NOVA PACK

NOVEL ANTIMICROBIAL COATINGS AND PACKAGING IN THE MEDITERRANEAN

Agri-food Value Chain

Newsletter nº3 May 2026

The NOVAPACK project continued advancing its mission to promote sustainable innovation in the Mediterranean food sector. Bringing together an interdisciplinary consortium of technology centres, universities, and companies, NOVAPACK focuses on reducing food waste and minimising the use of petroleum-based plastics through the development of bioactive, biodegradable, and antimicrobial coatings and packaging solutions. These materials are derived from valuable compounds extracted from fruit and vegetable by-products, contributing to a circular economy approach. Through these efforts, the project aims to extend the shelf life and enhance the safety of food products, while significantly reducing the environmental impact associated with conventional packaging.

In January 2026 (13 and 14), the 2nd General Assembly of the NOVAPACK project took place in Murcia, organised by Eversia and CTNC. The event was held at Eversia's new facilities in Lorquí and included a visit to the CTNC facilities, including its pilot plant. The main objective of the meeting was to review the consortium's progress in the development of sustainable packaging solutions and to coordinate the next phases of the project.

Duration: 1/12/2024 till 30/11/2027

CONSORTIUM

UNIVERSIDADE CATÓLICA PORTUGUESA

Centro Tecnológico Nacional de la Conserva y Alimentación

AIMPLAS

ZiNA FRESH Les Jardins du Sud

eversia everything about packaging

agrogrin tech

National Research Centre NRC

UNIVERSITÉ DE GABÈS University of Gabes جامعة قابس

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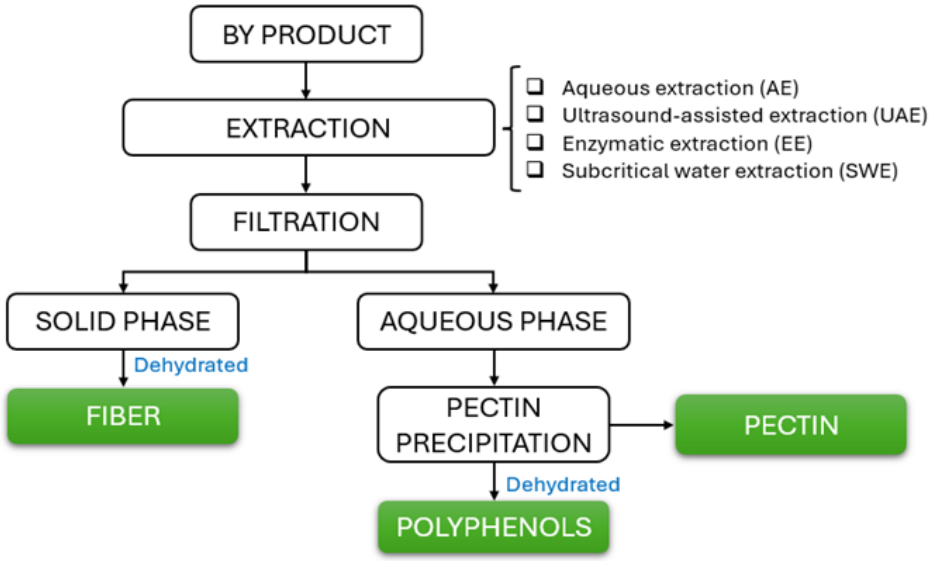
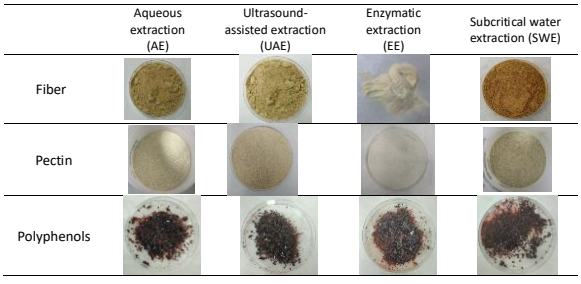
TECHNICAL ISSUES

CTNC has optimised sustainable extraction technologies to recover high-value compounds from lemon and pomegranate by-products. Using aqueous, ultrasound-assisted, enzymatic, and subcritical water extraction, the team successfully obtained functional fibres, pectin, and polyphenol-rich extracts with antioxidant and antimicrobial potential.

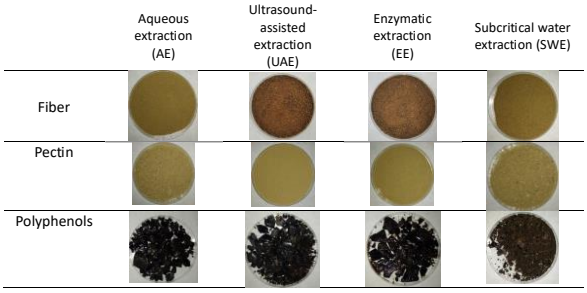
Among the tested technologies, enzymatic extraction showed the highest performance for both by-products, highlighting their strong potential for circular bioeconomy applications and sustainable packaging developments. The recovered ingredients will support the development of innovative antimicrobial coatings and bio-based packaging materials within NOVAPACK.



Process steps for the recovery of compounds of interest from pomegranate and lemon by-products



Pectin and polyphenol phases obtained from different extraction technologies applied to lemon by-products.



Solid and liquid extraction phases obtained from different technologies applied to pomegranate by-products.

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TECHNICAL ISSUES

Within WP4 of the NOVAPACK project laboratory-scale activities have continued focusing on the development and optimization of biobased formulations derived from different fruit by-products. AIMPLAS has continued experimental work using a Brabender torque rheometer, evaluating new formulations incorporating additional extracts and fibres provided by UCP, including tomato, grape and olive fibres. In addition, several bioactive compounds such as antioxidants, anthocyanins and polyphenols were incorporated into the formulations in order to enhance the functional properties of the developed materials. Moreover, to assess the processability of the developed materials, plates were produced by hydraulic press after the compounding process (see Figure). The obtained plates will be further characterized in order to investigate the properties imparted by the incorporated bioactive substances.

Insoluble fibers provided by UCP and CTNC (on the left), plates obtained by reprocessing in a hydraulic press (in the middle and on the right).

NRC partner: Tomato peel was characterised and cutin was extracted from dried tomato peel at laboratory scale. GC-MS analysis was carried out for cutin to identify its composition.

Development of Chitosan / Pectin Bioactive Films Containing lemon Essential oil for Sustainable Food Packaging

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DISSEMINATION ACTIVITIES

The NOVAPACK team and their participation in 11 Arab Biotechnology Association in the Arab World Conference "Towards Advancing Biotechnology Innovations in the Arab World" 23-24 November 2025, NRC, Egypt.

At the event "**20 years of EU-Egypt R&I cooperation – Paving the way to new horizons**", held at the Sofitel El Gezirah Hotel in Cairo (30th November), the collaboration between CTNC and NRC Cairo in PRIMA projects was presented as a success story, including the NOVAPACK project coordinated by the University of Coimbra (UCP, Portugal). From left to right: Prof. Dr. El Sayed Fathi El Habbasha (NRC Cairo), Dr. Heba Gaber, Regional Officer for Scientific Research and Innovation at the European Union Delegation in Egypt, Prof. Dr. Faten Mohamed Ibrahim (NRC Cairo), and Ángel Martínez, European projects expert representing CTNC.

On 1 December 2025, the event "Egypt–Spain Collaboration within the EU Framework" was held at the Ministry of Higher Education and Scientific Research of Egypt. The event was chaired by Cristina Fraile, Minister Counsellor at the Embassy of Spain in Egypt, and Walaa Sheta, CEO of the Science and Technology Development Fund (STDF).

The CDTI Delegate for North Africa and the Middle East invited representatives from CTNC, STDF, Professor El Sayed Fathi El Habbasha and Professor Faten Mohamed Ibrahim, both from NRC Cairo, to participate in a roundtable discussion. During the session, they presented their joint PRIMA projects, MEDISMART and NOVAPACK, as well as other proposals currently under evaluation.

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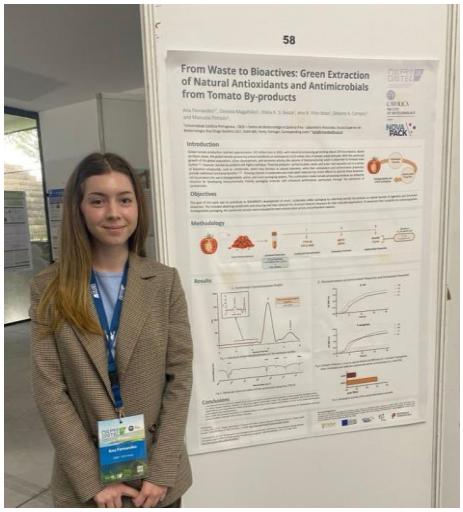
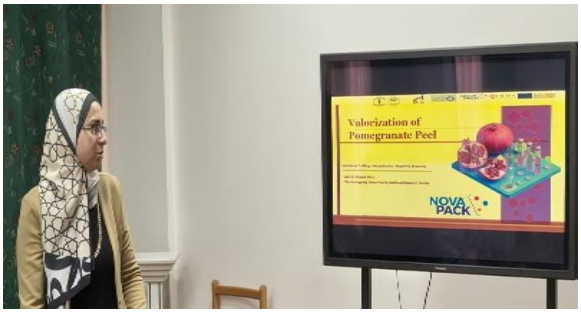
DISSEMINATION ACTIVITIES

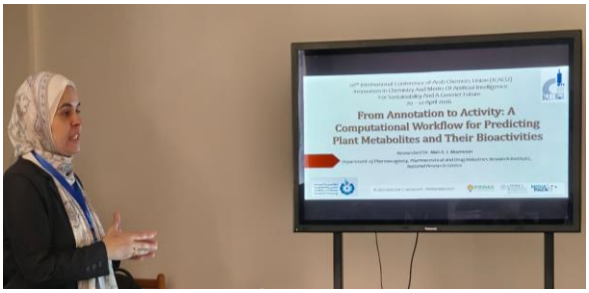
Communications: poster and oral

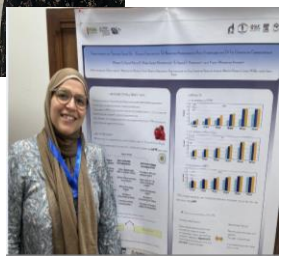


- Ana Fernandes from ESB-UCP (Porto, Portugal) presented the poster entitled: “From Waste to Bioactives: Green Extraction of Natural Antioxidants and Antimicrobials from Tomato By-products” at Microbiotec’25 Conference | University of the Azores-Portugal, 4-6 December 2025. This work highlights the valorisation of tomato processing by-products through green extraction approaches, demonstrating their potential as sustainable sources of natural antioxidants and antimicrobial ingredients. The results reinforce the relevance of agri-food side streams as high-value bioactive ingredients, fully aligned with circular economy and sustainability principles.

- 20-22 April 2026. Prof. Faten M. Ibrahim, and NOVAPACK team, NRC, Egypt, through their participation in 20th International Conference of Arab Chemists Union (ICACU) Innovation in Chemistry and Merits of Artificial Intelligence for Sustainability and a Greener Future held in National Research Centre Cairo- Egypt.







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DISSEMINATION ACTIVITIES

Oral communications

- CTNC: On 20 February, the progress of the NOVAPACK project was presented to students at the University of Murcia. Dr. Francisco Lorca was responsible for bringing the NOVAPACK project closer to future professionals in the agri-food sector.

Article publications

New article publication from the NOVAPACK Project, resulting from a successful collaboration between the National Research Centre (NRC, Egypt) and ESB-UCP (Porto, Portugal). This achievement reflects the strong international partnership and shared commitment to advancing innovative research within the framework of the NOVAPACK Project.

Title: Impact of Thermal Processing Associated with Essential Oil Recovery on the Phenolic Metabolome and Bioactivity of Lemon, Mandarin, and Orange Peel Wastes.

ACS FOOD SCIENCE & TECHNOLOGY

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Article

Impact of Thermal Processing Associated with Essential Oil Recovery on the Phenolic Metabolome and Bioactivity of Lemon, Mandarin, and Orange Peel Wastes

Faten Mohamed Ibrahim, Mona M. Marzouk, Eman Abdelsalam, Daniela Magalhães, Wedian El-Sayed Ashour, Manuela Pintado,* El Habbasha S. F, and Reda Sayed Mohammed

Cite This: https://doi.org/10.1021/acsfoodscitech.5c01296

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DISSEMINATION ACTIVITIES

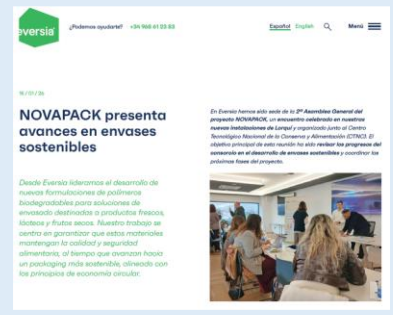
SYNERGY EVENTS

The Head of the Technology Department at CTNC, Presentación García Gómez, the Pilot Plant Manager, David Quintín, and researcher Francisco Lorca attended Alimentaria Barcelona 2026, held from 23 to 26 March 2026 at the Gran Via venue of Fira de Barcelona.

Alimentaria Barcelona is a leading international event for the food, beverage, and gastronomy industries, bringing together professionals from across the value chain, including food production, distribution, food service, and technological innovation.

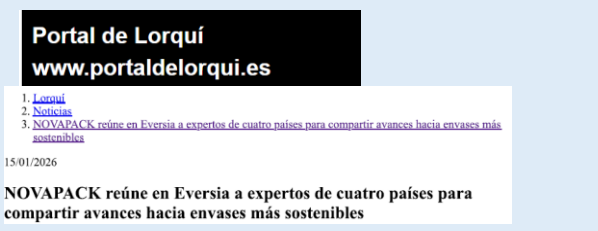
Within this context, the NOVAPACK team attended technical sessions and conducted visits aligned with the project's strategic objectives. Activities focused on identifying innovative solutions in active and sustainable packaging, including bio-based materials, antimicrobial coatings, and preservation technologies aimed at extending food shelf life and reducing waste. Participation in presentations and live demonstrations also enabled the validation of market trends, the identification of emerging technologies, and the establishment of contacts with companies interested in implementing these solutions in real industrial environments.

NOVAPACK Media Posts


eversia

NOVAPACK presenta avances en envases sostenibles

Desde Eversia lideramos el desarrollo de nuevas formulaciones de polímeros biodegradables para soluciones de envasado destinados a productos frescos, lácteos y frutos secos. Nuestro trabajo se centra en garantizar que estos materiales mantengan la calidad y seguridad alimentaria, al tiempo que avanzan hacia un packaging más sostenible, alineado con los principios de economía circular.


Portal de Lorquí
www.portaldelorqui.es

1. Lorquí
2. Noticias
3. NOVAPACK reúne en Eversia a expertos de cuatro países para compartir avances hacia envases más sostenibles

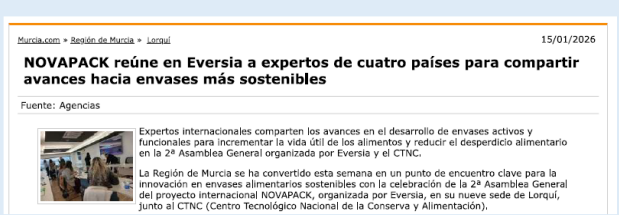
15/01/2026

NOVAPACK reúne en Eversia a expertos de cuatro países para compartir avances hacia envases más sostenibles


Alimarket
Cuestión de confianza

Eversia reúne a expertos de cuatro países para avanzar en el proyecto 'Novapack'

Noticias de Envase > Envases / Embalajes de Plástico | 16/01/2026 | ALIMARKET ENVASE


Murcia.com » Región de Murcia » Lorquí 15/01/2026

NOVAPACK reúne en Eversia a expertos de cuatro países para compartir avances hacia envases más sostenibles

Fuente: Agencias

Expertos internacionales comparten los avances en el desarrollo de envases activos y funcionales para incrementar la vida útil de los alimentos y reducir el desperdicio alimentario en la 2ª Asamblea General organizada por Eversia y el CTNC.

La Región de Murcia se ha convertido esta semana en un punto de encuentro clave para la innovación en envases alimentarios sostenibles con la celebración de la 2ª Asamblea General del proyecto internacional NOVAPACK, organizada por Eversia, en su nueve sede de Lorquí, junto al CTNC (Centro Tecnológico Nacional de la Conserva y Alimentación).

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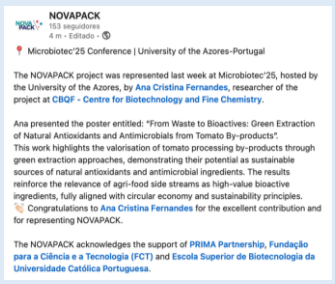
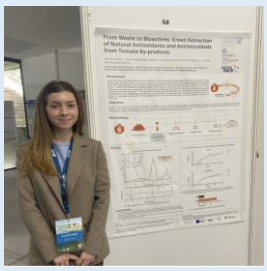
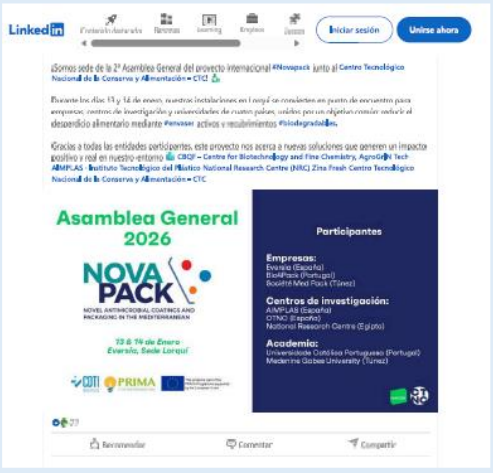
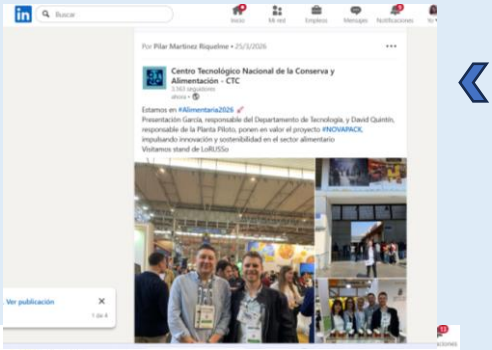
DISSEMINATION ACTIVITIES

NOVAPACK LinkedIn Posts









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International Mobility

- Daniela Magalhães from the Faculty of Biotecnology-Universidade Católica Portuguesa (ESB-UCP) carried out a one-month mobility stay from 13 April to 13 May 2026 at Centro Tecnológico Nacional de la Conserva y la Alimentación (CTNC, Murcia, Spain), within the framework of the NOVAPACK project. During this period, she worked on the production of carotenoid extracts from tomato and anthocyanin extracts from grape using microwave- and ultrasound-assisted extraction techniques.

Ultrasound-Assisted Extraction

Microwave-Assisted Extraction

Carotenoids-rich extract

Anthocyanins-rich extract

- Ibtissem Belaid from University of Gabès (Tunisia) also carry out a mobility stay within the framework of the NOVAPACK project from 8 May to 31 July 2026.

Thank you

The content of this newsletter represents the view of the NOVAPACK project only and is its sole responsibility. It does not necessarily reflect the opinion of the European Union.

This publication was partly carried out within the framework of the NOVAPACK project. The NOVAPACK is part of the PRIMA program supported by the European Union.
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More information: https://nova-pack.eu/

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