram-positive bacteria and fungi
(MIC, MBC and MFC determination)

Antioxidant Potential

- Cellular Antioxidant Activity Assay (CAA)
- Thiobarbituric Acid Reactive Substances (TBARS)
- Oxidative Hemolysis Inhibition Assay (OxHLIA)
- Reducing Power Assay (RP)

Hepatotoxicity

- Sulforhodamine b Assay

- ❖ Extracts from *Cistus ladanifer* are moderate and strong inhibitors against more clinical and food bacteria.
- ❖ Can be considered actives against fungi.
- ❖ Essential oil: good antimicrobial activity.

Cistus ladanifer

Botanical drug: Leaves and oleoresin from *Cistus Ladanifer* L.

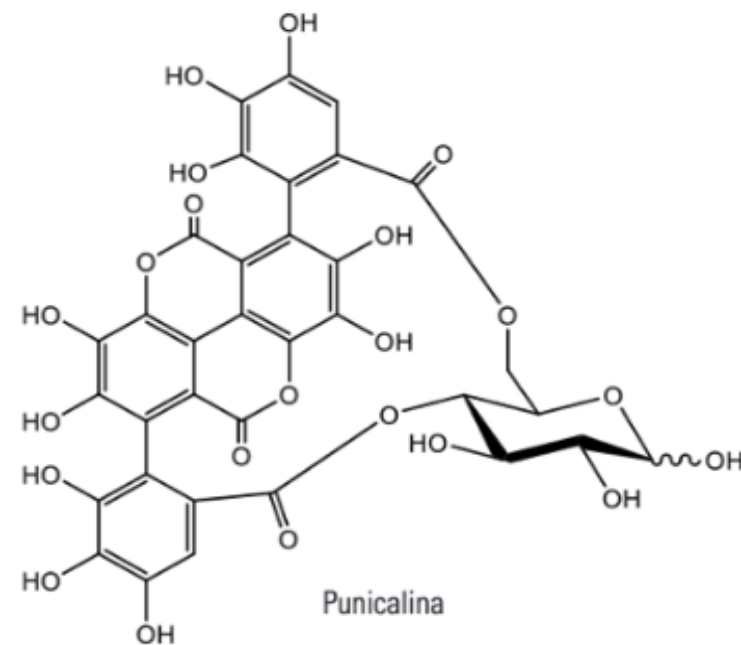
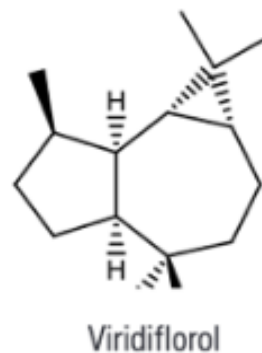
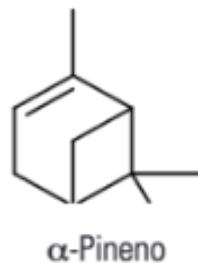


Cistus ladanifer

Main constituents:

Oleoresin: ladanol,
sesquiterpenes

Aerial parts: essential oil,
flavonoids, phenolic acids,
and ellagitannins



Cistus ladanifer



Therapeutic and pharmacological properties

It has been popularly used as a sedative and in gastric disorders. Activities have been experimentally described:

- ✓ Anti-inflammatory
- ✓ Antifungal
- ✓ Antiplatelet
- ✓ Antidepressant
- ✓ Antispasmodic
- ✓ Antihypertensive
- ✓ Immunomodulatory
- ✓ Antitumour

Cistus ladanifer



Indication/recommendations

Popular uses: anxiety, insomnia, gastritis, gastroduodenal ulcers; in external use for osteoarticular inflammations, myalgias, muscular contractures, neuralgia

Dosage

Popular use: 5% infusion

Cistus ladanifer



Marketed products: single presentation

EJEMPLO: Aceite esencial de *Cistus ladaniferus* o.p. ramas s.b. α -pineno, trimetilciclohexanona (Jara). Frasco de 5 mL.

[Dietéticos Intersa](#)

Cistus ladanifer



Marketed products: single presentation

Bio Essential Oil Jara. 100% aceite esencial quimiotipado de rama con hoja de jara (*Cistus ladanifer* L.) ecológico. QT: Alfa-pineno, Ledeno. Frasco de 5 mL. Uso interno: 1 gota mezclada con un poco de miel, melaza, azúcar moreno o aceite de oliva, dos o tres veces al día.

También se puede añadir 1 gota a un vaso de infusión y tomar 2 vasos al día. Uso externo: aplicar localmente 1 o 2 gotas diluidas en un poco de aceite de oliva; incluso se puede empapar un algodón con el aceite diluido y aplicar en la nariz para ayudar a parar el sangrado.

[Equisalud](#)

Cistus ladanifer

Planta	Composición	Contenido
<u>Jara</u>	Extractos de flor de jara,	
<u>Sauce</u>	sauce y	
<u>Ulmaria</u>	ulmaria	
<u>Eucalipto</u>	Jarabe de sirope de frutas frescas de bajo índice glucémico, vitamina C, aromas naturales y aceite esencial de eucalipto	

Complemento alimenticio con azúcares líquido para beber, con vitamina C, flor de jara, sauce y spiraea. La Vitamina C contribuye al normal funcionamiento del sistema inmunitario.

Marketed products: combinations

Posología

3 sticks diarios antes de las principales comidas, bien de forma directa o en un vaso con agua o infusión.

Presentación

15 sticks monodosis de 10mL.
Complemento alimenticio.



[Derbós Laboratorio Natural](#)

Cistus ladanifer

Planta	Composición	Contenido
Cada vial contiene:		
<u>Jara</u>	Extracto acuoso de Jara (<i>Cistus ladaniferus</i>)	2 g
<u>Regaliz</u>	Extracto de Regaliz (<i>Glycyrrhiza glabra</i>) exento de ácido glicirrético.	60 mg
Excipientes: jarabe de fructosa, sorbato potásico, aroma.		

Marketed products: combinations

Posología

Tomar 10 mL al día antes de la comida principal. Tomar 10 días seguidos, descansar una semana y repetir si es necesario.

Presentación

10 frascos de 10 mL.



Complemento alimenticio. Ayuda a conseguir tu bienestar digestivo y a evitar las molestias ocasionadas durante la digestión gracias a su efecto beneficioso sobre el proceso digestivo.

Cistus ladanifer

Cosmetics products in the market



Swizon

Retinol Night Moisturizer

Retinol moisturizing cream.

Uploaded by: chlwin on 07/10/2020

Cistus Ladanifer Leaf Extract in anti-aging cream

Aqua ⓘ, Avena Sativa Protein Extract, Pinus Pumilio Oil, **Cistus Ladaniferus Leaf Extract** ⓘ, Sea Water ⓘ, Betula Platyphylla Japonica Bark Extract, Linum Usitatissimum Linseed Oil ⓘ, Bacillus Rice Bran Extract/Soybean Extract Ferment Filtrate ⓘ, Glyceryl Stearate ⓘ, PEG-100 Stearate ⓘ, Cetearyl Alcohol ⓘ, Retinol ⓘ, Phenoxyethanol ⓘ, Sodium Hyaluronate ⓘ, Triticum Vulgare Wheat Germ Oil ⓘ, Carbomer ⓘ, Triethanolamine ⓘ, Vitamin B5 ⓘ, Vitamin C ⓘ, Vitamin E ⓘ, Aloe Vera ⓘ, Shea Butter ⓘ, Propolis, Disodium EDTA ⓘ

Read more on how to read an ingredient list >

Cistus ladanifer

Cosmetics products in the market



Essential oil as anti-aging ingredient

ACEITE ESENCIAL 100% PURO Y NATURAL

Este auténtico aceite esencial autóctono de la península y el Mediterráneo ha sido destilado de una cuidada selección de hojas y tallos. Se precisa de una a dos toneladas de planta para obtener un solo kilogramo de su aceite esencial. Es característico por sus propiedades fijadoras y un aroma balsámico, dulce, terroso, calido y herbáceo. **Es empleado como un tónico, astringente y agente anti-envejecimiento en cosmética casera.** También puedes combinarlo con nuestra crema base. ¡Cómpralo en Essenciales en su mejor calidad!

Cistus ladanifer

Cosmetics products in the market

Ancient Greek medicinal plant, RockRose



Rockrose is a medicinal plant with white, yellow, and pink flowers found in rocky soils in the Mediterranean region. It contains rich polyphenol, powerful antioxidant, and, therefore, has been widely used for folk remedies.



Thank you!

Any question?

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